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COURSE FOR PROSPECTIVE ELEMENTARY CLASSROOM
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A FEASIBILITY STUDY OF A SELF-PACED, PERFORMANCE-BASED, LABORATORY-CENTERED MUSIC FUNDAMENTALS COURSE FOR PROSPECTIVE ELEMENTARY CLASSROOM TEACHERS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By

Judith Asbell McMillen, B.M., M.S.

*****

The Ohio State University

1971

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>ACKNOWLEDGMENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VITA</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
</tbody>
</table>

**Chapter**

1. INTRODUCTION AND PROBLEM ........................................ 1
   - Introduction
   - Problem

2. REVIEW OF THE LITERATURE ........................................ 21
   - The Individualization of Instruction
   - The Use of Independent Study in Teacher Education
   - Educational Technology and Music Education
   - Summary

3. METHODOLOGY ...................................................... 42
   - Developmental Phase
   - Implementation Phase
   - Analysis of Data

4. ANALYSIS OF THE DATA ............................................ 77
   - Results

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS .............. 109
   - Summary
   - Conclusions and Recommendations

LIST OF APPENDICES ................................................ 125
APPENDIX

A. COURSE SYLLABUS ........................................ 126
B. EXAMPLES OF TRANSCRIPTS FOR AUDIO-TAPES ....... 135
C. BACKGROUND DATA QUESTIONNAIRE ..................... 138
D. TEST OF MUSICAL KNOWLEDGE ............................ 139
E. CONFIDENCE SCALE OF MUSICAL PERFORMANCE SKILLS ........................................ 147
F. STUDENT SATISFACTION SCALE FOR INSTRUCTIONAL METHODS EMPLOYED ....................... 149
G. PILOT GROUP SCORES ........................................ 152
REFERENCE GROUP SCORES .................................... 155

BIBLIOGRAPHY ...................................................... 160
LIST OF TABLES

Table                                                                 Page

1. Musical Experience of the Total Enrollment in Music 270.......................... 10
2. Percentage Distribution of Raw Scores on the Pre-Test of Musical Knowledge for the Total Enrollment in Music 270......................... 11
3. Analysis of Raw Scores by Group on the Test of Musical Knowledge Pre-Test and Post-Test........................................ 13
4. Analysis of Raw Scores by Group on the Test of Musical Knowledge Post-Test and Final-Test........................................ 15
5. Analysis of Confidence Scores by Group.................. 17
6. Pilot Group: Mean Rank of Items on Efficiency, Effectiveness, and Satisfaction........ 13
7. Pilot Group's Suggestions for Improving the Course............................... 15
8. Reference Group's Mean Rating of the Regular Course.............................. 16
9. Reference Group's Suggestions to Improve Music 270................................ 17
10. Weekly Record of Pilot Group Completion of Seven Final Tasks..................... 19
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pilot Group: Comparison of the Pre-Test Post-Test Means of the Confidence Scale Items..........................</td>
<td>89</td>
</tr>
<tr>
<td>2.</td>
<td>Reference Group: Comparison of the Pre-Test Post-Test Means of the Confidence Scale Items..........................</td>
<td>90</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION AND PROBLEM

Introduction

The music preparation of the elementary classroom teacher has been a cause for concern and anxiety for the music educator and for the classroom teacher as well. In recent years this concern has prompted many investigations. Some studies have taken the direction of surveying and evaluating situations in existence to discover strengths, weaknesses, and relationships. Other investigations have involved instructional materials and curricula. There are studies which indicate that elementary classroom teachers' problems in music activities are phenomenological in origin.

The Self-Contained Classroom and Music Instruction

The history of music education in the public schools of the United States shows that in the beginning the special music teacher had the responsibility for the teaching of music. However, as the self-contained classroom concept was born of necessity from a combination of social and economic factors and an inadequate supply of music specialists during the 1880's, the responsibility
for this specialized education was shifted to the classroom teacher.¹

In today's public schools there are three types of music instruction based on the responsibilities assigned to various teachers. First, there are those classroom teachers teaching in the self-contained classroom arrangement in which the classroom teacher provides the instruction in all subject areas as well as the creative arts. Secondly, there are the music specialists who provide the entire music instruction. A third arrangement is a cooperative one in which the classroom teachers and the music specialists work together in the music instructional program.²

Ample literature exists to document the controversy over the self-contained classroom arrangement and the teaching of music. Articles such as those entitled "But I Can't Teach Music,"³ "Classroom Teachers Can Teach Music,"⁴


and "In Defense of the Special Music Teacher" are but a few examples. The cases for and against each kind of music teaching arrangement have been stated many times by concerned music educators, school administrators, and general educators.

The self-contained classroom concept implies that the classroom teacher will provide music for the children when it is appropriate to the needs of the children. Many experts believe music education may be transformed from an isolated segment of the curriculum to a part of the total school program by relating music activities to the other subject areas, thus no longer requiring adherence to a rigid time schedule. Consequently, music instruction, when it is provided by a skillful classroom teacher, may become more meaningful to the children. This was the position taken by Mursell in a 1950 report on the music program in the state of Maryland in which he stated:

Work in music is conceived as an integral part of general education, and its central purpose is to contribute to the total development of the child. This can hardly be effected

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if most of the instruction is in the hands of specialists who make infrequent classroom visits, however able and enthusiastic they may be. If we grant that music is a developmental and social agency of great significance, so that it ought to be included in the scheme of general education, then it becomes the duty and the privilege of the grade teacher, who knows the children's needs and proclivities, to bring it to them day by day.  

An inherent problem of the self-contained classroom is the assumption that the classroom teacher is a "Jack-of-all-trades." Many competency studies have suggested this assumption is not a valid one in the area of music. Findings have indicated that much college level music preparation of the elementary classroom teacher has not been adequate and that many certificated teachers have not felt they possessed the capability to supply music instruction to their students.  

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preparation of the classroom teacher has been inadequate is supported by the data obtained in a recent study by Picerno, in which ninety percent of the music specialists questioned believed that the classroom teachers had inadequate preparation to teach music. However, sixty-seven percent of the total number questioned indicated they felt that the classroom teacher should take either partial or total responsibility for teaching music. Among the comments made by the music specialists were several relating to the belief that the pre-service music preparation of the classroom teachers is inadequate. One specialist stated, "The more recently a teacher graduated from a 'Teacher's College,' the less able the teacher is to cope with music."  

There have been attempts to convert to an instructional organization that is more efficient in terms of the teacher's educational development and classroom planning. The self-contained classroom has been modified in many parts of the United States to the extent that specialists have been employed to teach art, music, physical education, and science. The newer designs for the

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10 Ibid., p. 110.
elementary school curriculum advocate the teaching of each curricular area by specialists.\textsuperscript{11}

While some music educators ally themselves philosophically with the newer designs for the elementary school curriculum, other music educators advocate a cooperative effort between the music specialist and the classroom teacher\textsuperscript{12} to obtain the best features of both arrangements. However, there are findings which lend support to the possible existence of an inadequate supply of music specialists in the elementary schools. Investigations by McQuerrey\textsuperscript{13} and Colbert\textsuperscript{15} suggested that most elementary music specialists in the groups sampled were required to service such a large number of schools that adequate time to teach was not available.

If the number of elementary music specialists is insufficient, there exists a problem of convincing the


public of the necessity to hire the required number of music specialists to meet the instructional needs. Such realities caused Hoffer and English to conclude:

Hence, the problem is not merely a philosophical one of who can teach music best; it is a situation forced upon music education by realities of the day. The classroom teacher is here to stay in the school music program; here to stay, that is, if the students are to receive adequate instruction in music.15

Existing evidence indicates that the above conclusion is shared by others.

**Concern for Elementary Teacher Preparation**

Less than a decade ago, Barnes16 and Hargiss17 completed research which resulted in the publication of programmed instruction books in music fundamentals for elementary classroom teachers. Later, Wardian18 contributed a programmed instruction book to the same cause.

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These studies began with the concern for instruction that would be more efficient and effective for a heterogeneous group of prospective elementary teachers. These studies and others will be presented in greater detail in Chapter II.

Recently, the Teacher Education Commission of the Music Educators National Conference (MENC) developed a list of competencies to guide the preparation of music specialists. In addition, certain realizations prompted the Commission to publish the following statement:

Recognizing that much music in elementary schools is taught by classroom teachers rather than music specialists, MENC's Commission on Teacher Education recently appointed a Task Group to develop a statement of musical competencies and qualities for classroom teachers. 19

The initial report of the Task Group is not available. Reactions to the report are being sought from classroom teachers as well as from music educators. After the report is finalized, the Teacher Education Commission will consider adding the list of competencies arrived at by the Task Group to the existing list of competencies for music educators.

In 1967 the United States Office of Education issued a request for the development of proposals for model

programs which would produce more effective teachers for the public elementary schools. Approximately eighty proposals were received from the Phase I development of the Model Elementary Teacher Education Program (METEP), from which nine were selected and funded for further study.

During the Fall Quarter, 1969, a seminar was held at The Ohio State University for the purpose of studying the nine proposals, one being studied in depth by each participant in the seminar. During the course of the quarter, one of the development staff members from each project came to the campus for a presentation. A review of the models indicates the role of the teacher educator was generally that of an instructional guide, and the demonstration of behavior from the learner was emphasized through the use of behavioral objectives. The traditional importance of the lecture or the lecture-discussion itself was displaced as a primary process. The use of systems analysis to determine the teacher education program, educational technology, and programmed learning were given places of importance. The instructional organization prevailing in the model programs may be described by such terms as instructional systems, components, and modules.\(^{20}\)

Most of the METEP proposals were somewhat general in nature, leaving the task of final specificity to the institutions considering making them operational. However, the ideas gleaned from the study in the seminar provided the foundation for this investigation.

The Problem

The investigator believes that many elementary classroom teachers reject the idea of their teaching music because of their feelings of inadequacy and lack of confidence in the music area. Possibly the attitudes of these teachers would change if they were confident that they possessed a substantial amount of musical knowledge and skills. The consequent release of their tensions would enable such teachers to participate in music activities within their classrooms. Further, this investigator believes that the lock-step instruction so commonly used with heterogeneous groups often results in failure to learn for some individuals due to continued lack of understanding and self-confidence.

The problem for this study evolved from the idea of designing instructional procedures which would permit a self-paced approach to the music fundamentals course for prospective elementary classroom teachers. The goal of the self-paced approach and the instructional procedures was the development of skills which would help the
classroom teacher gain confidence for carrying out music education activities in the modified self-contained class-
room in which a specialist teaches music on a regular basis. The teaching materials and the instruments used to gather data were developed during the Fall Quarter, 1970, at The Ohio State University, with the assistance of the students in two sections of the music fundamentals course.

The Problem Defined

Music 270, entitled "Basic Experiences: Music Fundamentals," is one in a sequence of three courses designed for the music preparation of the prospective elementary classroom teacher. It is offered by The Division of Music Education in The School of Music at The Ohio State University.

The study concerned the offering of a self-paced approach to this course, using the recently developed instructional procedures, to a pilot group of elementary education students at The Ohio State University and the accumulation of data concerning the feasibility of the self-paced approach using the procedures.

On an a priori basis, factors were identified which could affect the feasibility of the approach and the procedures. These were the acquisition and retention of musical knowledge, the gain in student confidence in the skill areas for which the regular course was responsible,
the acceptability of the instructional procedures, the technical requirements of the instructional procedures, and the cost required to implement the instructional procedures. Information was sought concerning the following questions:

1. Do the musical backgrounds and the initial musical knowledge of the elementary education students indicate a need for a music fundamentals course that is individualized as to rate-of-progress?

2. Is such a course pedagogically feasible? Is a self-paced, performance-based, laboratory-centered approach, using the instructional procedures which were developed, an effective music learning experience for elementary education majors?

a. Can a programmed instruction book be used as an effective independent study technique for learning music fundamentals?

(1) How do the pilot group's raw scores on the Test of Musical Knowledge (TMK) pre-test and post-test compare with those of the reference group?

(2) How do the pilot group's gain scores on the TMK pre-test and post-test
compare with the gain scores of the reference group?

(3) How do the pilot group's post-test and final-test TMK difference scores compare with those of the reference group?

b. How do the scores of the pilot group compare with those of the reference group on the pre-test and the post-test Confidence Scale of Musical Performance Skills (CSMPS)?

(1) What are the changes in confidence scores from pre-test to post-test for the pilot group and for the reference group?

(2) What are the mean scores and the mean gain scores for each group on the pre-test and the post-test CSMPS?

(3) What are the pre-test and the post-test means for each item on the CSMPS for each group?

3. What is the acceptability of the self-paced approach using the instructional procedures which were developed?

a. What are the opinions of students in the pilot group toward the self-paced approach
using the instructional procedures which were developed?

b. What suggestions would students in the pilot group offer to improve the self-paced approach and the procedures?

c. What are the opinions of students in the reference group toward their entire course as a unit?

d. What suggestions would students in the reference group offer to improve the course in the future?

4. Is the self-paced approach using the instructional procedures which were developed technically feasible in terms of student accomplishment of the course objectives and the adequacy of facilities?

5. Is the self-paced approach using the instructional procedures which were developed economically feasible?

6. What are the observable problems and constraints affecting the offering of the self-paced approach using the instructional procedures which were developed for the course in music fundamentals for the prospective elementary classroom teacher?
Scope

However desirable a self-paced, performance-based, and laboratory-centered approach might be for the entire sequence of pre-service music education courses for the elementary teacher, the scope is too great for this type of research project. As a result, the music fundamentals course was chosen for this study of feasibility. This choice was based on the rationale that the foundation of the ability to teach music is viewed as that knowledge and skills which the elementary teacher candidate should possess to be able to teach music in the elementary school. The investigator adopted the knowledge and skills which are presently developed in the regular course as that necessary body of knowledge and skills.

Assumptions

Certain assumptions were basic in the development of this study. It was assumed that the content which was adopted by the investigator would develop the skills and knowledge needed by the elementary teacher to teach music. Secondly, it was assumed that the materials and facilities could be adapted to meet the instructional needs. A third assumption was that the students in the pilot group would be similar to the students in all the other sections of the same course.
Significance of the Study

Many persons believe that teacher educators are ready to talk about change and that they seem to exhibit positive reactions toward educational innovations. However, relatively little progress has been made toward adopting innovations as realities in the curricula of various teacher education institutions. Although individualized instruction is not a new concept in education, the actual practice of individualization at the college level in teacher education is less prevalent than the traditional lock-step approach which is time-based.

Many of the learning environments in the public schools and the colleges are teacher-oriented with the accompanying lack of sensitivity to the need of the individual learner. Diamond, in analysing this situation, states:

“When students enter a course with a slightly negative attitude and leave at the end of a semester completely hostile, it is probably because the faculty has not considered the backgrounds and interests of the students involved.”

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Research clearly indicates that elementary teachers have not been adequately prepared to participate in music education activities within their classrooms. Sorenson has stated:

...if a student does not learn in the class, it does not automatically follow that the failure to learn is because of some defect in the student or in the teacher for that matter. The defect is likely to be in the instructional procedures that were used.\(^{23}\)

Although some innovative programs are being tried in certain areas of the curricula of various institutions, Shetler voices his disappointment with the lack of really innovative operational programs in music education. He makes the following statement:

All of us involved actively in teaching music at any level must be willing to face that bothersome question, "Is there a better way?" and to risk the radical changes that innovation often dictates.\(^{24}\)

Some music educators have sought a "better way" by engaging in studies to develop programmed instruction in music fundamentals for the prospective elementary teacher. The content of such studies has been concentrated entirely on musical notation. The research has established


that learning through programmed instruction is effective and efficient. However, a survey of the literature reveals no research concerning individualization of the pre-service music preparation of the general elementary teacher beyond the area of musical notation. This study is designed to determine the need and the feasibility of a whole pattern of instructional procedures which would permit a self-paced approach through the use of independent study techniques for Music 270—Basic Experiences: Music Fundamentals.

Limitations

This investigation was limited by certain factors. First, the sample consisted of students who comprised naturally assembled classes. No attempt was made to equate the pilot group and the reference group. Secondly, the pilot group was informed concerning the nature of the study. Further, the investigator taught the two sections which were the pilot group. A fourth limitation was that the investigation concentrated only upon musical knowledge and skills and not upon the development of musical concepts.

Definitions

In order to facilitate the understanding of this report, certain terms will be defined or clarified.
Reference group.—Because of the quasi-experimental nature of the research design, the term "reference" was chosen to designate the control group.

Pilot group.—"Pilot" is used to identify the group which received the experimental treatment.

Individualized instruction.—Individualized instruction as it is used in this study refers to that kind of instruction which allows each student to progress at his own rate through a given instructional sequence.

Lecture-discussion-performance.—This term refers to a method of teaching in which the instructor lectures, demonstrates, and participates with the class in activities.

Overview of the Report

The literature cited in Chapter I established the fact that the pre-service music preparation of the classroom teacher has not been adequate. Chapter II will present literature in greater detail which will lend support to the design of a music fundamentals course that allows for an individualized rate-of-progress and will report on the available research in this area of college instruction.

Performance objectives were established by a content analysis of available material concerning the existing music fundamentals course. Instructional procedures were
developed and tested with students prior to the quarter in which the data were gathered. A self-paced approach, using the revised instructional procedures, was then offered to two sections of Music 270, which became the pilot group in the study. Data concerning the musical learning, student confidence in the skill areas, student satisfaction, additional cost, and accomplishment of the course objectives were gathered during the Winter Quarter, 1971. Chapter III presents a description of the subjects, the instruments, the materials, and the procedures employed in the study. The results are presented and analyzed in Chapter IV. Chapter V presents the summary, conclusions, implications, and suggestions for further study.
CHAPTER II

REVIEW OF THE LITERATURE

Chapter II presents literature which lends support to the design of a self-paced approach to Music 270, a music fundamentals course for students enrolled in The College of Education at The Ohio State University. Literature was reviewed concerning the individualization of instruction in general. Because of the individualized rate-of-progress featured in the approach to the course, independent study was emphasized. Therefore, literature and research relating to processes within this approach were reviewed, as well as literature and research concerning the use of independent study in teacher education in general and specifically in music education.

The Individualization of Instruction

The individualization of instruction is not a new theme in education. A cursory investigation of the card catalog in a library will reveal that books on this subject were published very early in the twentieth century. The individualization of instruction is a result of the recognition of the existence of individual differences.
Crutchfield\textsuperscript{25} commented on three sources of demand for individualized instruction. The first source is pedagogical in nature in that it relates to the aims of educational reform and the maximizing of the potential of each individual, the gifted as well as the underachiever. The second source is motivational, in which the student is struggling to retain his own sense of identity "in the impersonal educational mill."\textsuperscript{26} The third source of demand for individualized instruction is social, which is related to the rate of change in science and technology. Optimum development of the individual will be necessary to meet the needs of the future.

Glaser\textsuperscript{27} discusses patterns of adapting to individual differences, which range from past, to present, to future possibilities. In the first pattern there is a fixed educational goal and a fixed educational treatment. Allowance for individual differences is made by dropping students along the way as each one reaches the limit of his abilities. This first pattern has a variant in which


\textsuperscript{26}Ibid., p. 14.

the student learns in order to meet a specified criterion. The second pattern of adaptation assumes the existence of optional educational goals, such as the selection of the major field of study, but the instruction is fixed within each goal. Using different instructional procedures to teach different students is the third pattern of adapting to individual differences. Glaser suggests ways in which this pattern might be implemented. There might be a fixed instructional sequence from which the student would be diverted for remedial work when necessary and to which he would be returned at the proper time. On the other hand, the instruction might be individually prescribed after a detailed diagnosis of the learner.

Independent Study

There are pleas from many segments of society to improve the quality of education. Burns suggests that a step toward improvement would be to free the classroom teachers from some of the daily routine in order to devote more individual time to students. The independent study approach, which allows the student to progress at his own rate, makes possible the partial or total elimination of the classroom teacher in the traditional sense. The classroom teacher's role shifts from lecturer or discussion

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Audio-tutorial Instruction. --A recent approach to independent study is called the audio-tutorial system. This approach was developed by Postlethwait at Purdue University. It was originally developed to make provision for the diversity of backgrounds among students in the introductory biological science courses. Audio-tutorial instruction is a technique which uses an audio-tape recording to present part of the instructional material for a unit of study. However, the audio-tape is seldom used alone. Instead, a set of slides, references for textbook readings, notes, drawings, laboratory equipment, and other suitable materials are used to supplement the audio-tapes. The student is permitted to check into the supervised independent learning center at his own convenience for as long a period of time and as often as he needs to use the materials. During the independent study session the student plays the audio-tape, and if he has difficulty with any of the material, he may replay the tape as often as necessary. An instructor is on duty to answer additional questions. As a motivational technique and a feedback mechanism, a combination of a modified seminar and oral quiz is held each week with an instructor.

and a few students. The use of this method of instruction has expanded into the areas of science and mathematics, engineering, medicine, and others. The Oakland Community College in Bloomfield Hills, Michigan, adapted the method to its entire curriculum. The system has been introduced in other countries as well.

A more recent development in biological sciences at Purdue University is the minicourse audio-tutorial unit, which includes all the material pertaining to a given concept. The students are told that they cannot fail the required course and that they will receive at least a "C" upon completion of the course. In the independent study session of the minicourse, the student attempts to meet the behavioral objectives specified for the minicourse units. If the objectives are not met, the student receives no grade.

Programmed Instruction.—Programmed instruction is defined as:

...a self-instructional system that presents information in a step-by-step process to learners who are required to give a response to each unit.

30 Ibid., p. 2.


Not only are programmed instructional materials self-administering, but programmed instruction is accountable for a stated change in behavior. The instruction may be individually paced, and there is immediate feedback concerning the adequacy of the student's response.

In present classrooms a program may be used in three ways. First, the program may be used as the technique of instruction in a course or a course segment in which the teacher's role is that of guide and evaluator. A second use consists of employing the programmed instruction for a special purpose such as remedial work. This implies that the normal instruction is presented by conventional means. A third way to use programmed instruction is in combination with conventional methods as a part of the classroom activity.

The Use of Independent Study in Teacher Education

Independent study is featured in a number of institutions in the United States.

Brigham Young University offers 82 percent of the

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required hours in professional education courses for secondary teacher education through individualized instruction. The twelve units of study are: Orientation, Administrative Aspects of Teaching, Behavioral Objectives, Instructional Materials and Equipment, Teaching Methods, Human Development, Micro-teaching, Learning, Curriculum Preparation, Student Management, Student Teaching, and Affective Behaviors. Instead of the formal classroom structure, students progress at their own rate. The student is guided through each unit by an instructor on the basis of a unit pre-test, and his progress to the next unit of instruction is determined by his satisfactory performance on the post-test.

Webb and Baird conducted a study at Brigham Young University in which they compared the pre-test and post-test results of a group of students who completed a course by the independent study approach and a group of students taught by the traditional lecture-discussion approach. The experimental group performed significantly better on the post-test than did the control group. The results led the authors to conclude that there was "justification for more extensive investigation concerning the effects of increasing student autonomy in the area of their own
learning."\(^{35}\)

The University of Pittsburgh is known for the development of Individually Prescribed Instruction (IPI). In this type of instruction the content and process are prescribed for each individual after evaluating his background and abilities and diagnosing his weaknesses. Independent study of this nature is included in the professional sequence of the teacher education program at the University of Pittsburgh.\(^{36}\)

The minicourse design of the Far West Laboratory for Educational Research and Development focuses on in-service education. The materials for the courses are sent to the teachers requesting them. Field testing of Minicourse I, which was designed to improve questioning technique, indicated that the package does increase the teacher's skill in conducting classroom discussion.\(^{37}\)


\(^{36}\)Horton Southworth, A Model of Teacher Training for the Individualization of Instruction (Pittsburgh: University of Pittsburgh School of Education, 1968), passim.

Recently, Illinois State University at Normal has tested a 55-student pilot program of competency-based lesson materials for secondary school teachers. During the 1971-72 school year, the pilot program will be expanded to permit 800 prospective secondary school teachers to work within the mediated, self-paced instructional programs. The ultimate goal at the University is the complete individualization of instruction in secondary teacher education. 38

**Educational Technology and Music Education**

Music education surged forward with the publication of the first music textbooks, and it progressed still further as the radio, the sound film, recordings, and high quality sound equipment came into existence. Recently, persons have suggested that music educators have not kept pace with developing technology and that there is a need to discover and familiarize themselves with the newer instructional technology in order to become more effective teachers. 39 Evidence exists, however, to indicate a growing interest in educational technology on the part of many music educators.


In 1964, the United States Office of Education and the Music Educators National Conference sponsored The National Conference on the Uses of Educational Media in the Teaching of Music. The purpose was primarily an exchange of information concerning newer developments in educational media and technology, as well as the determination of the current status of the uses of educational media in teaching music. Task force groups were assigned in the areas of choral instruction, instrumental instruction, theory, literature, and general music. Each task force group met with a consultant in each media category for discussion and exploration, and each group submitted a final report of the activities. Many types of media were discussed in the areas of films and television, audio devices, teaching machines and programmed instruction, electronic devices and instructional systems, and printed materials. The reports from the task force groups indicated that certain possibilities had been brought to the attention of the participants. The discussions resulted in a realization of the possibility of greater emphasis on individual learning in music. In addition, the need for more precise description of musical objectives was

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emphasized. However, there was an indication of some concern for the aesthetic and artistic values in music, and many participants questioned the compatibility of programmed instruction with the goals of music education.

Programmed learning in music education has contributed a large body of literature to the use of technology in music education. A recent music publication listed ninety entries in a bibliography of materials on programmed instruction in music, spanning the decade 1957 to 1967.41

Music theory and melodic perception have been the objects of much research in programmed instruction in music. A number of these programs use a textbook with accompanying audio-tapes.42

Some research studies have sought to determine the efficiency of programmed learning in the teaching of music fundamentals. A few of these investigations resulted in the publication of programmed instruction books


in music fundamentals for the elementary classroom teacher.

Barnes\textsuperscript{43} produced a programmed instruction book in music fundamentals for prospective elementary teachers and evaluated the effectiveness of learning through the use of this book as an ancillary device. This study further attempted to determine the reaction of the students to this kind of approach and to determine whether the musical backgrounds and the college achievement levels of the subjects in the sample appeared to be related to the effectiveness of learning the material. The effectiveness of learning was determined through testing for retention. The study showed the effectiveness of the learning was significantly greater in the experimental group. The reactions of the subjects toward the programmed book were favorable.

At the University of Kansas, Hargiss\textsuperscript{44} developed a program of self instruction in music theory for prospective elementary teachers. The project covered a period of five semesters with five different groups of students. Group I received face-to-face instruction with no programmed instruction; Group II used a tentative program and participated in revising it; Group III used the

\textsuperscript{43}Robert A. Barnes, \textit{op. cit.}

\textsuperscript{44}Genevieve Hargiss, \textit{op. cit.}
program and received face-to-face instruction; Group IV was involved in further revision of the material; Group V used the final version of the program and received no face-to-face instruction. Group V, those students using only the program, did as well as Group I, those students receiving only face-to-face instruction. Group V spent less time on the study of music theory, and there were very few complaints and little confusion. Group III, which received both programmed and face-to-face instruction achieved more than any of the other groups.

The purpose of the study by Wardian\(^45\) was to compare the effectiveness of programmed learning in teaching the fundamentals of music with the traditional method of lecture-recitation learning. The control group received their instruction by the lecture-recitation method, while the experimental group received their instruction through a teaching machine program. The results showed that those students in the experimental group learned the music fundamentals as well as those in the control group. More importantly, the students in the experimental group spent a significantly smaller amount of time in learning the material.

\(^{45}\)Jeanne F. Wardian, *op. cit.*
Newman investigated the effects of programmed learning on achievement and attitude in a music course for classroom teachers. He sought to determine if the use of programs leads to higher achievement as measured by the regular examinations used in the courses. Another question he attempted to answer concerned the effectiveness of programs used as supplementary material and as a substitute for regular instruction. Further, he gathered information to ascertain if programs lead to more favorable attitudes toward the course and its objectives. Three comparison groups, each containing twenty-five students, were used for this investigation. One group received conventional instruction. The second group used a programmed book to learn basic music fundamentals in order to save class time for emphasizing aural skills. The third group used the programmed book to supplement conventional instruction. A pre-test, using the Farnum Music Notation Test, was administered. A musical experience survey and a summary of grade-point ratios were also used to provide initial information. At the end of the experimental semester, learning was measured with the Snyder Music Achievement Test, a piano progress record, a performance examination,

and a music theory test. The findings indicated that the group using the programmed materials to conserve class time scored significantly higher on the music theory test, and the attitudes in this group were significantly more favorable. Based on the findings, the investigator concluded that programmed learning may lead to higher achievement in music reading and in music theory comprehension. In addition to conserving class time, it also may lead to greater satisfaction with instruction.

Martin constructed a three-track program in music fundamentals and demonstrated the degree to which it could be used in a heterogeneous classroom situation. The subjects for the investigation were 130 elementary education majors. The variables used to determine each student's intellectual ability were the cumulative grade point average, the psychological stanine rating, and the verbal scholastic aptitude test score from the College Board Examination. The understanding of music fundamentals was determined by a music test based on program content. After the pre-program test, each student was given the first chapter of the program. The time required by each student to complete the chapter was recorded.

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and a post-test was administered. This procedure was repeated for the remaining two chapters. The findings indicated that students of high intelligence required significantly less time to complete the program than did the students of lower intelligence. The finding was the same when comparing students with high musical understanding and those with low musical understanding. However, no significant difference was found in these groups between post-test results.

Investigating the comparative effectiveness of conventional and programmed instructional procedures in teaching music fundamentals was the purpose of a study conducted by Cribb. The procedures examined were (1) conventional out-of-class study assignments, (2) out-of-class individual use of a teaching machine program, and (3) out-of-class individual use of a programmed textbook. One hundred twenty-seven elementary education students comprised the sample. The subjects were placed in one of three groups, consisting of one control group and two experimental groups. Mean scores of all three groups were calculated for the pre-test, the post-test, and the retest. Statistical comparisons between each

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procedure favored the programmed learning procedures, with the teaching machine program yielding higher achievement than the programmed textbook.

Michalski\textsuperscript{49} investigated the effectiveness of teaching conceptual understanding of the basic elements of music to elementary education majors. The elements identified for the study were pitch, duration, intensity, and timbre. The study further attempted to analyze the relationship between conceptual understanding and musical, verbal, and mathematical aptitudes. Two methods of teaching were compared. The first was the \textit{Visual-Aural Program for Self-Instruction} (VAPSI), which was a newly developed program. The second method was the traditional lecture-discussion method which was normally used in the course entitled "Literature and Materials of Music I."

The experimental group consisted of students assigned to the section that was taught by the investigator. In the control group were two sections of students in the same course who were assigned to other faculty members using the traditional teaching approach. Those students enrolled in a basic mathematics course were a part of the control group. \textit{The Visual-Aural Conceptual Understanding}

Test (VACUT), Deihl's Measure of Musical Concepts, and Gaston's Test of Musicality were administered as a pre-test to both the control group and the experimental group. The experimental group was then excused from attending class until every person in the group had completed the VAPSI. Post-test measures were the VACUT and Deihl's Measure of Musical Concepts. In addition to data gathered from the tests already mentioned, the verbal and mathematical scores from the College Entrance Examination Board Test were used. Statistical findings indicated the experimental group made superior gains in mean scores when compared with the control group's mean scores on the VACUT. Deihl's Measure of Musical Concepts scores indicated there was no significant difference between the methods of teaching. Statistical analysis revealed a significant relationship between the following: (1) musical concept scores on the Measure of Musical Concepts and verbal aptitude scores on the College Entrance Examination Board Test; (2) musical concept scores on the Measure of Musical Concepts and mathematical aptitude scores on the College Entrance Examination Board Test; (3) musicality scores on Gaston's Test of Musicality and musical concept scores on the Measure of Musical Concepts; (4) musicality scores on the Test of Musicality and
understanding of musical concepts measured by the VACUT.

The State University College at Fredonia, New York, recently revised its introductory music course for non-music majors. The following statement reflects the philosophy of the faculty:

...preliminary studies have indicated that the musical background of these students is so diverse that a single instructional program at any one level would be inappropriate for a large number of the students enrolled.\textsuperscript{50}

As the course is conducted at the present time, the student is first pre-tested in knowledge of musical notation and aural recognition skills, which is then followed by individually prescribed instruction designed to bring the student up to a requisite level. A music appreciation course for non-music majors at the same university has been developed by Diamond, using the systems approach. The designer developed behavioral objectives, designed materials, and constructed tests to measure success in the achievement of the behavioral objectives.\textsuperscript{51}

**Summary**

Individualized instruction is not a new theme in education, but the instances in which individualized

\textsuperscript{50} Robert M. Diamond, *op. cit.*, p. 38.

Instruction is practiced at the college level are less prevalent than the traditional lock-step, time-based course. However, there is evidence which suggests that individual instruction in courses may be increasing in popularity. As the demands for such education have grown in number, educators have been urged to acquaint themselves with the technology that makes possible individualized education. The results have been conferences to discuss the uses and merits of educational technology and research studies to develop the content and materials to be learned via educational technology. Various independent study techniques have been developed as a result of such efforts.

The trend toward the individualization of instruction has been observed in many areas of study. In the past fifteen years, there has been a significant increase in the amount of programmed material appearing in the area of music, some of which was designed specifically for the purpose of teaching the fundamentals of musical notation to the general elementary classroom teacher. However, there is an absence of research relating to the use of other independent study techniques or patterns of techniques encompassing the range of instruction for which Music 270 is responsible.
Chapter III describes the methodology employed in the present investigation.
CHAPTER III

METHODOLOGY

The investigation was designed to gather data concerning the feasibility of individualizing the rate-of-progression in a music fundamentals course for the music preparation of prospective general elementary teachers enrolled in the College of Education at The Ohio State University. The course, in which the learning of musical notation and the development of skills in singing, autoharp, flutophone, rhythm instruments, piano, and song creation comprised the content, was offered in several sections by The Division of Music Education in The School of Music at The Ohio State University.

On an a priori basis variables were identified which could affect the feasibility of a self-paced course using the instructional procedures that were developed. These variables were the acquisition and the retention of musical knowledge, the gain in student confidence in the skill areas of the course, the acceptability of the instructional procedures, the technical requirements of the instructional procedures, and the cost required to implement the instructional procedures.
construction of materials and the planning of the instructional procedures, after which the investigator taught two sections of students who were enrolled in Music 270 during the Autumn Quarter, 1970, using the materials and procedures as a trial run. The Winter Quarter, 1971, was the implementation phase of the study, during which the investigator again taught two sections, called the pilot group. The data were gathered during the Winter Quarter.

The research design chosen for the investigation is described by Campbell and Stanley as Design 10—The Nonequivalent Control Group Design. This design is represented by the code \( \bar{0} \times \bar{0} \), in which "0" represents an observation or measurement and "X" is the experimental exposure. The code implies that both groups are pre-tested, and, after the pilot group receives the experimental treatment, both groups are given a post-test. This quasi-experimental design was chosen because the pilot group and the reference group were composed of separate sections of the same course, each one consisting of naturally assembled classes, and equating the two groups did not appear feasible. Further, because of recent student unrest at the university, the faculty member who was responsible for all sections of the course advised

that the students in the pilot group should be informed of the nature of the study. The students in the pilot group were the active participants in the instructional procedures that were developed for this study, while the students in the remainder of the sections were used as a point of reference in the evaluation of the data.

This chapter presents a chronological reporting of the phases of the investigation.

**Developmental Phase**

The actual development of the study began with a content analysis of materials which were used in the regular sections of the course, Music 270, in order to provide a basis for the design of behavioral objectives. Study materials were then chosen or developed, and measurement instruments were designed.

**Purpose and Objectives of Music 270**

The course, Music 270, Basic Experiences: Music Fundamentals gives three quarter hours of credit and meets for a forty-eight minute period five days per week for ten weeks. According to duplicated material provided for instructors in Music 270, the suggested content for the course includes singing, instrumental, rhythmic, and creative musical experiences. The general objectives of the regular course are:

1. To provide an opportunity to become acquainted
with the fundamentals of music in order to interpret the printed page of music.

2. To provide an opportunity for students to gain some confidence in singing.

3. To provide an opportunity for students to gain facility at the piano and with classroom instruments.

4. To encourage and develop a receptive and enthusiastic attitude towards music.

5. To provide an opportunity for students to have many and varied experiences with the types of music literature found in the elementary schools in the areas of singing, playing instruments, moving to music and creating music.

6. To provide the opportunity for students to become acquainted with musical terminology appropriate for this course and for a subsequent course, Music 271, Basic Experiences in Listening.  

Philosophical Foundations for the Development of the Instructional Procedures

The investigator believes that many elementary classroom teachers reject the idea of their teaching

music because of their feelings of inadequacy and lack of confidence in the music area. Perhaps if these classroom teachers were confident that they possessed a substantial amount of musical knowledge and skills, their attitudes would change, thus releasing their tensions and enabling them to participate in music education activities within their classrooms.

At the time of college entrance, individual differences in musical abilities are widely divergent, partly because much of the music in the public schools is taught to members of a heterogeneous group. Individuals do not develop skills and concepts at the same rate of speed. Therefore, some persons do not develop musically during the public school years. On the other hand, certain individuals do develop musically, and in some cases, the development is aided by private musical instruction. If the lock-step instruction so commonly used with heterogeneous groups is continued in music courses for non-music majors at the college level, the result will often be failure to learn for some individuals due to continued lack of understanding and self-confidence and in boredom for others who already have a strong musical background.

The design of the instructional procedures was based upon the investigator's philosophy that the students who enroll in Music 270 have spent twelve years in public
schools where they were supposed to have discovered musical concepts. Further, those student who, for a variety of reasons, did not develop musically during the public school years are entitled to a different approach through which they may learn music fundamentals as individuals instead of learning music fundamentals as members of a heterogeneous group. Also, it was the investigator's belief that the students who developed varying degrees of musical proficiency during their public school years should be permitted the opportunity to devote their efforts to increasing their knowledge and skills in the musical areas in which they are weak, rather than spend time in the musical areas in which they are already proficient.

The goal of the instructional procedures that were developed was the elimination of continued and sometimes deepened musical ignorance for many students and a general increase in student confidence in the musical areas for which the existing course was responsible. Because success is important in building self-confidence, successful experiences in the learning of musical knowledge and the development of basic skills appeared to be paramount to the stated goals. The investigator believed these goals could be achieved best by concentrating largely on musical knowledge and basic skills presented
by a variety of independent study techniques which would permit the student to progress at his own rate through a sequence of pre-determined experiences in music and to experience success as he did so. While related to the factor of success, specifying an acceptable level of achievement which every student in the pilot sections could meet was part of the challenge to the study of feasibility.

Development of Materials for the Instructional Procedures

A self-paced course using the developed instructional procedures implied the necessity for using independent study, which made obvious the need for behavioral objectives. The first step was the determination of the minimum competencies to be developed by the course and the translation of these competencies into behavioral terms. The competencies were derived from a content analysis of the textbook which was used by the reference group and from printed material concerning the general objectives of the course. The list of competencies was checked by the faculty member who was responsible for all sections of the course. Finally, the competencies were stated in behavioral terms (Appendix A).

54 Dr. A. Jeanette Sexton
Having established the minimum behavioral objectives that were to be achieved, instructional segments within the course were identified. These segments consisted of musical notation, rhythm, melody and song flute, piano, autoharp, rhythm instruments, and song creation. The content to be learned and the instructional processes to be used were then selected and developed.

**Course Syllabus.**—A course syllabus (See Appendix A) was prepared by the investigator. The syllabus included the behavioral objectives, the eight self-tests, and the complementary notes for use with the audio-tapes and the video-tape. The syllabus was duplicated, stapled together, and distributed to the students in the pilot group for the trial run and for the Winter Quarter.

**Programmed Instruction Book.**—A programmed instruction book in music fundamentals appeared to be a logical independent study technique to assist the students to achieve a number of the behavioral objectives which concerned theory and musical notation. Two such programmed books were considered, and *Introduction to Music Fundamentals* was selected for use in the pilot sections largely because of the way in which the keyboard was presented. This programmed instruction book was designed

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specifically for the elementary classroom teacher. It is organized into three major sections: (1) the programmed material, in which the material is presented step-by-step in frames, (2) a song-book supplement, and (3) an index for review. The authors had tested the effectiveness of the textbook with three groups of elementary education majors, who used the textbook as an ancillary experience.

Eight self tests (Appendix A) were developed by the investigator for the students to use in evaluating their own learning from the programmed instruction book. Each student was directed to take a certain self test at the end of a specified frame in the book. He was then instructed to check his answers with the key which was available at the instructor's desk. If the student did not score 100 per cent, he was directed to ask the instructor for additional help. The tests were used by the instructor as criterion tests as well as a technique to monitor the progress of each student through the programmed instruction book.

Piano Keyboard Instruction.—The piano keyboard was introduced by the programmed instruction book. After becoming familiar with the first five notes of the C Major scale, beginning with middle C, the student was instructed to play the entire C Major scale, encompassing an octave, using the correct fingering. When the student had gained facility at this task, he was directed to turn
to the song-book supplement in the programmed instruction book and practice the melodies of two songs which encompassed only the first five notes of the C Major scale. The next step consisted of learning to play the I and the V7 chords with the left hand. The rules for this task were presented in terms of the treble clef, and the student was asked to play the chords an octave lower when he had become proficient enough to use the two chords to accompany the five-note melody. The range of the melodies was widened as other songs in the key of C Major were undertaken, and the IV chord was presented. The student then encountered melodies in the keys of F Major and G Major. Although the programmed instruction book went beyond key signatures with one sharp or one flat, all students were required to play songs only in the major keys of C, F, and G, using a block chord accompaniment. In addition, each student was required to play the primary chord progression (without a melody) in the harmonic minor keys of A, D, and E.

Audio-tutorial Materials.—The investigator's interest in using an audio-tutorial approach was aroused by articles appearing in several issues of The Journal of Engineering Education. Subsequently, there were opportunities to view films, witness demonstrations, and visit an audio-tutorial laboratory in operation.

Convinced that this technique would be suitable for
part of the pilot group's instruction, the investigator prepared audio-tapes and complementary notes for independent study in elementary rhythm, melody and song flute, autoharp and song creation. Before preparing the audio-tapes, much literature was studied in the areas so that the tapes could be made as realistic and effective as possible.

1. Rhythm Audio-tape.——The purpose of the audio-tape on rhythm was to help the student feel the steady beat and to work out rhythm patterns by counting and clapping. The student was asked to clap the steady beat to some selected recordings in duple and triple meter. The complementary notes, contained in the course syllabus, were designed to help him visualize the beat and the way musical notes are organized to fit the beats. Measures of one kind of note (quarter notes, half notes, whole notes, and eighth notes) were introduced. The student was asked to look at a certain frame in his complementary notes, listen to the instructor count and clap the rhythm pattern contained in that frame, and then to count and to clap the rhythm pattern himself. After concentrating on a single kind of note, combinations of different note values were presented in the same manner in terms of time signatures of 4/4, 3/4, and 6/8. The remainder of the rhythm segment was contained only in the complementary material, in which several rhythm patterns in the time
signatures already mentioned were presented, as well as practice rhythms involving syncopation. The student was requested to prepare all the rhythm exercises for a performance test, for which the instructor would choose only one from each page. (See Appendix A for complementary notes and Appendix B for transcript of the audio-tape.) The performance test was judged on the accuracy of the rhythmic reproduction.

2. Melody and Song Flute Audio-tape.--The audio-tape presented a brief discussion of melody and melodic movement, some of which had been encountered early in the programmed instruction book. The song flute was then introduced on the tape, with complementary material, and an explanation of the playing technique followed. All the notes were introduced, beginning with "G" because this is an easily produced note on the song flute. The student was directed to prepare a list of songs, selected from the basic music series textbooks, from which the instructor would choose three songs for the performance test. Accuracy of rhythm and pitch were the criteria by which the performance was judged. (See Appendix A for complementary notes and Appendix B for the transcript of the audio-tape.)

3. Autoharp Audio-tape.--The audio-tape provided instructions for holding the instrument, depressing the chord bars, and for chordal strumming patterns suitable for various meters and moods. The student was directed
to practice on the instrument and to prepare three songs of his own choice selected from the song-book supplement of the programmed instruction book or from any of the available basic music series textbooks. He was expected to sing the melody as he played a chordal accompaniment on the autoharp for a performance test. (See Appendix A for complementary notes and Appendix B for an example of the transcript of the audio-tape.)

4. **Song Creation Audio-tape.**—The process of line-notation was introduced on this audio-tape. The student was asked to line-notate existing chants and poems. Later, the student was requested to complete melodies for which the words were given. Another activity was writing new words for a familiar melody. Ultimately, the student was directed to compose words and melodies for four songs on subjects selected from a suggested list of possible classroom situations for which song compositions would be appropriate.

**Video-tape Instruction.**—The video-tape recorder was selected to present the remainder of the instruction involving a demonstration of rhythm instruments. Each rhythm instrument was shown, named, and played. Three patterns (steady beat, strong beat, and melodic rhythm) to be used with the rhythm instruments were presented. The students were asked to write down orchestrations using these three
patterns for two songs of their own choice selected from the basic music series textbooks. Previously, the investigator had made a video-tape recording at a private preschool and at a public school showing how classroom teachers themselves use rhythm instruments with pre-school and first grade children. The two tape segments were spliced to provide one video-tape presentation of approximately forty-five minutes in length.

Development of Measurement Instruments

In Chapter I the variables affecting the feasibility of offering an individualized rate-of-progress for the music fundamentals course were identified as (1) the acquisition and retention of musical knowledge, (2) the gain in student confidence in the skill areas of the course, (3) the acceptability of the developed instructional procedures, (4) the technical requirements of the instructional procedures, and (5) the costs involved. The first question posed in the investigation involved determining whether backgrounds and musical experiences of the students suggested a need for an individualized rate-of-progress for Music 270. To gather the necessary information, four instruments were designed. These instruments included the Background Data Questionnaire, the Test of Musical Knowledge, the Confidence Scale of Musical Performance Skills, and the Satisfaction Scale.
The Background Data Questionnaire.--The Background Data Questionnaire (Appendix C) was adapted from a similar instrument developed by Barnes. The purpose of the instrument was to gather data concerning the student's musical background. The student was asked to indicate if he had participated in a musical group in high school or college and, if so, how many years he had done so. Also, the student was asked to indicate if he had taken private music lessons and, if so, how many years he had taken them. The Background Data Questionnaire served as the cover page of the Test of Musical Knowledge when it was given as a pre-test to both the pilot group and the reference group.

The Test of Musical Knowledge.--Although tests were available to be used in the area of music fundamentals for the classroom teacher, the investigator decided the existing tests did not match the proposed course objectives closely enough. However, the existing tests were studied before beginning development of a test for this purpose.

The test which was developed by the investigator to measure the student's knowledge of music theory

56 Barnes, op. cit.
57 Barnes, ibid.; Hargiss, op. cit.; Andrews and Wardian, op. cit.
(Appendix D) consisted of one hundred questions based upon the knowledge necessary to meet the behavioral objectives in music theory as established for the pilot sections. The Test of Musical Knowledge was used as a pre-test, a post-test, and a final test. The pre-test was intended to estimate the student's initial musical knowledge. The post-test was administered to provide information concerning the amount of learning that occurred during the quarter. The final test was used to provide data concerning the retention of the material after a three-week lapse of time. Although the three tests consisted of the same one hundred items, the questions on each test were arranged in a different random order which had been generated by a computer.

During the development and trial period, a split-half reliability coefficient, based upon odd-even items, was computed for each group on the pre-test and the post-test. The pre-test reliability for the reference group was .93, while the pre-test reliability for the pilot group was .95. Post-test reliability coefficients for the reference group and the pilot group were .89 and .71, respectively. Reliability was not computed for the final test because of a time factor. Validity of the test was claimed on the basis of content, since the test was developed in terms of the established behavioral objectives.
The Confidence Scale of Musical Performance Skills.—

Confidence is an important aspect of an individual's feeling of security in any area of endeavor. A lack of confidence may result in a reticence to engage actively in experiences in a given area. For this reason, the Confidence Scale of Musical Performance Skills (CSMPS) was developed (Appendix E). The general idea and the form used for the scale were adapted from scales that had been developed in other areas by Vlzek and Miller. The ten statements on the present instrument are based upon the specific skills which were mentioned in the general objectives of the existing course. Each statement begins with the phrase, "I possess the necessary skills to..." For example, two of the ten statements are "I possess the necessary skills to prepare and sing songs selected from an approved list" and "I possess the necessary skills to write original words to a given melody." The student was asked to circle the letter which most nearly agreed with his beliefs about each statement.


at the time the scale was completed.

The letters "A," "B," "C," and "D" followed each statement on the scale. They corresponded with "Very Confident," "Confident," "Uncertain," and "Very Uncertain," respectively. The CSMPS was administered as a pre-test to provide an estimate of initial student confidence in the musical skill areas. The post-test was used to determine if a change in confidence occurred during the quarter and, if so, in which of the skill areas it did occur and to what extent.

The Satisfaction Scale.—Diamond has suggested that satisfaction and attitude are very closely related in a course. In this study satisfaction with the methods employed was considered to be an important factor affecting the study of feasibility. To estimate the student satisfaction with the methods employed in the instructional procedures, the Satisfaction Scale (Appendix F) was developed by the investigator after studying a satisfaction scale that was developed by Murphy.61

The Satisfaction Scale attempted to determine each

60Diamond, *op. cit.*, p. 38.

student's opinion concerning the extent to which he had found the methods employed in the approach efficient, effective, and satisfying. For the purposes of this scale, "Efficient" meant that the method was convenient, practical, and manageable, especially in regard to the time and energy required. "Effective" meant the extent to which the method helped to increase the individual's knowledge and skills in music; and "Satisfying" meant the extent to which the individual was comfortable and contented with the method and found it adequate, unobjectionable, and pleasing. Each of the statements on the instrument was to be rated on each of the three criteria (efficient, effective, satisfying) using a five-point scale, on which "1" was the lowest rating and "5" was the highest rating. The individual was instructed to circle the number which corresponded with his beliefs. In addition, the student was asked to offer suggestions for improving the instructional procedures in the future. The scale was developed to gather data from the students in the pilot group at the end of the course.

Another version of the Satisfaction Scale was used to allow the students in the reference group to indicate their satisfactions with the course as they experienced it (Appendix F). Each student in the reference group was asked to record his opinion concerning the efficiency, the
effectiveness, and the satisfaction with the existing course in general by encircling the appropriate number on the scale. Instead of rating several methods employed in teaching the course, as the pilot group had done, the reference group was asked to rate the entire course as a unit since individual sections would have experienced different patterns of teaching procedures. Further, each student was asked to offer suggestions for improving the course in the future.

**Trial Procedures**

The materials and the instruments were used on a trial basis during the Fall Quarter, 1970, by two sections of the music fundamentals course, Music 270, which the researcher was assigned to teach.

During the first week, the Background Data Questionnaire and the Test of Musical Knowledge were completed by the students in both groups. The students in the trial group had been assigned to the sections meeting at twelve o'clock and at one o'clock five days per week. It was possible, by combining the two one hour class periods, to conduct these two sections in a laboratory fashion and allow each student to come to the classroom for instructional guidance when he desired or needed it. The classroom and a practice room were the centers of activity for the class during four days of each week. On the fifth
day the class was in the piano laboratory. Independent study began with the programmed instruction book and then proceeded through the audio-tapes and the video-tape.

As a result of the trial use, the audio-tape concerning the creation of songs was eliminated because the students indicated they lacked confidence in this area even after completing the audio-tape and the exercises. By the end of the trial period there was not adequate time to prepare a new tape for use during the implementation phase of the study. However, the investigator believes that song creation could be taught via audio-tape and complementary notes with exercises. The last week of the quarter the class met for large group participation with the students reporting to the classroom at the hour to which they were assigned on their schedule cards.

Implementation Phase

The period during which the data were gathered was the Winter Quarter, 1971. The quarter began on January 5, 1971, and ended March 19, 1971.

Subjects

The subjects in this study were undergraduate students from The College of Education at The Ohio State University who were enrolled in Music 270, a course entitled "Basic Experiences: Music Fundamentals," which is designed for
the prospective elementary teacher. The course is offered by The Division of Music Education of The School of Music at The Ohio State University and carries three quarter hours of credit. The total number of subjects at the beginning of the quarter was 253.

After the enrollment stabilized, data were gathered from the pilot group consisting of 67 prospective elementary teachers who were placed in the two sections of the music fundamentals course which this investigator was assigned to teach. Data for the reference group were gathered from 154 students in the remaining eight sections which other faculty and graduate assistants were assigned to teach.

Instruments and Materials

Pilot Group.—Each student was required to purchase the programmed text, Introduction to Music Fundamentals. The usual classroom instruments were used in the course instruction. These included autoharp, melody bells, maracas, castanets, claves, bongo drum, tom tom, cymbals, triangle, bells, rhythm sticks, and tambourine. In addition, each student was required to purchase a song flute. The development of the materials used for the instruction on these instruments was described previously.

62Andrews and Wardian, op. cit.
Two Bell and Howell Model 294K cassette player-recorder units were used to provide the audio-taped portions of the instruction. A video-tape recorder presented the video-taped portion of the instruction.

The centers of instructional activity were the classroom to which the two sections were assigned, the piano laboratory, and a practice room. The supplemental practice room was approximately six feet by eight feet in size and contained one piano and two chairs. This room allowed a small group to isolate themselves for taped instruction or for preparation for a practical examination. Use of the piano laboratory was assigned for a two-hour period each week.

Reference Group. — The materials used by the reference group were determined by the instructor of each section. However, the textbook which was used for the course was Basic Music, in which musical terminology and theory are approached through experience with music followed by explanation. Some sections of the reference group used a programmed instruction book occasionally as reinforcement for classroom instruction.

The reference group used the same classroom instruments that were used by the pilot group, with the exception

of the song flute. The students in the reference group were asked to purchase recorders, an instrument similar to the song flute.

The assigned classroom and the piano laboratory were the centers of activities for the reference group.

**Classroom Procedures**

*Pilot Group.*—The first day of class was devoted to checking schedule cards and obtaining a list of the students who were enrolled in the course. Further, the students were told that the two sections would receive different instructional treatment from the other sections of the course as a part of a study that was being conducted. The instructional procedures were described. Any student who preferred not to be involved in the study was given the opportunity to transfer to another section. This action was advised because of student unrest on the campus. During the second class meeting, the instructional procedures were again described, and students were given the opportunity to transfer to another section if they preferred not to be involved in the study. However, no student did transfer to another section. At the end of the second class meeting, each student was asked to complete the Background Data Questionnaire, the Test of Musical Knowledge, and the Confidence Scale of Musical Performance Skills (CSMPS).
A course syllabus (Appendix A) was given to each student during the first week of the quarter so that each individual could become familiar with the performance objectives specified for the pilot sections.

The course was separated into instructional segments, which have been described previously. These instructional segments were to be completed during the ten weeks of the quarter, but the rate-of-progress was individualized. A laboratory arrangement was used to the fullest extent that facilities would permit. The two pilot sections were scheduled to meet for a two hour period twice a week and for a one hour period once a week. By combining the scheduled class hours for the two sections, the students in the pilot group had the freedom to use the facilities and the equipment at any time within the two hour period as their needs demanded and as their time permitted. This laboratory arrangement also applied to the use of the piano laboratory for the two hour period which was assigned to the two sections combined.

The proposed program of self-instruction in musical notation and piano began with the programmed instruction book, which was used as a primary technique rather than an ancillary one. Each student used the book at his own rate. The instructor did not lecture in the traditional sense, but the students were encouraged to ask the instructor...
for help when it was needed. After specified frames in the instruction book, the student completed a self-test and checked his answers with a key which was available at the instructor's desk. If he did not score 100 percent correct, he was directed to ask the instructor for assistance. At that time, special help would be given to the individual and to any other individuals who wanted to participate. Because the piano laboratory was available for use only once per week, it was necessary for most students to skip the frames concerning the piano keyboard until they had access to a piano. Some students had enough piano background that they were allowed to practice on their own pianos in place of attending piano laboratory. Therefore, although most of the programmed instruction book was completed in a few weeks, the piano instruction continued until the specified achievement level was reached, which in many cases was the end of the quarter.

When each student completed the programmed instruction in music fundamentals, although piano instruction continued concurrently, he moved ahead to the taped instruction, which was sequenced in the following order: (1) rhythm, (2) melody and song flute, (3) autoharp, and (4) rhythm instruments. If the student felt proficient enough to take the performance test without listening to
the tape, he was permitted to do so. Although the taped instruction was sequenced, the student was allowed to listen to the next tape in the sequence before passing the performance test in the preceding tape. In other words, it was possible for the student to practice the song flute and the autoharp and to take the performance test for both instruments on the same day if he chose to do so. Individual practical examinations, which have been described previously, were required for the rhythm exercises, the song flute, the autoharp, and the piano. (See Appendix for performance objectives). The student informed the instructor when he believed he was ready to take the examination. The criteria for the examinations were accuracy of rhythm and pitch, although the students were not expected to be perfect. Because evaluations are value judgments, the students were not given a letter grade on the practical examinations. The emphasis was on pass or fail. If the student did not meet the performance level required by the instructor, he was permitted as many trials as necessary to pass the performance test. However, there was no sliding scale of required performance level corresponding to the individual's musical ability. The same required performance level was applied to all students as nearly as the investigator was able to do so.

During the last week of classes, each section met at
the hour assigned on the schedule cards. In the large group atmosphere, the students engaged in group singing and rhythm accompaniment. In addition, line-notation was introduced, the students line-notated some chants and poems, wrote new words for familiar melodies, and composed four songs chosen from a list of suggestions concerning possible classroom situations that would be suitable for song creation.

At the end of the ten week period, the Test of Musical Knowledge, the Confidence Scale of Musical Performance Skills, and the Satisfaction Scale were administered.

Finally, the Test of Musical Knowledge was administered three weeks after the termination of the course, which was at the end of the second week of the Spring Quarter, to the students from the pilot group who could be located in the second or the third course of the required sequence of courses in music for elementary education majors.

Reference Group.—During the first week of the quarter, each student was asked to complete the Background Data Questionnaire, the Test of Musical Knowledge, and the Confidence Scale of Musical Performance Skills.

The students in the reference group were taught in the usual lecture-discussion-performance manner, with each instructor having the autonomy to select the final
At the end of the ten week learning period, the students again took the Test of Musical Knowledge and completed the Confidence Scale of Musical Performance Skills and the Satisfaction Scale.

The Test of Musical Knowledge was administered three weeks after the termination of the course as a final test to all students in the reference group who could be located in Music 271 or Music 370, that is, at the end of the second week of the Spring Quarter, 1971.

**Analysis of Data**

All the data had been accumulated by the end of the second week of the Spring Quarter, at which time the analysis of data began. The data were analyzed to answer the following questions:

1. Do the musical backgrounds and the initial musical knowledge of the elementary education students indicate a need for a music fundamentals course that is individualized as to rate-of-progress?

2. Is such a course pedagogically feasible? Is a self-paced, performance-based, laboratory-centered approach, using the instructional procedures which were developed, an effective
music learning experience for elementary education majors?

3. What is the acceptability of the self-paced approach using the instructional procedures which were developed?

4. Is the self-paced approach using the instructional procedures which were developed technically feasible in terms of student accomplishment of the course objectives and the adequacy of facilities?

5. Is the self-paced approach using the instructional procedures which were developed economically feasible?

6. What are the observable problems and constraints affecting the offering of the self-paced approach using the instructional procedures which were developed for the course in music fundamentals for the prospective elementary classroom teacher?

Techniques of Analysis

The first question to be answered concerned the need for a self-paced music fundamentals course in terms of the musical backgrounds and the initial musical knowledge of the students enrolled in all sections of Music 270. The data were tabulated from the Background Data Questionnaire, and raw scores on the pre-test.
administration of the Test of Musical Knowledge were arranged to show the distribution of scores by class intervals.

The question of the pedagogical feasibility of the proposed course was answered in terms of the effectiveness of the programmed instruction book used as a primary independent study technique and information concerning student confidence in the skill areas of the course.

To determine the reliability of the Test of Musical Knowledge, a split-half reliability coefficient was computed for each group's pre-test, post-test, and final-test, using the odd-even scores. Each of the coefficients was then treated by applying the formula

$$r_{kk} = \frac{2r_{nn}}{1+r_{nn}}$$

where $r_{kk}$ = the estimated reliability of the test in its original length

$r_{nn}$ = the reliability coefficient of scores based on the half test.64

Ranges, means, standard deviations, and the resulting mean gain were computed for each group's raw scores on the pre-test and the post-test administrations of the Test of Musical Knowledge. The same treatment was

applied to each group's post-test and final-test scores on the Test of Musical Knowledge. However, for the sake of comparison, only those scores which had paired post-test and final-test scores were used.

For the purpose of analyzing the information obtained from the Confidence Scale of Musical Performance Skills (CSMPS), the following values were assigned to the answer options on the scale: Very Confident, 3; Confident, 2; Uncertain, 1; Very Uncertain, 0. The data were analyzed to show the ranges, the means, the standard deviations, and the mean gains for each group's scores on the pre-test and the post-test administrations of the scale. Further, using each group's pre-test and post-test CSMPS scores, mean scores and the resulting mean gain were calculated for each of the ten items on the scale. This procedure showed the comparison of initial confidence levels and post-treatment confidence levels as well as showing where the confidence gains occurred.

An analysis of covariance was computed and an F value was provided for (1) pre-test and post-test scores on the Test of Musical Knowledge, (2) post-test and final-test scores on the Test of Musical Knowledge, and (3) pre-test and post-test scores on the Confidence Scale of Musical Performance Skills. The F value is defined as
\[ F = \frac{MS_T}{MS_W} \]

where \( MS_T \) is the mean square for treatments and \( MS_W \) is the within treatment mean square. The degrees of freedom which were used were \( k-1 \) d.f. for the numerator and \( n-k \) d.f. for the denominator, where \( k \) is the number of treatment groups and \( n \) is the total number of observations.\(^{65}\) The \( F \) values were treated for significance using the Table of \( F \).

To determine if a relationship existed between the post-test scores of the Test of Musical Knowledge and the post-test scores of the Confidence Scale of Musical Performance Skills, a rank order coefficient of correlation was computed using the formula:

\[ r' = 1 - \frac{6\sum D^2}{n(n^2 - 1)} \]

where \( D \) = the difference between a pair of ranks and \( n \) = the number of ranks.\(^{66}\)

Information concerning the acceptability of the instructional procedures was obtained with a nine-item satisfaction scale, on which the student was asked to rate each item on each of three factors—efficiency, effectiveness, and satisfaction—using a scale ranging from 1, the lowest rating, to 5, the highest rating. The responses were analyzed to provide mean ratings for each of the three factors for each item on the scale. In

\(^{65}\) Ibid., pp. 140-45.

\(^{66}\) Ibid., pp. 161-62.
addition, an average mean was computed for each item by averaging the three factor means. The average mean of each item was used as a basis for ordering the items.

Students in the pilot group were encouraged to make suggestions for improving the instructional procedures. The comments were analyzed for presentation in summary form.

The reference group evaluated their course as an entire unit on each of the three factors. A mean rating was computed for each of the three factors. In addition, the reference group's comments concerning the improvement of the course were analyzed for presentation in summary form.

The question of technical feasibility of the instructional procedures was approached by keeping a tally of the number of students completing course objectives during each week.

The analysis of covariance and the F values were computed by the Center for Evaluation and Measurement at The Ohio State University, using the BMD04V analysis of covariance program. The ranges, the means, the standard deviations, the mean gains, the reliabilities, and the correlations were computed by the investigator, using an HP 9100 Computing Calculator.
Chapter IV presents the detailed analysis of the findings of this study.
CHAPTER IV
ANALYSIS OF THE DATA

The purpose of the investigation was the accumulation of data concerning the feasibility of offering a self-paced, performance-based, laboratory-centered approach featuring independent study in Music 270, a music fundamentals course. The course is one of three courses offered by The Division of Music Education in The School of Music for the pre-service music preparation of elementary education students in The College of Education at The Ohio State University. The variables identified as affecting the feasibility of the self-paced approach, using the instructional procedures that were developed for the study, were the acquisition and retention of musical knowledge, the gain in student confidence in the skill areas of the course, the acceptability of the self-paced approach, the technical requirements, and the additional cost of this experimental approach.

The data were gathered from the students enrolled in all sections of Music 270 during the Winter Quarter, 1971. The pilot group consisted of the two sections the investigator was assigned to teach, comprising 67 students. All the other sections of Music 270 which were assigned to
other faculty members and graduate assistants were the reference group and included 154 students. Each group was composed of naturally assembled classes, and no attempt was made to equate the two groups.

Four evaluation instruments were designed by the investigator to gather the data for the investigation. These instruments included a Background Data Questionnaire, the Test of Musical Knowledge, the Confidence Scale of Musical Performance Skills, and the Satisfaction Scale.

Mean scores, standard deviations, and mean gains for both the pilot and the reference groups were calculated for the pre-test, the post-test and the final-test administrations of the Test of Musical Knowledge.

Mean scores, standard deviations, and mean gains for both the pilot and the reference groups were computed for the pre-test and the post-test administrations of the Confidence Scale of Musical Performance Skills. In addition, mean scores and mean gain scores were computed for each group on each item of the pre-test and the post-test administrations of the Confidence Scale of Musical Performance Skills.

The mean scores for each of the three ratings—efficiency, effectiveness, and satisfaction—of each statement on the Satisfaction Scale were computed. Further, average means were computed for each statement.
on the scale and used as a basis for ordering the statements.

A rank order correlation was computed using the post-test scores on the Test of Musical Knowledge and the post-test scores on the Confidence Scale of Musical Performance Skills.

An analysis of covariance and the F values were computed using the Test of Musical Knowledge scores on the pre-test, the post-test, and the final-test. The same procedure was applied to the pre-test and the post-test scores of the Confidence Scale of Musical Performance Skills. The resulting F values were tested for significance.

Student comments concerning suggested improvements for the instructional procedures used by the pilot sections and for the existing course by the reference group were analyzed for presentation in summary form. Descriptive analysis was used to present the information gleaned through the investigator's experiences regarding the questions of technical feasibility and observable problems and constraints.

**Results**

The data were analyzed to answer the questions posed for the study. Each question will be stated and the results related to each question will be presented.
1. Do the musical backgrounds and the initial musical knowledge of the elementary education students indicate a need for a music fundamentals course that is individualized as to rate-of-progress?

Data was tabulated from the Background Data Questionnaire and was converted to percentages. It is presented in Table 1 in summary form for all the sections of Music 270 as an entire unit.

**TABLE 1**

**MUSICAL EXPERIENCE OF THE TOTAL ENROLLMENT IN MUSIC 270**

<table>
<thead>
<tr>
<th>Type of Experience</th>
<th>Number of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 1 year</td>
</tr>
<tr>
<td>Private study</td>
<td>53%</td>
</tr>
<tr>
<td>Group experience</td>
<td>48%</td>
</tr>
</tbody>
</table>

N reporting on private study = 253
N reporting on group experience = 242

There were 253 usable responses concerning the number of years of private music lessons the students had received. The largest percentage (53%) indicated they had received less than one year of private lessons. This category also included those students who had received no private music lessons. Nineteen percent of the students had received one to two years of private lessons in music, while 17% of the students had received private instruction for three to five years. Eleven percent of the students
indicated they had taken private lessons for six years or more.

Concerning group musical experiences in high school and college, there were 242 usable responses, of which 48% indicated zero to less than one year of experience in a musical group. Sixteen percent had participated one to two years, while 28% had participated three to five years in a musical group. Eight percent of the students indicated experience of six or more years in musical groups. Thus approximately one-half of all the students had less than one year of either private study or group experience in music while some students had many years of the same types of experiences.

All the students were pre-tested, using the Test of Musical Knowledge, and the scores were tabulated for the total enrollment in the course. These data are presented in Table 2.

**TABLE 2**

PERCENTAGE DISTRIBUTION OF RAW SCORES ON THE PRE-TEST OF MUSICAL KNOWLEDGE FOR THE TOTAL ENROLLMENT IN MUSIC 270

<table>
<thead>
<tr>
<th>Interval Scores</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-10</td>
<td>11-20</td>
<td>21-30</td>
<td>31-40</td>
<td>41-50</td>
<td>51-60</td>
<td>61-70</td>
<td>71-80</td>
</tr>
<tr>
<td>%</td>
<td>14</td>
<td>18</td>
<td>19</td>
<td>14</td>
<td>15</td>
<td>11</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Total N = 266       Total Score = 100
Two hundred sixty-six (266) students took the pre-test. The highest score achieved was 89 out of a possible 100 on the Test of Musical Knowledge. Fifty-five students (approximately 20%) scored higher than 50 on the test. More than half the students (51%) scored less than thirty correct answers on the test. Everyone who attended class on the day the test was administered took the test, regardless of whether or not he stayed in the course. Therefore, because class membership had not stabilized at the time the pre-test was given, no comparison of group differences was made for the first question.

The data from the Background Data Questionnaire and the Test of Musical Knowledge showed clearly a very wide variety of musical backgrounds and a great range in musical knowledge. The data indicated a definite need for an individualized music fundamentals course.

2. Is such a course pedagogically feasible? Is a self-paced, performance-based, laboratory-centered approach, using the instructional procedures which were developed, an effective music learning experience for elementary education majors?

The factors affecting pedagogical feasibility of the instructional procedures were the effectiveness of the programmed instruction book used as an independent study technique and the effectiveness of the remainder of the independent study techniques as measured by the Confidence Scale of Musical Performance Skills.
The effectiveness of the programmed textbook was evaluated in terms of the pre-test and post-test scores and the post-test and final-test scores on the Test of Musical Knowledge. The estimated whole test reliabilities of the pre-test, the post-test, and the final-test administrations of the Test of Musical Knowledge were .96, .89, and .99, respectively, for the pilot group. The pre-test, the post-test, and the final-test estimated whole test reliabilities for the reference group were .96, .91, and .89, respectively.

To estimate the learning in musical notation that occurred during the Winter Quarter, the pre-test and the post-test scores on the Test of Musical Knowledge were computed to determine the range, the mean, the standard deviation, and the mean gain for each group. Table 3 presents the results.

**TABLE 3**

ANALYSIS OF RAW SCORES BY GROUP
ON THE TEST OF MUSICAL KNOWLEDGE
PRE-TEST AND POST-TEST

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th></th>
<th>Post-Test</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>M</td>
<td>S.D.</td>
<td>Range</td>
<td>M</td>
</tr>
<tr>
<td>Pilot</td>
<td>87</td>
<td>30.51</td>
<td>17.86</td>
<td>38</td>
<td>91.37</td>
</tr>
<tr>
<td>Reference</td>
<td>86</td>
<td>35.24</td>
<td>19.66</td>
<td>57</td>
<td>76.55</td>
</tr>
</tbody>
</table>

Pilot N = 67
Reference N = 143
An examination of the results which are presented in Table 3 indicates that the initial range of the scores of the groups differed by one point, 87 and 86. The post-test range of the pilot group decreased to 38, while the post-test range of the reference group decreased to 57. The pre-test and post-test standard deviations were 17.86 and 8.19, respectively, for the pilot group; the pre-test and post-test standard deviations for the reference group were 19.66 and 12.72, respectively. The pre-test to post-test mean gain for the pilot group was 60.86, while the mean gain for the reference group was 41.21.

The results indicate that the pilot group achieved a smaller range, a higher mean score, a smaller standard deviation, and a larger mean gain from the pre-test to the post-test of the Test of Musical Knowledge. While the pre-test mean score was 4.73 higher for the reference group than for the pilot group, the latter still reached a post-test mean that was 14.82 points higher than the reference group.

Using 1 and 208 degrees of freedom, an $F$ value equal to or greater than 6.76 would be expected to occur with a probability of 0.01 under the null hypothesis (no difference among treatments after adjusting with covariates). The computed $F$ value for the data presented in Table 3 was 43.68, however, and was the basis for rejecting the
null hypothesis and assuming the results were significant beyond the 0.01 level.

To complete the evaluation of the effectiveness of the programmed instruction book, a final test to estimate retention of learning was administered three weeks after the termination of the course to students from both groups who were enrolled in the music courses (Music 271 and Music 370) which follow Music 270. In order to compare the post-test scores and the final test scores, the ranges, the means, and the standard deviations were computed for the post-test scores that had paired final-test scores. Using the final test scores, the ranges, the means, the standard deviations, and the resulting mean gains were computed. These results are presented in Table 4.

<table>
<thead>
<tr>
<th>TABLE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYSIS OF RAW SCORES BY GROUP ON THE TEST OF MUSICAL KNOWLEDGE POST-TEST AND FINAL-TEST</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Pilot</td>
</tr>
<tr>
<td>Reference</td>
</tr>
<tr>
<td>Pilot N = 23</td>
</tr>
</tbody>
</table>

The number of students who took the final test was very low, both in the pilot group and in the reference.
The results reveal that the post-test and final-test ranges for the pilot group were 13 and 22, respectively. The pilot group's mean score was 93.65 on the post-test and 90.35 on the final-test. These figures represent a loss of 3.30 points in the mean gain score for the pilot group. The mean gain of the reference group represented an increase of 2.02 points. However, the pilot group's mean was almost ten points above the final-test mean of the reference group, and the pilot group's standard deviation for the final-test was smaller than that of the reference group.

Using 1 and 61 degrees of freedom, an F value equal to or greater than 7.08 would be expected to occur with a probability of 0.01 under the null hypothesis (no difference among treatments after adjusting with covariates). The computed F value for the data presented in Table 4 was 14.68, which permitted the rejection of the null hypothesis and the assumption that the results were significant beyond the 0.01 level.

Gains in student confidence were employed to measure the effectiveness of the remainder of the independent study techniques. Information concerning student confidence in the skill areas of the course was provided by the Confidence Scale of Musical Performance Skills (CSMPS). For the purpose of analysis, the following values were
assigned to the answer options on the scale: Very Confident, 3; Confident, 2; Uncertain, 1; Very Uncertain, 0. The possible range of scores on the ten-item scale was 0-30 points. The data were analyzed to show the ranges, the means, the standard deviations, and the mean gains on the pre-test and the post-test for each group. The results are presented in Table 5.

**TABLE 5**

**ANALYSIS OF CONFIDENCE SCORES BY GROUP**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range M S.D.</td>
<td>Range M S.D.</td>
<td>M</td>
</tr>
<tr>
<td>Pilot</td>
<td>18 6.02 4.86</td>
<td>15 25.28 3.59</td>
<td>19.26</td>
</tr>
<tr>
<td>Pilot N = 57</td>
<td></td>
<td>Reference N = 88</td>
<td></td>
</tr>
</tbody>
</table>

Pre-test and post-test CSMPS scores were available for all but ten students in the pilot group. Scores were available for only slightly over half the number of students in the reference group. The results indicate that the pilot group ranges for the pre-test and the post-test were 18 and 15, respectively. The respective pre-test and post-test ranges for the reference group were 26 and 29. The pilot group mean on the pre-test was 6.02 and the post-test mean was 25.28, representing a positive mean gain of 19.26 points. The reference
group mean on the pre-test was 9.29, while the post-test mean was 18.99, representing a mean gain of 9.7 points for the reference group.

Using 1 and 143 degrees of freedom, an F value equal to or greater than 6.81 would be expected to occur with a probability of 0.01 under the null hypothesis. The computed F value for the data presented in Table 5 was 41.07, providing the basis for rejecting the null hypothesis and assuming the results were significant beyond the 0.01 level.

To show the areas where the most and the least confidence gains occurred in each group, mean scores for each of the ten items on the CSMPS were calculated for each group. The possible range per item was 0-3. These results are presented in Figure 1 for the pilot group and in Figure 2 for the reference group.

The skill area showing the smallest amount of initial confidence in both groups was that involving the creation of rhythmic accompaniments. The reference group increased its mean confidence in that area by 0.65, while the pilot group's confidence increased 2.35. The largest confidence gain occurred for both groups in autoharp skills. The initial confidence in piano skills was 0.81 for the pilot group and 1.53 for the reference group. The post-test confidence in piano skills was 2.77 for the pilot group and 2.56 for the reference group. An examination of Figure 1 and Figure 2 reveals that the pilot group's
<table>
<thead>
<tr>
<th>Song Flute</th>
<th>Autoharp</th>
<th>Singing</th>
<th>Clap. Rhythms</th>
<th>Play Rhythm Instr.</th>
<th>Create Rhythm Accomp.</th>
<th>Write_orig. Words</th>
<th>Create Songs</th>
<th>Basics of Singing</th>
<th>Piano</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.79</td>
<td>2.97</td>
<td>2.61</td>
<td>2.32</td>
<td>2.56</td>
<td>2.47</td>
<td>2.26</td>
<td>2.18</td>
<td></td>
<td>2.77</td>
</tr>
<tr>
<td>2.46</td>
<td>2.64</td>
<td>1.56</td>
<td>1.57</td>
<td>1.79</td>
<td>2.35</td>
<td>1.72</td>
<td>1.80</td>
<td>1.46</td>
<td>1.91</td>
</tr>
</tbody>
</table>

Pre-test

Post-test

\[ N = 57 \]

Fig. 1--PILOT GROUP: COMPARISON OF THE PRE-TEST POST-TEST MEANS OF THE CONFIDENCE SCALE ITEMS
Fig. 2.—REFERENCE GROUP: COMPARISON OF THE PRE-TEST POST-TEST MEANS OF THE CONFIDENCE SCALE ITEMS

<table>
<thead>
<tr>
<th>Song Flute</th>
<th>Auto-harp</th>
<th>Singing</th>
<th>Clap. Rhythms</th>
<th>Play Rhythm Instr.</th>
<th>Create Rhythm Accomp.</th>
<th>Write Orig. Words</th>
<th>Create Songs</th>
<th>Basics of Singing</th>
<th>Piano</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.28</td>
<td>2.37</td>
<td>2.24</td>
<td>2.26</td>
<td>1.88</td>
<td>1.23</td>
<td>1.23</td>
<td>1.11</td>
<td>0.91</td>
<td>2.56</td>
</tr>
<tr>
<td>0.73</td>
<td>0.68</td>
<td>1.14</td>
<td>1.40</td>
<td>0.96</td>
<td>0.58</td>
<td>0.81</td>
<td>0.66</td>
<td>1.03</td>
<td>1.53</td>
</tr>
</tbody>
</table>

N = 88
pre-test confidence was below that of the reference group in each skill area. However, the pilot group's post-test confidence level was greater in all skill areas than was that of the reference group.

To determine if a relationship existed between musical knowledge and confidence in the skill areas, a rank order correlation was computed using the post-test scores of the Test of Musical Knowledge and the post-test scores of the CSMPS. The resulting coefficients were 0.26 for the pilot group and 0.44 for the reference group. Each coefficient indicates there was no significant relationship existing between the two sets of scores.

3. What is the acceptability of the self-paced approach using the instructional procedures which were developed?

This question was answered by data which were obtained from the pilot group with a nine-item satisfaction scale. The Satisfaction Scale was designed to obtain a rating from each student concerning the extent to which the student felt the methods employed in teaching the course were efficient, effective, and satisfying. Each statement was to be rated on each of the three factors, using a scale ranging from 1 to 5. A rating of "1" was the lowest rating, while a rating of "5" was the highest rating. Mean ratings for each of the three factors were computed for each item on the Satisfaction Scale. An average mean was then computed for each item by averaging the three factor means.
The average mean of each item was used as a basis for ordering the items. The results are presented in Table 6.

The results in Table 6 indicate that the students in the pilot group were favorable toward the methods employed in teaching the course. The item receiving the highest average mean rating concerned the role of the teacher as an instructional guide. The use of performance objectives received the second highest average mean rating. The students gave a very favorable reaction to the whole pattern of different methods used in stimulating student self initiative. The four items receiving the lowest rating were related to the actual independent study techniques. The technique receiving the lowest rating was the audio-tape recorder used to present portions of the instruction. However, all the average mean ratings were above 4.40. The difference between the highest average mean and the lowest average mean was 0.44.

The students in the pilot group were asked to make suggestions for improving the course. The responses are presented in Table 7.

Nineteen students made suggestions for improving the course. The remainder indicated they were pleased with the course as it had been taught and could offer no suggestions to improve it. An examination of the results in Table 7 reveals that twelve students believed a suggested time schedule for completing the course objectives
TABLE 6
PILOT GROUP: MEAN RANK OF ITEMS ON EFFICIENCY, EFFECTIVENESS, AND SATISFACTION

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>The role of the teacher as an instructional guide in place of lecturer or group discussion leader.</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>4.88</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>4.88</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4.86</td>
</tr>
<tr>
<td><strong>Average Mean</strong></td>
<td>4.873</td>
</tr>
<tr>
<td>The use of performance objectives as opposed to the non-existence of such objectives.</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>4.79</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>4.81</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4.81</td>
</tr>
<tr>
<td><strong>Average Mean</strong></td>
<td>4.803</td>
</tr>
<tr>
<td>The use of the whole pattern of different methods as a technique to stimulate student self initiative.</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>4.74</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>4.79</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4.81</td>
</tr>
<tr>
<td><strong>Average Mean</strong></td>
<td>4.780</td>
</tr>
<tr>
<td>The course organized for learning on the basis of individual rate of progress.</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>4.81</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>4.72</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4.77</td>
</tr>
<tr>
<td><strong>Average Mean</strong></td>
<td>4.766</td>
</tr>
<tr>
<td>Method</td>
<td>Efficiency</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>The use of the piano laboratory in the instructional process</td>
<td>4.74</td>
</tr>
<tr>
<td>The use of the self tests as a learning tool in the music fundamentals study</td>
<td>4.79</td>
</tr>
<tr>
<td>The use of the programmed instruction textbook for learning music fundamentals</td>
<td>4.74</td>
</tr>
<tr>
<td>The use of the videotape recorder to present portions of the instruction</td>
<td>4.46</td>
</tr>
<tr>
<td>The use of the audiotape recorder to present portions of the instruction</td>
<td>4.51</td>
</tr>
</tbody>
</table>
would improve the course. The number of students making this suggestion represents 18% of the students in the pilot group. Each of the other suggestions was made by not more than two students.

TABLE 7
PILOT GROUP'S SUGGESTIONS FOR IMPROVING THE COURSE

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Number Making the Suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggested time schedule to help the student plan his time</td>
<td>12</td>
</tr>
<tr>
<td>More attention for students with no musical background</td>
<td>2</td>
</tr>
<tr>
<td>More time for piano laboratory work during the evenings</td>
<td>2</td>
</tr>
<tr>
<td>One period per week devoted to lecture</td>
<td>2</td>
</tr>
<tr>
<td>Integrate taped instruction with the programmed instruction textbook</td>
<td>1</td>
</tr>
</tbody>
</table>

It was not possible to compare the ratings of the pilot group with those of the reference group because the same form of the scale was not used and the statistical procedures were not the same. The students in the reference group evaluated the methods used in the respective sections of Music 270 by rating the entire course as a unit on each of the three factors—efficiency, effectiveness, and satisfaction. A mean rating was computed for
each of the three factors, and the results are presented in Table 8.

TABLE 8
REFERENCE GROUP'S MEAN RATING OF THE REGULAR COURSE

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Effectiveness</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.27</td>
<td>4.44</td>
<td>4.17</td>
</tr>
</tbody>
</table>

N = 88

An examination of the results in Table 8 reveals that the students in the reference group rated the course favorably on efficiency, effectiveness, and satisfaction. The highest rating was given to the effectiveness of the course. Satisfaction received the lowest rating.

Suggestions for improving the course were requested from the students in the reference group. These suggestions are presented in Table 9.

Table 9 reveals that nine students believed that ability grouping would improve Music 270. Six students believed that there was too much content in the course to be covered in ten weeks, while four students believed that five credit hours should be given for the course. Three students suggested spending more time on singing techniques, and two students believed that more time in the piano laboratory should be made available. One student
suggested combining Music 270, 271, and 370 to make one large course in order to make the instruction more effective. One student believed that students with no musical background should be provided with extra help in some way, while a programmed approach was suggested by another student.

**TABLE 9**

**REFERENCE GROUP'S SUGGESTIONS TO IMPROVE MUSIC 270**

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Number Making the Suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability grouping for the classes</td>
<td>9</td>
</tr>
<tr>
<td>Decrease the amount of content or permit more than one quarter to learn existing content</td>
<td>6</td>
</tr>
<tr>
<td>Increase credit hours given for the course from three to five</td>
<td>4</td>
</tr>
<tr>
<td>Spend more time on singing techniques</td>
<td>3</td>
</tr>
<tr>
<td>Provide more piano laboratory time</td>
<td>2</td>
</tr>
<tr>
<td>Combine Music 270, 271, and 370 into one large course</td>
<td>1</td>
</tr>
<tr>
<td>Provide extra help for students with no musical background</td>
<td>1</td>
</tr>
<tr>
<td>Use a programmed approach</td>
<td>1</td>
</tr>
</tbody>
</table>

There were some persons who, by their suggestions, exhibited concern for individuals of different abilities and backgrounds in music. However, the course rating by
the reference group was generally very favorable.

4. Is the self-paced approach using the instructional procedures which were developed technically feasible in terms of student accomplishment of the course objectives and the adequacy of facilities?

The independent study areas of the course were musical theory, piano keyboard, rhythm, melody and song flute, autoharp, and rhythm instruments. These were followed by large group instruction in song creation and group experience in singing. Each study area had a final task associated with it as an indication that the behavioral objectives had been met. The final tasks were the following: (1) completion of the eight self-tests over the programmed instruction book, (2) piano proficiency test, (3) clapping rhythm exercises, (4) song flute proficiency test, (5) autoharp proficiency test, (6) rhythmic accompaniment written assignment, and (7) song creation written assignment. The independent study in the various segments was begun in the order just given, although the completion of the tasks was not always in that same sequence because the students were permitted to move ahead to another taped presentation before completing the final task of the previous tape.

The students were informed that they were expected to complete all of the tasks at the stated level of proficiency within the ten week period. The number of
students completing the various tasks was tallied during each week. The results are presented in Table 10.

**TABLE 10**

**WEEKLY RECORD OF PILOT GROUP COMPLETION OF SEVEN FINAL TASKS**

<table>
<thead>
<tr>
<th>Task</th>
<th>Number Completing Tasks Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4  5  6  7  8  9  10</td>
</tr>
<tr>
<td>Self Tests</td>
<td>12 13 29 11</td>
</tr>
<tr>
<td>Clapping Rhythm Exercises</td>
<td>4  8  7 12 19 10 5</td>
</tr>
<tr>
<td>Song Flute</td>
<td>5  9  8 15 14 10 6</td>
</tr>
<tr>
<td>Autoharp</td>
<td>3  8 13 20 16 10 6</td>
</tr>
<tr>
<td>Piano</td>
<td>2  7 11 16 16 21</td>
</tr>
<tr>
<td>Rhythmic Accompaniment</td>
<td></td>
</tr>
<tr>
<td>Song Creation</td>
<td>67</td>
</tr>
</tbody>
</table>

*N = 67*

The results in Table 10 reveal that:

1. No one completed the programmed instruction book until the third week. By the sixth week, everyone had completed the book.

2. Four students completed the rhythm performance exercise during the same week they completed the programmed instruction book. The week during which the highest number completed this task was the seventh week. The task was not completed by everyone until the ninth week.
3. Five students completed the proficiency test on the song flute during the fourth week, but the two weeks during which the most song flute activity occurred were the seventh and the eighth weeks. Six students did not take the song flute proficiency test until the last week of the quarter.

4. Three students completed the autoharp proficiency during the fifth week, with the eighth and ninth weeks showing the greatest amount of activity in that area. Ten students did not finish the autoharp until the tenth week.

5. Students began taking the piano proficiency tests during the fifth week. The weeks during which the most piano activity occurred were the last two weeks of the quarter.

6. The rhythm assignment was an activity the students completed during the last three weeks of the quarter.

7. The song creation was, by design, an activity in which the whole class participated during the last week.

All students completed all the tasks identified with the behavioral objectives specified for the pilot sections of the course as shown by the results which are presented in Table 10.

No records were kept to supply information concerning the use of facilities because all available instructor time was spent directly with the students and their immediate needs. Therefore, technical feasibility in terms of the
adequacy of the facilities must be determined by the investigator’s experience teaching the pilot sections. The period during which the available facilities were used to the fullest extent corresponded to the weeks with the highest incidence of skill development, that is weeks six through ten. The number of recorder/player units used for the audio-tutorial instruction appeared to be adequate for the number of students in the class because the students arranged among themselves to work in small groups to listen to the taped instruction. However, because they occasionally were not able to procure an autoharp when they desired to practice, students began arranging among themselves for the use of the autoharps. No other problems concerning the adequacy of the facilities were observed during the quarter.

The results in Table 10 and the experience of the investigator support the belief that the self-paced approach is technically feasible in terms of the students' completion of the final tasks and the adequacy of the facilities.

5. Is the self-paced approach using the instructional procedures which were developed economically feasible?

The materials that were used which were not provided by the University for the regular sections of Music 270 consisted of two recorder/player units with batteries and three thirty-minute tape cartridges. The combined cost of
these materials was approximately $125. Although the cost of a course should include the cost of the teacher, the room, equipment, etc., these were provided for the regular sections and were not considered in the economic feasibility of the pilot sections. The only extra cost for the pilot sections was the purchase of the two player units and the three tape cartridges.

If the course were to be implemented on a more permanent basis for more sections of Music 270, perhaps other room arrangements would be needed. This would indeed add to the cost of implementation.

6. What are the observable problems and constraints affecting the offering of the self-paced, performance-based, laboratory-centered approach using the instructional procedures which were developed for the course in music fundamentals for the prospective elementary classroom teacher?

A descriptive summary of the experiences of this researcher is presented to answer the question.

The design and preparation phase of the self-paced approach required a significant amount of time on the part of the developer, although no records were kept to show just how much time was required. However, after a trial quarter, during which the materials and procedures were used and revised, the implementation phase of the study required considerably less time. The first reaction to the thought of 67 students progressing at their own rates in a modified open laboratory situation is that the
learning would degenerate into chaos and that students would procrastinate. This could happen if the instructor allowed it. The instructor continually monitored progress, encouraged the students to progress further, and remembered her role of instructional guide. Even so, there were those individuals who postponed their performance tests as long as possible.

Instructor time during the scheduled class hours was spent answering individual questions, assisting in spontaneous small group discussions, helping with practice sessions, and evaluating performance examinations. The actual time required for these activities was about the same as that required for the lecture-performance-discussion method of teaching.

Lack of motivation and lack of understanding the material presented in Music 270 could greatly hinder student achievement in such a course. However, these two factors were not problems in the pilot sections. Knowing exactly what the course objectives were, the students were able to spend as much time as necessary for understanding the material to be learned, and they were able to experience success in learning music fundamentals. The students were not required to come to class to work in their programmed textbooks, although many of the students came for that purpose anyway.

Some students did tend to procrastinate, as the
results in Table 10 seem to indicate. However, at the beginning of each class period the students initiated their own learning activities without any word from the instructor, and many times the students were forced to end their activities because another class was scheduled to use the room. On one day during the quarter when the investigator was unable to attend class, it was reported that the students practiced for performance examinations and discussed questions concerning the course among themselves.

Some persons may feel that if students are given a list of terminal objectives, they will learn no more than is necessary to meet those objectives. There are students of this type in all classes, and the pilot sections were no exception. However, many students in the pilot sections appeared to work at capacity level to achieve the course objectives. Some students indicated through verbal comments to the instructor that they would like to continue to develop upon the musical foundation they had built in music fundamentals. No one complained that the course was too hard, but one person told the instructor the course was too easy.

The use of media has been criticized because it dehumanizes instruction. However, the use of media makes possible independent study which may ultimately result in the humanization of instruction. The experience
of the investigator supports the view of the humanization possibility. A large amount of class time was devoted to talking directly to individuals or small groups, which made possible the learning of students' names more easily. Some students commented at the end of the quarter that being called by name was important to them. The rapport with the students was excellent with the exception of one student. Four students requested the instructor to provide recommendations for a placement office. One of these four students, a senior, commented that the instructor was one of only two faculty members she believed knew her as an individual and knew her abilities.

The biggest problems encountered in the procedures used with the pilot sections were those of operating within the confines of a regular classroom and inadequate arrangements for use of the piano laboratory. The activities in the classroom at any one time were many and varied. Often there were simultaneous sounds of rhythm instruments, song flutes, autoharps, piano, singing, and discussion. A practice room was assigned to the instructor to provide a quieter place for students to practice for a proficiency examination or to listen to audio-tapes. A more desirable arrangement would have been to acquire three practice rooms.

Although the rate-of-progress was individualized, students also worked in small groups on the programmed
textbook as well as on the instruments. For instance, when one person asked a question concerning the subject of a frame in the programmed textbook, the instructor would announce an immediate, short help session on the subject. Anyone who wished could participate in the session. Most often the groups were ability groups since the students participating in the help sessions were near the same point in the instruction. The same was true of small group work on the instruments. However, the groups were not static because the membership was constantly changing. The instructor believes that the dynamic nature of the small group work increased the students' motivation. It was also observed on some occasions that the more able students on some of the instruments were helping the less able students.

In terms of comments made on student evaluations of the self-paced course, the student reaction was very favorable. Some of these comments are presented on the following pages.

...When I first entered the class I had little confidence that I could do anything, but now I feel very confident in many areas of music.

...I feel that I have learned more in this class than in most others I have taken in basic education requirements.

...This course was an excellent review of music for me, and I learned many new things. I wish more courses could be like this one.
...It's so nice to be able to ask for help and receive it so willingly and immediately...

...When I began this course I knew nothing about music... If the course had been designed any other way I would have never kept up... And now in a period of one quarter I am able to read music and play the piano. I have never felt such a sense of satisfaction from a course.

...The programmed instruction book made everything simple and clear. I feel lucky to have been in this experimental program!

...I learned more from this course than I ever have from any other course in this university. I wish there were more courses taught like this,

...Since I had a moderate musical background when I entered the course, I found that the course set-up gave me the opportunity to work on the aspects of music that I wasn't familiar with, without wasting time on fundamentals that I already knew.

...I really enjoyed this course... However, I don't feel enough time was spent on vocalizing.

...This course was a struggle for me. I hated practicing and I was completely ignorant of music technically before this. Now I am glad I did it and am proud to know as much as I do about music.

...This is the first course at this university that has kept my interest the entire quarter.

...I really enjoyed the course. I really learned a lot and the best part is that I enjoyed learning. If all my courses were like Music 270, my problems would be few.

...I want to thank you for the best course I've had so far at O. S. U. For once I learned something pertinent to teaching children!

...I've enjoyed the course very much. I've learned as much as in a conventional class with much more enjoyment.
...I really think the way the course was taught was excellent. I can't believe how much I've learned in ten weeks.

...I exposed my 13-year-old son to the programmed instruction book and he began asking me if we could do some music. Very, very pleased with this course.

...I feel I learned more in this class simply because I wasn't pushed into performing on certain days. I like this---the fact I can come and go as I please as long as I complete everything.

...There wasn't much variety at the beginning of the course, but otherwise, I enjoyed it very much.

The comments which were presented were representative of those given to the instructor. Most of the comments were very favorable and indicated a high degree of satisfaction with the course design. All of the negative comments were included in the previous presentation.

In summarizing the experiences of the investigator, there were many advantages observed in the self-paced course, while the two biggest problems centered around the physical constraints of the single classroom and the arrangements for the use of the piano laboratory. However, the problems were not insurmountable.

Chapter V presents the summary, the conclusions, and the recommendations for further research.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study evolved from the idea of designing a self-paced, performance-based, laboratory-centered approach to a required course in music fundamentals for students enrolled in elementary education in The College of Education at The Ohio State University. The suggested content for the course included singing, instrumental, rhythmic, and creative musical experiences, and it provided the opportunity for the students to gain some facility at the piano keyboard and with classroom instruments. The course, Music 270, was offered in several sections by The Division of Music Education in The School of Music at The Ohio State University.

The materials, the evaluation instruments, and the procedures were developed and used during the trial quarter, the Fall Quarter, 1970, with two sections of Music 270 at The Ohio State University.

The Purpose of the Study

The purpose of the study was to offer a self-paced approach using the instructional procedures which were
developed to a pilot group of elementary education students who were enrolled in Music 270, a music fundamentals course for prospective elementary classroom teachers, at The Ohio State University and to accumulate data concerning the feasibility of the self-paced approach. The acquisition and retention of musical knowledge, the gain in student confidence in the skill areas of the course, the acceptability of the course, and the observable problems and constraints were identified, a priori, as affecting the feasibility.

The study was undertaken to answer the following questions:

1. Do the musical backgrounds and the initial musical knowledge of the elementary education students indicate a need for a music fundamentals course that is individualized as to rate-of-progress?

2. Is such a course pedagogically feasible? Is a self-paced, performance-based, laboratory-centered approach, using the instructional procedures which were developed, an effective music learning experience for elementary education majors?

3. What is the acceptability of the self-paced approach using the instructional procedures which were developed?

4. Is the self-paced approach using the instructional procedures which were developed technically feasible in terms of student accomplishment of the course objectives and the adequacy of facilities?

5. Is the self-paced approach using the instructional procedures which were developed economically feasible?
6. What are the observable problems and constraints affecting the offering of the self-paced approach using the instructional procedures which were developed for the course in music fundamentals for the prospective elementary classroom teacher?

**Need for the Study**

The literature reveals areas of inadequacies in the music preparation of the general elementary classroom teacher, resulting in doubts, both on the part of the classroom teacher and the music educator, concerning the classroom teacher's ability to teach music. At the same time, present-day realities seem to indicate that the classroom teacher's role as music educator will continue to be one of importance.

While some music educators have attempted to improve the music education of the prospective classroom teacher by developing programmed textbooks for use in learning music fundamentals, there is a substantial lack of literature relating to the use of other independent study techniques or whole patterns of techniques for the music preparation of the elementary classroom teacher.

**Methods and Procedures**

Following the development and the trial use of the materials, the evaluation instruments, and the procedures, the self-paced course using the instructional procedures which were developed was offered during the Winter Quarter,
1971, to a pilot group of 67 students in two sections of Music 270, which this investigator was assigned to teach. In addition, data were gathered from 154 students of the remaining eight sections, comprising the reference group, which were assigned to other faculty and graduate assistants.

Four evaluation instruments were designed or adapted by the investigator for the purpose of gathering data. These instruments were the Background Data Questionnaire, the Test of Musical Knowledge (used as pre-test, post-test, and final-test), the Confidence Scale of Musical Performance Skills (CSMPS, used as pre-test and post-test), and the Satisfaction Scale.

The data obtained from the Test of Musical Knowledge pre-test and post-test were computed to indicate the ranges, the means, the standard deviations, and the resulting mean gains. The same computations were made using the Test of Musical Knowledge post-test and final-test scores, as well as the pre-test and post-test scores obtained from the CSMPS.

The Satisfaction Scale for the pilot group requested a rating, based on a scale ranging from 1, the lowest, to 5, the highest, for each of three factors—efficiency, effectiveness, and satisfaction—concerning the nine items contained in the scale. The mean ratings for each of the three factors and the resulting average mean rating was
computed for each of the nine items. The average mean was used as a basis for ordering the items.

The number of students completing the tasks for the performance objectives was tallied per week for presentation in tabular form.

A descriptive summary of the investigator's experiences with the self-paced course using the instructional procedures which were developed was presented.

A Summary of the Findings

Information was obtained concerning the questions which had been developed from the factors identified as determinants of feasibility. The findings are summarized below.

1. Do the musical backgrounds and the initial musical knowledge of the elementary education students indicate a need for a music fundamentals course that is individualized as to rate-of-progress?

The musical backgrounds, as the students reported them, were widely varied, and the pre-test scores on the Test of Musical Knowledge represented an extremely wide range. In terms of private and group musical experience and the raw scores on the Test of Musical Knowledge, the results indicated there was a definite need for an individualized rate-of-progress in the music fundamentals course which would permit students to work on their own areas of weakness.
2. Is such a course pedagogically feasible? Is a self-paced, performance-based, laboratory-centered approach, using the instructional procedures which were developed, an effective music learning experience for elementary education majors?

The effectiveness of the programmed instruction book as a primary independent study technique partially determined pedagogical feasibility. The computed F value, when compared to tabled values of F, showed that the results obtained by comparing the pre-test and post-test scores and the post-test and final-test scores of each group for the Test of Musical Knowledge indicated the pilot group scored significantly higher on the post-test and the final-test than did the reference group. The results support the view that in terms of the Test of Musical Knowledge, greater learning occurred within the pilot group. Therefore, the use of the programmed instruction book was considered to be an effective, primary independent study technique for prospective elementary teachers.

The effectiveness of the remainder of the instructional procedures was evaluated in terms of gain in student confidence in the skill areas for which the course was responsible. The results concerning the student confidence in the skill areas show that while the pilot group had a smaller range and a lower mean score than the reference group on the pre-test, the pilot group had a smaller range but a much higher mean score on the post-test.
administration of the CSMPS. Comparing the computed $F$ value to the tabled values of $F$, the results were found to be significant beyond the 0.01 level, which supports the view that the instructional procedures were effective in terms of student confidence gain.

A correlation between the Test of Musical Knowledge post-test scores and the post-test scores of the CSMPS indicated there was no significant relationship existing between the two sets of scores for either the pilot group or the reference group.

In terms of the effectiveness of the programmed instruction book and the effectiveness of the remainder of the instructional procedures which were evaluated by student confidence gain in the skill areas of the course, the self-paced approach was considered pedagogically feasible.

3. What is the acceptability of the self-paced approach using the instructional procedures which were developed?

The students' reactions to the self-paced approach and its procedures were very favorable, as the results indicated. The average mean ratings for each of the nine items on the Satisfaction Scale were all above 4.40, out of a possible 5.0. The difference between the highest and the lowest average mean ratings was .44. Eighteen percent of the students in the pilot group suggested that a proposed time schedule for completing the course objectives
would be a helpful addition to the approach.

The students' ratings of the regular course by the reference group were favorable, although several students suggested the use of ability grouping and the elimination of some course content as ways to improve the existing course.

4. Is the self-paced approach using the instructional procedures which were developed technically feasible in terms of student accomplishment of the course objectives and the adequacy of facilities?

Technical feasibility was measured by gathering information concerning the completion of the final tasks in the study areas. A tally of the number of students completing these areas during each week revealed that all members of the pilot group did complete all the course objectives. The programmed instruction book was not completed by the entire group until the sixth week, although some individuals completed the book in three weeks. Some students postponed their performance examinations until the last two weeks of the quarter. These results and the experience of the investigator support the belief that the self-paced approach, as it was offered, was technically feasible.

5. Is the self-paced approach using the instructional procedures which were developed economically feasible?

Economic feasibility was determined by the cost of materials which were not provided by the University for
the regular sections of Music 270. This figure, then, excluded the cost of the teacher, the room, and the equipment. The only additional materials which were required to implement the self-paced approach using the instructional procedures which were developed were two recorder/player units and three tape cassettes. The cost of these materials was $125. In view of this cost, the self-paced approach was considered to be economically feasible.

6. What are the observable problems and constraints affecting the offering of the self-paced approach using the instructional procedures which were developed for the course in music fundamentals for the prospective elementary classroom teacher?

The problems identified in the study were (1) working within the constraints of a single classroom and (2) inadequate arrangements for use of the piano laboratory.

The use of the audio-tutorials was an effective instructional procedure, and at the same time, they released the instructor to work with individuals and small groups as the need arose. Among the advantages that were observed during the offering of the self-paced approach were highly motivated students who were initiating their own activities in the classroom, which was made possible through the use of the audio-tutorial study. Some students helped other students, but the instructor was usually available for immediate help when it was requested. Although the pilot sections were self-paced, there was
ample opportunity to work in small groups. The dynamic nature of the small groups, which was made possible by the individual rate-of-progress, seemed to add to student motivation.

**Conclusions and Recommendations**

**Conclusions and Implications**

The following conclusions are formulated on the basis of this study.

1. The results of the Test of Musical Knowledge indicate that a significantly greater amount of learning occurred within the pilot group. One may speculate that reasons for the greater amount of learning were:
   
   a. the use of a programmed instruction book in which the material to be learned was presented in a structured manner, requiring a response from each student for each frame, and providing immediate feedback concerning the correctness of the answer. No student was able to depend on another person to supply the answer for him. Further, the student did not have to depend upon his own class notes.
   
   b. the self-paced feature which enabled each student to spend as much time as required for understanding the units in the programmed book.
   
   c. an acquaintance with the course objectives.
2. The results of the pre-test and post-test CSMPS showed a greater increase in confidence within the pilot group in the skill areas for which the regular course was responsible. One may conclude that:

   a. the audio-tutorial procedure is an effective way to teach in the musical skill areas of the course.

   b. by encountering the learning of a musical skill as an individual, thus being allowed to spend as much time as is needed to develop the skill, student confidence is increased significantly as compared to a heterogeneous group of students who are exposed to a lock-step approach of lecture-discussion-performance in a course involving both knowledge and skill.

   c. striving to develop the musical skills to a criterion level, regardless of the number of attempts that are required to reach that level, increases the level of confidence in the given skill areas.

3. The post-test scores on the CSMPS were not related significantly to the post-test scores on the Test of Musical Knowledge. This result would cause one to conclude that "knowing about" is not adequate in itself to increase
confidence levels in the musical skill areas. Successful experience and active participation in the skill apparently are important factors in the increase of student confidence in the skill areas.

4. The post-test scores on the CSMPS for the pilot group were significantly higher than the scores for the reference group. One might speculate that, while all the students in the pilot group received the instruction and completed the final tasks in the skill areas for which the regular course was responsible, not all sections of the reference group received instruction in all the suggested skill areas.

5. While the standard deviations on the pre-test of the Test of Musical Knowledge and the CSMPS indicated the pilot group and the reference group were from the same population, the statistics concerning the post-test scores on each instrument indicated that the two groups were no longer classifiable as being from the same identical population.

**Recommendations for Further Research**

The following recommendations are made as a result of the present study:

1. Minimal behavioral objectives for such a course should be specified for use by all sections. If this were done, it would be more likely that each section would be
striving to reach the same ends, and each student could
know what he was expected to accomplish during the quarter.

2. A test should be developed to be administered as
a pre-test for estimating initial musical knowledge and as
a post-test for estimating the amount of learning which
occurred during the learning period. A standardized test
would facilitate the evaluation of various course organi-
zations or instructional procedures which might be
investigated.

3. A programmed instruction book in music funda-
mentals for prospective elementary school teachers is
an acceptable independent study technique. Various ways
in which such a book might be used should be investigated
and compared.

4. The audio-tutorial technique is an effective
independent study technique, and its uses for music
fundamentals for the prospective elementary teacher
should be further investigated.

5. The study concerned the feasibility of the self-
paced course as a whole using the instructional procedures
which were developed. Additional research is needed to
develop separate units or improve upon the study area
units used in this study.

6. While this study concentrated primarily on
knowledge and skill, further research is needed to go
beyond this level into conceptual development.
7. Students should be permitted to choose the self-paced section or a regular section when registering for Music 270. There are some students who would be happier in a regular section, but there are many students who feel defeated and incapable at the beginning of the course, as evidenced by the number of people in the reference group who suggested ability grouping. In addition, there are those students who have developed musically during the public school years, but many of them are not able or do not want to take the proficiency test which excuses them from taking the entire course. But on the other hand, students who are musically more able probably would be able to demonstrate proficiency quickly in several aspects of the course.

8. This study concentrated on developing a minimum number of competencies. Additional research is needed to investigate the possibility of freeing all the students to progress as far beyond the base level competencies as possible, now that it is clear to this investigator that the base level competencies are attainable for all.

9. Music 270 traditionally has a high rate of students dropping the course during the quarter. Research is needed to determine if the high drop rate can be curtailed by offering a self-paced course.

10. Because the investigator was the instructor of the pilot sections, replication of this study is needed to
discount the influence of the Hawthorne effect on the results obtained, and to see if the procedures used would be equally effective when used by other instructors.

11. The investigator would recommend to anyone who might want to replicate this study to require the student to see the instructor at least once a week to report progress.

**Recommendations to Music Educators**

If the music education role of the elementary classroom teacher is to remain important, as present-day realities seem to indicate, music educators who are responsible for the music preparation of the classroom teachers must seek to find ways to overcome the general inadequacies of the music preparation of such teachers.

Programmed instruction books have been developed for use in teaching music fundamentals to elementary classroom teachers, and their effectiveness has been evaluated. This study used instructional procedures which included the programmed instruction book and audio-tutorial instruction as well. The audio-tutorial technique was found to be very effective in increasing student confidence in the skill areas for which the course was responsible. With the ever-increasing design and production of instruments of educational technology, there may be other independent study techniques which may be adapted to music education.
In any event, the musical preparation of the prospective elementary classroom teacher should not remain at its present level of effectiveness. Instead of giving up in utter dismay over the musical ignorance of the prospective classroom teacher, it is the responsibility of the music educator to seek better ways to prepare this person to be a competent, confident quasi-music educator who can participate in music education activities within the classroom and thus make music more than a once-a-week activity for the elementary school children. This study represents only one of many variants which could be used to accomplish this objective.
<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. COURSE SYLLABUS</td>
<td>126</td>
</tr>
<tr>
<td>B. EXAMPLES OF TRANSCRIPTS FOR AUDIO-TAPES</td>
<td>135</td>
</tr>
<tr>
<td>C. BACKGROUND DATA QUESTIONNAIRE</td>
<td>138</td>
</tr>
<tr>
<td>D. TEST OF MUSICAL KNOWLEDGE</td>
<td>139</td>
</tr>
<tr>
<td>E. CONFIDENCE SCALE OF MUSICAL PERFORMANCE SKILLS</td>
<td>147</td>
</tr>
<tr>
<td>F. STUDENT SATISFACTION SCALE FOR INSTRUCTIONAL METHODS EMPLOYED</td>
<td>149</td>
</tr>
<tr>
<td>G. PILOT GROUP SCORES</td>
<td>152</td>
</tr>
<tr>
<td>:REFERENCE GROUP SCORES</td>
<td>155</td>
</tr>
</tbody>
</table>
APPENDIX A

COURSE SYLLABUS

Performance Objectives

These performance objectives have been specified to guide the instruction of the prospective elementary teacher in this section of Music 270, a course in music fundamentals.

The student will be able to:

1. Identify the different kinds of notes, their corresponding rests, and draw them with 100% accuracy.
2. Name the lines and the spaces of the treble clef with 100% accuracy.
3. Identify a flat, a sharp, and a natural with 100% accuracy when confronted with the symbols.
4. Explain specific meter signatures with 100% accuracy.
5. Write a note a half step or a whole step above or below a given note as requested with 80% accuracy.
6. Write given chords in root position or inversion as requested with an accuracy of 80%.
7. Name the major and minor keynotes, given the key signatures, through two sharps and two flats with an accuracy of 80%.
8. Rewrite chords so they become major or minor, as requested, using the same root with an accuracy of 80%.
9. Name the eight intervals as they are presented on paper with a seven out of eight accuracy.
10. Write on paper the I, IV, and V\(^7\) chord progression in the major keys of C, F, and G and the relative harmonic minor keys with not more than one error per set of chords.
11. Define pitch, melody, duration, tempo, beat, measure, staff, ledger lines, sharp, flat, natural, enharmonic, chord, inversion, tie, slur, syncopation, interval, major scale, harmonic minor scale.
12. Provide symbols and definitions for the most-used musical terms he is likely to encounter in the literature.

13. Name the white notes of the piano keyboard with an accuracy of 100%.

14. Play a melody with a simple block chord accompaniment in each of the major keys of C, F, and G, striving for accuracy or pitch and rhythm.

15. Play the primary chords in the harmonic minor keys of A, D, and E.

16. Play on the recorder or song flute three songs, selected from a list of songs he has prepared.

17. Sing the melody and play a chordal accompaniment on the autoharp for three songs which he has selected and prepared in the major keys of C, F, and G.

18. Respond correctly to rhythm exercises by clapping and counting.

19. Recognize visually and aurally those melodic figures which are stepwise and those which are chordal.

20. Create a rhythmic accompaniment to four different songs of his own choice, using at least three rhythm instruments for each song, and notate it.

21. Write original words to familiar melodies.

22. Write original words and compose original melodies within given parameters.

23. Demonstrate correct breathing, correct posture, and proper diction when singing.

**SELF TESTS**

In the following section you are provided with some tests. These self tests are designed to help you to evaluate your learning from the programmed instruction book. Take each test at the appropriate time, check your answers with the answer sheet, which you may get from the instructor, and if you need no further assistance, please hand the test to the instructor.
(The following are examples of the original self tests; Each test appeared on a separate page in the syllabus.)

To be taken at the end of frame 70

NAME ________________________________

SELF TEST NUMBER ONE

1. Define "pitch."
2. What is a staff?
3. Draw a treble clef sign.

* * *

To be taken at the end of frame 125

NAME ________________________________

SELF TEST NUMBER TWO

1. Give the letter names of the following notes:

   \[ \text{Check your answers with the answer sheet. If you did not score 100\% correct, review the appropriate frames in your book and/or ask the instructor for assistance.} \]

   * * *

To be taken at the end of frame 180

NAME ________________________________

SELF TEST NUMBER THREE

1. This symbol is called a _______.
   What is its purpose?
2. Write a note a half step or a whole step above or below the given note, as requested below.

   \[ \text{Check your answers with the answer sheet. If you had difficulty answering the questions correctly, please see the instructor for help.} \]
SELF TEST NUMBER FOUR

1. Tell whether the following chords are in root position or inversion.

\[ \text{\begin{array}{c}
\text{C}\text{G}\text{F}\\
\text{G}\text{C}\text{F}\\
\end{array}} \]

2. The following chords are in root position. Rewrite them in an inversion.

\[ \text{\begin{array}{c}
\text{G}\text{C}\text{F}\\
\text{D}\text{G}\text{C}\\
\end{array}} \]

Check your answers with the answer sheet. If you had difficulty answering the questions correctly, please ask the instructor for help.

* * *

SELF TEST NUMBER FIVE

1. Name the following symbols:

\[ \text{\begin{array}{c}
\text{\large \text{C}}\\
\text{\large \text{D}}\\
\end{array}} \]

2. Draw the following symbols:

- Whole rest-
- Eighth note-

Check your answers with the answer sheet. If you did not score 100% correct, please see the instructor for help.

* * *

SELF TEST NUMBER SIX

1. Name the major keys for the following key signatures:

\[ \text{\begin{array}{c}
\text{\begin{array}{c}
\text{\text{C}}\\
\text{\text{D}}\\
\end{array}}\\
\end{array}} \]

2. Write the primary chords in the following major keys:

\[ \text{I IV V7} \]
SELF TEST NUMBER SEVEN

1. Name the minor keys for the following key signatures:

\[ \text{\image{faked}} \]

2. Write the primary chords in the following harmonic minor keys:

\[ \text{\image{faked}} \]

Check your answers with the answer sheet. If you need help, please see the instructor.

** **

SELF TEST NUMBER EIGHT

1. Are the following scales major, minor, or chromatic?

\[ \text{\image{faked}} \]

2. Identify the following intervals:

\[ \text{\image{faked}} \]

Check your answers with the answer sheet. If you did not score 100%, please see the instructor for assistance.

** **
MATERIAL FOR RHYTHM AUDIO-TAPE

(one page in length)

1. Down Down Down Down
   1  2  3  4
   Down  Down  Down  Down

2. Down-up Down-up Down-up Down-up
   1  +  2  +  3  +  4  +
   Down-up  Down-up  Down-up  Down-up

* * *

PRACTICE PAGE NO. 1
(contains seven rhythmic exercises)

4/4
\[
\begin{array}{cccc}
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\end{array}
\]

* * *

PRACTICE PAGE NO. 2
(contains six rhythmic exercises)

3/4
\[
\begin{array}{cccc}
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\end{array}
\]

* * *

PRACTICE PAGE NO. 3
(contains six rhythmic exercises)

6/8
\[
\begin{array}{cccc}
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\end{array}
\]

* * *

PRACTICE PAGE NO. 4
(contains six rhythmic exercises in syncopation)

4/4
\[
\begin{array}{cccc}
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\text{\textbullet} & \text{\textbullet} & \text{\textbullet} & \text{\textbullet} \\
\end{array}
\]

* * *
MATERIAL FOR MELODY AND SONG FLUTE AUDIO-TAPE

1. LEFT HAND
   Left Thumb
   1st finger
   2nd finger
   3rd finger

   RIGHT HAND
   1st finger
   2nd finger
   3rd finger
   4th finger

2. SONG LIST

   This is Music, Bk. 5
   p. 7
   p. 14

   Music Across Our Country
   p. 96 (Refrain only)
   p. 105

   This is Music, Bk. 2
   p. 8

   Magic of Music, Bk. 3
   p. 27
   p. 76
   p. 82
MATERIAL FOR VIDEO TAPE

RHYTHMS FOR INSTRUMENTS
(two pages in length)

Steady Beat

\[ \begin{array}{c}
\frac{4}{4} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
MATERIAL FOR CREATING A SONG (CLASSROOM ACTIVITY)

Steps in creating a song:

1. Write the words and determine the rhythm and meter. This is known as "line-notation." Some syllables are held longer than others; duration is indicated by placing lines over the words of a poem. The strong beat is indicated by placing an accent mark over the appropriate syllables as you recite them metrically. For example:

   The meter is determined by placing a bar line before an accented syllable. Practice on the following examples:

2. Translate the line-notation into actual note values.

3. Write a melody for the words and notate the melody on the staff.

Small Group Assignment: Write original words to "The Farmer in the Dell."

Individual Assignment: Finish the melody in the following original songs:

Individual Assignment: Select four of the following suggestions and write a poem for each. Then write a melody for each poem.

1. Suppose that you have just finished a science unit on creatures that live under the ground. Pursue the subject farther by writing a song about it with your students.
APPENDIX B
EXAMPLES OF TRANSCRIPTS FOR AUDIO-TAPES

Rhythm Audio-tape

This is an instructional segment concerning rhythm. Some notes are held longer than other notes. The long and short notes combine to produce rhythm patterns. The common denominator of all rhythm patterns is the beat or pulse, which serves as the organizing agent in a piece of music.

To get the feel of the beat, clap your hands steadily as you count 1, 2, 3, 4, 1, 2, 3, 4. Let's clap it together three or four times. Ready... clap. One, two, three, four, (etc.).... You see you must keep the beat steady and you must not pause at the end of "four." Also, you should accent the first count of each measure by clapping a little harder or louder than for the other counts. In 4/4 time, count number three will also be accented, but it won't be as strong as the first count. Try clapping a steady beat to the following song.

Recording--
Clapping the steady beat in that song was fairly easy because the accompaniment was helping you.
Melody and Song Flute Audio-tape

We will study melody and song flute together. To hold the instrument, see frame number one. Your left hand is placed above your right hand. Your left thumb will cover the hole on the underneath side of the song flute, and the three fingers of your left hand will cover the top three holes, leaving your smallest finger free to help steady the instrument. Your right thumb is placed on the thumb rest on the underneath side of the song flute, and the other four fingers fall into place naturally to cover the remaining four holes on the top side. To blow the song flute, put it in your mouth, and press your lips around the mouthpiece. You might feel a little more comfortable if you sort of grasp the mouthpiece between your teeth and then press your lips around it. Just be sure that no air leaks from the corners of your mouth. Also be sure that the finger holes are completely covered. It is better to keep your fingers somewhat straight, rather than gracefully curving them, when you cover the finger holes.

We're going to blow a note. Place the song flute in your mouth and look at frame number two. This is the note we're going to play. To finger this note, close the three holes of your left hand and the thumb hole. (Etc.)
Autoharp Audio-tape

The autoharp should be placed on your lap with the long, straight side next to your body. Then turn the right lower corner slightly so that it rests against your right hip. This is the position in which fingering the chord bars will be the easiest. You are supposed to depress the chord bars with the fingers of your left hand and strum the strings with your right hand. To do this, you must cross your right hand over your left hand. This may seem a little awkward at first, but you will become accustomed to it. Now, find the F bar and depress it with the index finger of your left hand. Using a pick or the backs of the nails of two or three fingers, strum the strings at the right end........Now try crossing your right hand over your left hand and strum the strings in the middle of the autoharp. You may notice that the second way does produce a much more mellow tone, and most songs will sound better if you strum the strings in the middle of the autoharp. The chord bar which is to the left of the F bar is the C7 bar. Use the middle finger of your left hand for this bar. Alternately depress these chord bars to get the feel of them so you can do it without looking. Shift the weight of your....(Etc.)
APPENDIX C

BACKGROUND DATA QUESTIONNAIRE

Winter Quarter, 1971
Music 270

NAME (Please print) ___________________________________________________________________________

INSTRUCTOR’S NAME ____________________________ SECTION _____________________

Have you had private lessons in:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>No. of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Piano</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Voice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Band or orchestral instrument</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(please specify)

Have you had group experience in musical organizations in:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>No. of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. High School</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Church</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(please specify)

This test is designed to provide information about your background in the fundamentals of music. Read each question carefully and attempt to answer it if you can, even though some of you may find many items which are presently unknown to you.
APPENDIX D

The Test of Musical Knowledge was used as a pre-test, a post-test, and a final-test. Each form of the test consisted of the same one hundred question, but the questions were arranged in a different random order for each administration.

This appendix contains the master test from which the pre-test, the post-test, and the final-test were generated.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. The highness or lowness of musical tones is called</td>
<td>9. A series of tones moving up or down in stepwise progression is called a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. A succession of musical tones is called a</td>
<td>10. The distance between two adjacent keys on the keyboard is called a</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The length of a musical tone is called</td>
<td>11. Two half steps are called a</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The speed with which a piece of music is played is called</td>
<td>12. The symbol used to raise a note by a half step is called a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The basic pulse in a piece of music is called the</td>
<td>13. The symbol used to lower a note by a half step is called a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The space between two bar lines is called a</td>
<td>14. The symbol used to cancel the effect of a flat or a sharp is called a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The lines and spaces upon which the notes are placed are called a</td>
<td>15. Draw a treble or G clef sign.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The lines that are added above or below the staff are called</td>
<td>16. This note † is called a</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>17. This note ♭ is called a _________.</td>
<td>25. A tone having the same pitch but called by two different letter names is referred to as an ________ tone.</td>
<td></td>
</tr>
<tr>
<td>18. This note ♭ is called a _________.</td>
<td>26. The sharps or flats which are placed at the beginning of a musical piece are called a _________.</td>
<td></td>
</tr>
<tr>
<td>19. This note ♭ is called a _________.</td>
<td>27. A ________ is three or more tones played simultaneously.</td>
<td></td>
</tr>
<tr>
<td>20. This symbol is a _________. (tell what kind)</td>
<td>28. A chord in which the root is not on the bottom is called an ________ chord.</td>
<td></td>
</tr>
<tr>
<td>21. This note ♭ is called a _________.</td>
<td>29. A curved line connecting two notes of the same pitch is called a _________.</td>
<td></td>
</tr>
<tr>
<td>22. This symbol is a _________. (tell what kind)</td>
<td>30. A curved line which connects two or more notes of different pitches is called a _________.</td>
<td></td>
</tr>
<tr>
<td>23. This symbol ♯ is a _________. (tell what kind)</td>
<td>31. The term used to describe a rhythmic arrangement in which the accents occur between the regular pulses or beats is called _________.</td>
<td></td>
</tr>
<tr>
<td>24. This symbol ♯ is a _________. (tell what kind)</td>
<td>32. An ________ is the distance between two notes.</td>
<td></td>
</tr>
<tr>
<td>33. The names of the following notes are:</td>
<td>41. Draw a quarter rest.</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Quarter Rest" /></td>
<td><img src="image" alt="Quarter Rest" /></td>
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<table>
<thead>
<tr>
<th>34. The names of the following notes are:</th>
<th>42. Draw a half rest.</th>
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<td><img src="image" alt="Half Rest" /></td>
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<table>
<thead>
<tr>
<th>35. This symbol is called</th>
<th>43. Draw a whole rest.</th>
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<td><img src="image" alt="Whole Rest" /></td>
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<table>
<thead>
<tr>
<th>36. Draw a quarter note.</th>
<th>44. Draw an eighth rest.</th>
</tr>
</thead>
<tbody>
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<td><img src="image" alt="Quarter Note" /></td>
<td><img src="image" alt="Eighth Rest" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>37. Draw a whole note.</th>
<th>45. Name the white keys of the piano keyboard.</th>
</tr>
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<tr>
<td><img src="image" alt="Whole Note" /></td>
<td><img src="image" alt="White Keys" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>38. Draw a half note.</th>
<th>46. This is the key signature for Major.</th>
</tr>
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<td><img src="image" alt="Half Note" /></td>
<td><img src="image" alt="Key Signature" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>39. Draw an eighth note.</th>
<th>47. This is the key signature for Major.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Eighth Note" /></td>
<td><img src="image" alt="Key Signature" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>40. Draw a sixteenth note.</th>
<th>48. This is the key signature for Major.</th>
</tr>
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<tbody>
<tr>
<td><img src="image" alt="Sixteenth Note" /></td>
<td><img src="image" alt="Key Signature" /></td>
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<tr>
<td>49. This is the key signature for ____ minor.</td>
<td>50. This is the key signature for ____ minor.</td>
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<tr>
<td><img src="image-url" alt="MIDI" /></td>
<td><img src="image-url" alt="MIDI" /></td>
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| 57. The given chord is inverted. Rewrite it in root position. | 58. Write the primary chords (I, IV, V) in the key of C Major. | 59. Write the primary chords (I, IV, V) in the key of F Major. | 60. Write the primary chords (I, IV, V) in the key of G Major. | 61. Write the primary chords (i, iv, V) in the key of A harmonic minor. | 62. Write the primary chords (i, iv, V) in the key of D harmonic minor. | 63. Write the primary chords (i, iv, V) in the key of E harmonic minor. | 64. This interval is called a ________.
65. This interval is called
   a ________.

66. This interval is called
   a ________.

67. This interval is called
   a ________.

68. This interval is called
   a ________.

69. This interval is called
   a ________.

70. This interval is called
   a ________.

71. This interval is called
   a ________.

72. This is a
   chord. (major or minor)

73. This is a
   chord. (major or minor)

74. This is a
   chord. (Major or minor)

75. This symbol \( \triangleright \) means
   ________.

76. This is a
   scale. (tell what kind)

77. This is a
   scale. (tell what kind)

78. This is a
   scale. (tell what kind)

79. The letter names of these
   notes are:

80. The letter names of the
   notes are:
<table>
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<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>81. This symbol means</td>
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<td>82. In a 3/8 time signature a note gets one count.</td>
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<tr>
<td>83. In a 6/8 time signature a note gets one count.</td>
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<tr>
<td>84. In a 4/2 time signature a note gets one count.</td>
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<tr>
<td>85. In a 3/4 time signature a note gets one count.</td>
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<tr>
<td>86. The musical term indicating &quot;the end&quot; is</td>
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<tr>
<td>87. The musical term meaning &quot;return to the beginning&quot; is</td>
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<tr>
<td>88. &quot;Gradually louder&quot; is indicated by</td>
<td></td>
</tr>
<tr>
<td>a. ^ c. Â b. &gt; d.  c. ^ a. ^</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>89. &quot;Very softly&quot; is indicated by</td>
<td></td>
</tr>
<tr>
<td>a. mp c. mf b. pp d. p</td>
<td></td>
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<tr>
<td>90. In a 6/4 time signature how many beats are in a measure</td>
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<tr>
<td>91. Draw a note that is one-half step higher than the given note.</td>
<td></td>
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<td></td>
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<tr>
<td>92. Draw a note that is one-half step higher than the given note.</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>93. Draw a note that is one-half step lower than the given note.</td>
<td></td>
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<tr>
<td></td>
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<tr>
<td>94. Draw a note that is one whole step higher than the given note.</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>95. Draw a note that is one whole step lower than the given note.</td>
<td></td>
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<td></td>
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<tr>
<td>96. The given chord is minor. Rewrite it so that it is a major chord.</td>
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</tbody>
</table>
97. The first measure is complete. Draw one note which would complete the second measure.

99. Is this melodic pattern stepwise or chordal in progression?

100. Is this melodic pattern stepwise or chordal in progression?
APPENDIX E
CONFIDENCE SCALE OF MUSICAL PERFORMANCE SKILLS

Students vary greatly in their music training and experience. The following scale is designed to enable you to estimate your confidence in a variety of musical performance skills. Please circle the letter which most nearly agrees with your beliefs about each statement listed below.

<table>
<thead>
<tr>
<th></th>
<th>VERY CONFIDENT</th>
<th>CONFIDENT</th>
<th>UNCERTAIN</th>
<th>VERY UNCERTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I possess the necessary skills to select from an approved list, prepare, and play three songs on the song flute, the flutophone, or the recorder.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>2. I possess the necessary skills to select, prepare, and play the appropriate chords for three songs on the autoharp.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>3. I possess the necessary skills to prepare and sing songs selected from an approved list.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>4. I possess the necessary skills to translate correctly rhythmic notation into sound by clapping and by counting.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>5. I possess the necessary skills to play correctly rhythmic notation on the triangle, the tambourine, the conga drum, the bongo drums, the claves, the maracas, the rhythm sticks, and the castanets.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>6. I possess the necessary skills to create and notate a rhythmic accompaniment, using at least three different instruments and rhythm patterns, for three songs.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>7. I possess the necessary skills to write original words to a given melody.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>
8. I possess the necessary skills to create words and original melodies, given a list of possible subjects.

9. I possess the necessary skills to demonstrate correct breathing, correct posture, and proper diction when singing.

10. I possess the necessary skills to play on the piano a simple melody with the right hand while playing a simple block chord accompaniment with the left hand.
APPENDIX F

STUDENT SATISFACTION SCALE FOR INSTRUCTIONAL METHODS EMPLOYED (Pilot Group)

The purpose of this scale is to determine the extent to which you felt the methods employed in teaching this course were efficient, effective, and satisfying.

a. Efficient - the method was convenient, practical, and manageable especially in regard to the time and energy required.

b. Effective - the extent to which the method helped to increase your knowledge in music fundamentals and skills.

c. Satisfying - the extent to which you were comfortable and contented with the method and found it adequate, unobjectionable, and pleasing.

Each of the following statements is to be rated on each of these three factors by circling the number which best describes your beliefs. For example, if your beliefs are related to the word on the right, circle "5." If your beliefs are related to the word on the left, circle "1." Degrees of beliefs can be placed along the scale as desired with a neutral belief placed in the center position. Mark every item.

The course organized for learning on the basis of individual rate of progress:

a. Inefficient 1 2 3 4 5 Efficient
b. Ineffective 1 2 3 4 5 Effective
c. Not satisfying 1 2 3 4 5 Satisfying

The use of performance objectives as opposed to the non-existence of such objectives:

a. Inefficient 1 2 3 4 5 Efficient
b. Ineffective 1 2 3 4 5 Effective
c. Not satisfying 1 2 3 4 5 Satisfying
The use of the programmed instruction text book for learning music fundamentals:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The use of the self tests as a learning tool in the music fundamentals study:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The use of the audiotape recorder to present portions of the instruction:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The use of the videotape recorder to present portions of the instruction:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The use of the piano laboratory in the instructional process:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The role of the teacher as an instructional guide in place of lecturer or group-discussion leader:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

The use of the whole pattern of different methods as a technique to stimulate student self initiative:

a. Inefficient 1, 2, 3, 4, 5, Efficient
b. Ineffective 1, 2, 3, 4, 5, Effective
c. Not satisfying 1, 2, 3, 4, 5, Satisfying

Written comments would be appreciated concerning what you liked least about the course, what you liked most about the course, and what suggestions you might offer for improving the course in the future.
STUDENT SATISFACTION SCALE
(Reference Group)

The purpose of this scale is to determine the extent to which you felt the methods employed in teaching this course were efficient, effective, and satisfying.

a. Efficient - the methods were convenient, practical, and manageable especially in regard to the time and the energy required.

b. Effective - the extent to which the methods helped to increase your knowledge in music fundamentals and skills.

c. Satisfying - the extent to which you were comfortable and contented with the methods and found them adequate, unobjectionable, and pleasing.

The course is to be rated as a unit on each of these three factors by circling the number which best describes your beliefs. For example, if your beliefs are related to the word on the right, circle "5." If your beliefs are related to the word on the left, circle "1." Degrees of beliefs can be placed along the scale as desired with a neutral belief placed in the center position.

Please indicate your beliefs.

Inefficient 1, 2, 3, 4, 5
Ineffective 1, 2, 3, 4, 5
Not satisfying 1, 2, 3, 4, 5

Written comments would be appreciated concerning what you liked least about the course, what you liked most about the course, and what suggestions you might offer for improving the course in the future.
# APPENDIX G

## PILOT GROUP SCORES

<table>
<thead>
<tr>
<th>Observation</th>
<th>Test of Musical Knowledge</th>
<th>Confidence Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
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