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GRADUATE COLLEGE

AN INVESTIGATION AND EVALUATION OF THE USE OF VISUAL AIDS FOR TEACHING MUSIC APPRECIATION AT THE COLLEGE LEVEL

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF MUSIC EDUCATION

BY

JERRY RANDOLPH HILL

Norman, Oklahoma

1972

AN INVESTIGATION AND EVALUATION OF THE USE OF VISUAL AIDS FOR TEACHING MUSIC APPRECIATION AT THE COLLEGE LEVEL

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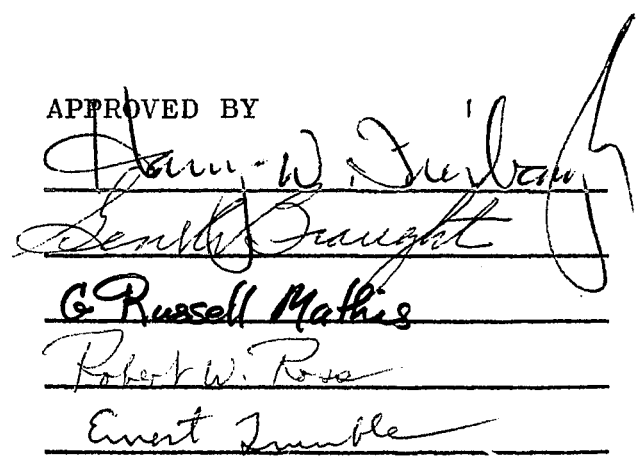

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION

As a music appreciation teacher of students in a liberal arts college, the writer has been vitally concerned about visual aids. For years the author has used various visual aids and found some were practical and others impractical. This was discovered on the basis of use, i.e., trial and error. In no instance was the author able to purchase visual aids which had been tested and evaluated.

Each year, the music educator is "bombarded" with new teaching aids, and the need for methods and techniques for teaching music appreciation. These aids are marketed by publishing houses and other manufacturers in ever-increasing numbers. The teacher is induced to believe that these aids will contribute to "progressive" education. Not having the time nor money to conduct an evaluation, the teacher may accept the visual aids on the

basis of information provided in advertisements.

How valuable are visual aids to education? This question must be answered by the individual educator from his experience with visual aids because an investigation of material available revealed that no research and formal evaluation of the effectiveness of visual aids in music education has been completed. Will these visual aids motivate the student to want to learn? Again we have no research to draw upon. The educator is left with his own experience as the basis for his decision.

Since no definitive rules or principles to enable a teacher to select the type of visual aid best suited for instruction was available, it seemed evident that the instructional media which depended upon the use of visual aids would profit from a program of systematic evaluation. The need for evaluative research of visual aids in music education is echoed by several writers. Francis M. Dwyer, Jr. states that this evaluation should be focused on the relative effectiveness with which the different types of visual aids facilitate student achievement of specific educational objectives.[1]

Charles L. Spohn states that an experienced teacher will discover that a combination of different methods is

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[1]Francis M. Dwyer, Jr., "Exploratory Studies in the Effectiveness of Visual Illustrations," Audio Visual Communication Review, XVIII, 3 (Fall, 1970), p. 235.

vital to a balanced instructional program, but few opportunities have been seized to isolate or evaluate the effectiveness of different presentations where various kinds of responses are required.[2] Many teachers are presently using various teaching aids and supplemental materials in their classrooms without any real proof of their value in educative potential and concept retention. The author believed that the value of such aids, specifically visual aids, should be documented for the benefit of teacher and student alike.

As Paul A. Haack states:

> Even in classes concerned solely with music, some teachers have employed visual art examples as a supplement to listening, with only a hope that such practice may help to bring about better understanding of musical mood or style.[3]

Haack, et al., report that many teachers make effective use of visual aids, while others do not know even the most basic approach to their use in the classroom. Recent studies conducted by C. Edward Streeter indicate that even though some teachers have a high level of media competence, and that equipment is readily available, the majority of teachers do not make extensive use of the media available to them. Streeter's reasons for their failure

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[2]Charles L. Spohn, "Individualizing Instruction through New Media Research," Journal of Research in Music Education, XVII, 1 (Spring, 1969), p. 94.

[3]Paul A. Haack, "A Study Involving the Visual Arts in the Development of Musical Concepts," Journal of Research in Music Education, XVIII, 4 (Winter, 1970), p. 392.

are divided into three broad categories: (1) basic understandings and skills needed to operate equipment and produce simple audio visual materials; (2) media competencies unique to a particular subject matter; and (3) general media theory, utilization, selection, and evaluation skills and understanding that seem to motivate a teacher to extensively use educational media.[4]

Even if all these problems could somehow be alleviated, there would still remain the problem of the educational value of the visual aid being employed. The author contended that any technological advancement should be evaluated prior to its inclusion (or exclusion) in a learning program.

Statement of the Problem

The problem of this study was to investigate and evaluate the effectiveness of selected visual aids for teaching music appreciation at the college level. The study was conducted by the author under controlled, experimental conditions using visual aids which were especially designed for teaching music appreciation.

Purpose of the Study

It was the purpose of this study to evaluate the effectiveness of selected visual aids which were specially

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[4]C. Edward Streeter, "Teacher Competency and Classroom Use of Educational Media," Audiovisual Instruction (January, 1970), pp. 60-61.

designed for teaching music appreciation to college students. In this study, Music Appreciation is defined as perceptions of aural stimuli, which when directed into channels called concepts, results in the acquisition of aesthetic sensitivity and awareness of one's culture. The evaluation was based upon a pretest-posttest design. The data were statistically treated in order to determine the significance of these visual aids as they related to pupil achievement in music appreciation.

The author contended that visual aids were effective for teaching music appreciation. Therefore, visual aids should be formally evaluated for their effectiveness so that music educators might use them confidently. Furthermore, the author believed that the evaluation of visual aids conducted in this study would make a significant contribution to music education in general, specifically, for increasing efficiency in teaching music appreciation.

Basic Assumptions

The study was conducted on the campus of Gardner-Webb College, spring semester, 1971-1972. The subjects were students enrolled in music appreciation. Music Appreciation 125 is an elective in the liberal arts program, part of a core requirement of Fine Arts for the liberal arts degree.

Since the population of these classes was by choice,

the author assumed that these students represented a cross-section of the general campus student body and that the students' musical backgrounds were similar. The author also assumed that the students were equally divided with regard to any other variable (i.e., pre-musical experiences and attitudes toward music) which could be expected to influence their achievement in music appreciation.

It was assumed that an instrument could be constructed or identified which would evaluate student achievement in music appreciation. Finally, it was assumed that the test, either constructed or identified, would be both valid and reliable.

Delimitations

The subjects used in this study comprised regularly enrolled students from the general student body of Gardner-Webb College, Boiling Springs, North Carolina. The study was conducted during the 1971-1972 spring semester. The selection of this specific college was due to the fact that the author is a member of that faculty and this college provided an adequate base for the experiment.

The music appreciation text used was The Art of Sound, by Jack Sacher and James Eversole.[5] This text was selected as the one best suited to meet the requirements of the course and still be compatible with the selected

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[5]Jack Sacher and James Eversole, The Art of Sound (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971).

visual aids.

The visual aids which were selected as the experimental variables were filmstrips taken from Basic Elements of Music.[6] This series of forty filmstrips with accompanying recording is concerned extensively with four major areas of music: rhythm, pitch and melody, harmony, and form. An Audio Visual History of Music was the second series selected.[7] This series contained eight filmstrips with accompanying recordings covering the history of music from the earliest days to the present period.

The principal delimitation, then, was that all visuals employed were published filmstrips and that after reviewing many such types and reading the materials as presented by the publishers' advertisements, the filmstrips selected were assumed by the author to be effective.

Hypotheses

Although many other questions were raised during the study, the task was reduced to the testing of one major hypothesis. It is hypothesized that the use of the visual aids implemented in this study will afford a more efficient and effective classroom presentation so that a student's

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[6]Bernard W. Busse and Melvin L. Good, Basic Elements of Music (filmstrip) (Raleigh, North Carolina: Classroom World Productions, 1969).

[7]Henry W. Simon, An Audio Visual History of Music (filmstrip) (Pleasantville, New York: Educational Audio Visual, Inc., 1968).

musical appreciation and understanding will be enhanced. The null hypothesis, as stated by the author for research purposes, was that no difference in achievement would be discernable between a class which was taught with the use of these particular visual aids and a class which was taught without these visual aids.

Significance of the Study

Music Education is beginning to feel the effects of the technological revolution which was set in motion by the creation of the field of educational media. Media education and other technological advances, though, are not developing without opposition, even though the potential of such techniques appears great. Initially there are difficulties in understanding and using these new tools of education effectively. According to Donald J. Sheltler, most schools and colleges have at least some of the items of hardware needed to use the "new mediated approaches of learning." He puts forth the rationale that there is a need for teachers of today to meet students on their own ground. From earliest childhood "media" has surrounded most children entering school today, and it surely has far-reaching implications, particularly in the areas of aural and visual perception.

Colleges, involved in teacher preparation, are performing a disservice to formalized education when they do not explore contemporary media and the implications to future 'mediated' education. Sheltler reinforces this premise in the following statement:

> Music . . . is particularly suited to investigation through electronic media. Through them the ear can be coupled with the eye and the mind to strengthen and enliven the messages, the perceptions, and therefore, the understandings one can achieve through music study.[8]

The visual approach as a part of this new educational technology has been somewhat neglected by the average music teacher. Researchers have indicated a concern for various factors that influence teacher utilization of educational media. Robert H. Miller, in 1965, identified over 1000 physical barriers to the audiovisual utilization encountered by teachers,[9] and Richard D. Hubbard, in 1960, noted four factors associated with teacher training and experience that were related to the college teacher's use of audiovisual materials.[10] The fear of mechanization and reduction of self-importance were identified by Stanley D. Handleman in 1960 as being negative influences on teachers as reflected in their utilization of

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[8]Donald J. Sheltler, "Breaking down the Hardware Barrier," Music Educators Journal (January, 1971), pp. 41-42.

[9]Robert H. Miller, "An Exploratory Study to Develop a Method of using Electronic Data-processing for Rapid Identification of Operational Barriers to Utilization of Selected Audiovisual Materials," Audio Visual Communication Review (1965), pp. 13, 224, quoted in Charles C. Aquino, Teacher Attitudes toward Audiovisual Instruction as They Are Influenced by Selected Factors within Teaching Environments, A Study to Determine Educators' Attitudes toward Audiovisual Instruction following Study in that Area, Ph.D. dissertation, Syracuse University, 1968.

[10]Richard D. Hubbard, A Study of Reasons Given for the Limited Use of Certain Audiovisual Materials at Syracuse University, Ph.D. Dissertation, Syracuse University, 1960 quoted in Aquino, Teacher Attitudes.

instructional television.[11] Sidney C. Eboch, in reporting on Project Discovery, noted that teachers will utilize audio-visual materials when they are available but did not comment on the effectiveness with which educational media were applied to the teaching-learning process.[12] The aforementioned studies were cited in the research done by Charles C. Aquino, who investigated teacher attitudes toward audiovisual instruction as they were related to eight factors within the teaching environments experienced during the first semester of teaching following sutdy in audiovisual education.[13]

One reason why teachers do not use visual aids may be due to the lack of research done to prove the worth of these materials. Spohn makes the point that since contrasting information exists regarding the effectiveness of the aural or visual approaches there is a need for research on the effects of each method.[14] In the "Cone of Experience" it is shown, graphically, that visual

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[11]Stanley D. Handleman, A Comparative Study of Teacher Attitudes toward Teaching by CCTV, Ph.D. dissertation, New York University, 1960, quoted in Aquino, Teacher Attitudes.

[12]Sidney C. Eboch, Implementation of Research Strategies and Tactics for Demonstration (Columbia: Ohio State University, 1966), quoted in Aquino, Teacher Attitudes.

[13]Charles C. Aquino, Teacher Attitudes toward Audiovisual Instruction as They Are Influenced by Selected Factors within Teaching Environments, A Study to Determine Educators' Attitudes toward Audiovisual Instruction following Study in that Area, Ph.D. dissertation, Syracuse University, 1968.

[14]Charles L. Spohn, Individualizing Instruction.

symbols are second only to verbal symbols in the learning situation.[15] According to Gibson, as quoted in Theory for the New Media for Education:

> It is not unreasonable to suppose that a person can learn to think in terms of drawings, graphs, or models, as well as in terms of words. It may be even possible that in certain respects, such thinking is more easily performed than verbal thinking.[16]

It was believed by the author that the intensive use of the visual and aural senses simultaneously would provide a noticeably higher rate of student achievement, but this has not been proved through evaluative studies. The writer believed that the data and conclusions of this study would prove valuable for evaluating specific visual aids. Furthermore the results would be indicative of the general potential for other similar visual materials developed expressly for teaching music appreciation. It was believed that statistical evaluation of the data would not only be a significant basis for the conclusions but also would stimulate interest in and the adoption of such aids for all instruction in music education. A. A. Lunsdaine and S. M. Roshal state:

> A long-range program of audio-visual research should comprise two distinguishable if sometimes overlapping types of activity: First, the conduct of

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[15] Edgar Dale, Audio-Visual Methods in Teaching (New York: Dryden Press, 1946), p. 34.

[16] James J. Gibson cited in "A Report of U.S. Office of Education," Theory for the New Media in Education, dir. by John M. Parsey (East Lansing, Michigan: East Lansing Educational Publication Services, 1968), p. 10.

> experiments to test the comparative value of alternative forms of training-film presentation, some of which, at least, can be applied, relatively immediately, to improve the effectiveness and/or economy of current training. Second, development of theory and principles about basic factors underlying the psychological functioning of audio-visual materials as aids to learning and perception.[17]

If music education is to continue to motivate and excite the learner, then those persons directly connected with music education must learn to use every appropriate device possible. Only through a process of testing and evaluation can the appropriateness of any aid be truly determined.

Procedure for Collecting and Treating Data

This study involved the use of certain visual aids in an experimental situation. The instructional procedure for one class (experimental) incorporated these aids and the other class (control) was taught without the visual aids to ascertain (through statistical analysis of results from specially designed tests) the value of these particular aids in the teaching of music appreciation.

Specific plans and procedures to insure the internal validity of this experiment were made during the fall semester, 1971, at The University of Oklahoma, under the guidance of faculty and advisors. These plans and procedures included (1) the development of a class syllabus,

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[17] A. A. Lunsdaine and S. M. Roshal, Foreward to James J. Gibson, "A Theory of Pictorial Perception," Audio-Visual Communication Review, II (Winter, 1954), p. 1.

lesson plans, and procedures which were used in the teaching of both classes; (2) a critical evaluation and selection of each visual aid used during the course of the experiment; and (3) the selection of the pre- and posttest instrument.

The personnel in the classes involved in this experiment were randomly assigned as much as possible and were taught by the writer. The same text was used and the identical class notes were presented. The only exception was that the visual aids and any reference concerning them were used exclusively in the experimental group.

The first step in the method of experimentation was to administer a pretest to both classes to discover their level of musical knowledge; to instruct one group (control) without the visual aids; and instruct the other group (experimental) employing the visual aids. At the conclusion of the semester a posttest was administered to both groups and a statistical comparison of the results made to ascertain if there was any difference in the overall comprehension and achievement between the two groups.

Review of Related Literature

A necessary process in structuring experimentation is to review available literature for related studies. From such a search, the author gains important knowledge vital to his specific subject that will provide him with new viewpoints or insights. The writer conducted such a

search which included a review of the Dissertation Abstracts, The Reader's Guide, Dissertation Abstract International, Journal of Research in Music Education, Music Educator's Journal, Audio Visual Communication Review, and various other professional magazines related to the study. In addition to the usual professional sources for perusal, the author also retained the services of DATRIX, a service of University Microfilms, Ann Arbor, Michigan, for a two-way search of dissertation abstracts by computer; and ERIC, from the Research Center of the Greater University of North Carolina for a search of related articles and writings other than dissertations. In a final effort to locate information relative to this study, the writer retained the Information Retrieval Services of Lockheed Aircraft Corporation, Palo Alto Research Laboratory, Palo Alto, California.

In order to gain a more complete understanding of the entire field and understand all facets of the problem, the writer first reviewed articles and dissertations relating to the general principles of teaching music appreciation.

Robert Y. Hare reported, in his dissertation "The Pedagogical Principles of Music Appreciation," that there was a meager amount of information on the principles of teaching music appreciation. The great influx of textbooks in recent years, each manifesting different methodology, indicates the need for amplification on the basic

psychology of music appreciation. He reached the following conclusions, concerning the psychological factors, which should serve as guides in forming a method of presentation:

1. Progression from the familiar to the unfamiliar.
2. Awareness of the student's likes and dislikes, attitudes, and to what element of music he responds.
3. The sensorial response to music as the basic one.
4. Clearly-perceived goals.[18]

In her dissertation, "The Development of a Theoretical Basis for a Course in Music Appreciation at the College Level," Ruth Colwell puts forth the following principles which can lead to the formation of objectives and aims. First, music is by nature an aesthetic object symbolizing inner feelings and emotion and therefore music appreciation is an aesthetic experience. Second, the aims and goals of music appreciation are compatible with the aims and goals of general education.[19]

Other studies in the development of courses in music appreciation were directed along more practical

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[18]Robert Yates Hare, "The Pedagogical Principles of Music Appreciation" (Unpublished Ph.D. dissertation, State University of Iowa, 1959).

[19]Ruth Ann Colwell, "The Development of a Theoretical Basis for a Course in Music Appreciation at the College Level" (Unpublished Ed.D. dissertation, University of Illinois, 1961).

rather than philosophical lines. Most studies involved some form of testing. William E. Steward learned through his investigation, "An Evaluation of the Development of Appreciation for Music as It Is Implemented by the Liberal Arts College," that a student's appreciation of music changes little after reaching college. He also discovered that students in one particular college do not vary significantly from those in any other college in their ability to appreciate music. Students who scored in the highest percentiles possessed a richer musical background, indicating that some participation in performance is essential for developing an appreciation for music. Conversely, experiencing music vicariously, as through radio and television, is not sufficient to develop a high degree of appreciation. Finally, a required one semester course is too short to significantly increase a student's appreciation during college.[20]

However, Donald F. Porter found that many students, despite considerable experience in performing orgnizations, felt that they lacked an understanding of music. In his dissertation, "An Exploratory Study of the Development of Improved Teaching Procedures in a Music Appreciation

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[20]William Eugene Steward, "An Evaluation of the Development of Appreciation for Music as It Is Implemented by the Liberal Arts College" (Unpublished Ed.D. dissertation, University of Oregon, 1960).

Course for Liberal College Students," Porter states that many students find enjoyment in music without a full knowledge and understanding of music. It appears therefore "that the development of enjoyment cannot serve as a measurement of the effectiveness of instruction."[21] It seems that a basic knowledge of the elements is more essential.

Teachers' concern with pedagogical principles and their desire to raise the student's level of musical understanding creates other problems that affect teaching efficiency. In "Problems of Music Appreciation Teaching as Perceived by Students and Teachers in Northern California Colleges and Junior Colleges," Meyer M. Cahn found that students were more concerned with simplified procedures, passed examinations, and satisfaction at present levels of understanding. It is valuable to the author's study to note that use of audiovisual aids was one of the twelve major areas of concern. A high degree of difference was implied between the attitudes of teachers and students toward all twelve major categories.[22]

Since the above study indicated that the use of

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[21]Donald Frank Porter, "An Exploratory Study of the Development of Improved Teaching Procedures in a Music Appreciation Course for Liberal College Students" (unpublished Ed.D. dissertation, University of Oregon, 1960).

[22]Meyer Martin Cahn, "Problems of Music Appreciation Teaching as Perceived by Students and Teachers in Northern California Colleges and Junior Colleges" (unpublished Ed.D. dissertation, Stanford University, 1960).

visual aids is one aspect of increasing teacher efficiency and student achievement in music appreciation, the writer searched the literature related to the study of music which employed visual aids.

Paul A. Haack had as his objective the investigation of the efficacy of employing examples of the visual arts as an aid to the development of broad, stylistic concepts of music. His idea in his article, "A Study Involving the Visual Arts in the Development of Musical Concepts," was that these concepts should be learned more efficiently when reinforced by examples of visual arts. He states:

> It is generally agreed that music, because of its abstract and temporal nature, is difficult to study aurally, while the visual and plastic arts possess a more stationary existence, and therefore more readily lend themselves to analysis and intensive investigation. . . . Therefore, it is certainly possible that concomitant use of the visual arts may enhance the aural perception and understanding of music in areas where legitimate commonality exists.[23]

David G. Phillips, Jr., in 1967, conducted a study entitled "Sight and Sound in Music: Visual Reinforcement for Aural Perception of Musical Content for the Non-Major." In three illustrative units of teaching plans, he made extensive use of visual representation of musical concepts. The visual representation ranged from simple line notation,

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[23]Paul A. Haack, "A Study Involving the Visual Arts in the Development of Musical Concepts," Journal of Research in Music Education, XVIII, 4 (Winter, 1970), p. 392.

pitch contour, to the reading of complex scores. Phillips also suggested relevant materials of unique applicability for teaching music appreciation with audiovisual equipment.[24] Again, this reinforced the author's contention that musical concepts can be taught more effectively through the use of visual aids.

While experimental research in the use of visual aids was being advocated, educators involved in field-use of the new media were becoming directly involved through meetings, seminars and symposiums. Their concern was for opening new avenues from which further knowledge regarding the effectiveness of visual aids could come. As early as 1964, planners of conferences began to be concerned with the uses of the new media.

A 5-day conference in 1964 provided a forum for music educators from across the country to discuss the use, implications, and potentials of the new developments in educational media. This forum dealt with the media and technology as it related specifically to music education. The media was discussed as it related to many areas of music: (1) instrumental, (2) choral, (3) music theory, (4) music literature, and (5) general music. The different aids discussed were: (1) films and television, (2) audio

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[24]David Gardner Phillips, Jr., "Sound and Sight in Music: Visual Reinforcement for Aural Perception of Musical Content for the Non-Music Major in College" (unpublished Ed.D. dissertation at Columbia University, 1967).

devices, (3) teaching machines and programmed instruction, and (4) printed materials. Recommendations were forthcoming for the improvement and expansion of the uses of the media for more effective teaching of music.[25]

In 1965, a symposium of 15 educators and 6 writers came together to attempt to develop ideas for the improvement of the instruction in the arts and humanities in the public schools. One of the participants, Stanley Kauffman, spoke on the special place that films retain in our technological society and described the appeal that film has for young people who are concerned with their culture.[26]

At a summer conference held in 1966 at Lexington High School in Massachusetts, students and advisors made plans for the use of packets of audiovisual materials for music education to be used the following school year, 1966-1967. These packets were accompanied by study guides. A second summer conference in 1967 saw the packets revised and prepared for another school term. The third summer the effect of the non-book instructional technique was evaluated by an informal research procedure. The conclusion was that the use of non-book instructional

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[25]Edward Maltzman, National Conference of the Uses of Education Media in the Teaching of Music. Report of the National Conference, Uses of Educational Media in the Teaching of Music (Washington, D.C.: Music Educators National Conference, 1965).

[26]The Humanities in the Schools: A Contemporary Symposium, ed. by Harold Taylor (New York: Citation Press, Educators Service Division, Scholastic Magazines, Inc., 1969).

materials was an effective means of improving music education, but that misuse could be harmful. The final conclusion was that the multi-media approach is most effective when allowing for a variety of responses.[27]

More recently in a committee report to the Tanglewood Symposium in 1968, The Committee on the Impact and Potentials of Technology, Allen P. Britton, chairman, declared that visual aids, such as those used in the author's study, will alter the educational strategies of the entire future school curriculum.[28] His declaration is supported by the vastly expanding field of student oriented machines, audio material centers, self-teaching machines, and other electronic devices which instruct through a multi-media concept.

It was also evident to the committee at Tanglewood that time was the most urgent factor to consider as the gap widens between the advancing technology in materials and one's ability to cope with it.[29] The field of music

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[27] A Project for the Improvement of Music Education at Elementary, Junior High, Senior High, and College Levels Through the Use of Non-Book Instructional Media, comp. and ed. by Thomas Vasil (Washington, D.C.: Office of Education for Massachusetts State Department of Education, 1969).

[28] "Committee on the Impact and Potentials of Technology," Allen P. Britton, chairman, Documentary Report on the Tanglewood Symposium, ed. by Robert A. Chaote (Washington, D.C.: Music Educators National Conference, 1968), pp. 123-124.

[29] "Committee on the Impact and Potentials of Technology," op. cit., pp. 125-126.

education has had some difficulty in adapting these new media devices to its own special areas. The longer the profession delays in accepting the use of these new aids, the larger the gap becomes between what is available for the teacher's use and his ability to understand their import.

The writer then turned his attention to the field of the theory of visual aids, not necessarily related to teaching of music to explore professional opinions regarding visual aids. The current assumption that the more realistic a presentation, the more effective the transmission of the desired message is reflected in the recommendation of James D. Finn[30] and Edgar Dale[31] that for instructional purposes the more realistic or lifelike the stimulus materials are, the greater the probability it has for facilitating learning. The basic assumption held by each is that learning will be more complete as the number of cues in the learning situation increases.

The foregoing opinion was the same as the author's, but other research in the field of visual education suggested that this assumption might not be completely correct.

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[30]James D. Finn, "Professionalizing the Audio-Visual Field," Audio Visual Communication Review, 1953, pp. 6-17.

[31]Edgar Dale, Audio-visual Methods in Teaching (New York: Holt, Rhinehart and Winston, 1946), pp. 12-52.

Norman Miller suggests that it would be a mistake to believe that merely by adding one cue to another, learning would be increased in direct parallel. He contends that too many cues or those which are completely realistic might prove distracting or perhaps provoke competitive responses which would distract from rather than facilitate the learning.[32] Bruner and others have suggested that an over-abundance of stimuli is unnecessary to the learner to recognize an object or situation and place it in a particular category.[33]

The Travers report, Research and Theory Related to Audiovisual Information Transmission, states that:

> Merely confronting a person with stimuli identical to those emitted by the real environment is no guarantee that useful information will be retained.[34]

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[32] "Graphic Communication and the Crisis in Education," ed. by Norman Miller. Audio Visual Communication Review (1957), 5, pp. 1-120, quoted in Francis M. Dwyer, Jr. "Exploratory Studies in the Effectiveness of Visual Illustrations," Audio Visual Communication Review, XVIII, 3 (Fall, 1970), p. 236.

[33] Jerome S. Bruner, Jacqueline J. Goodnow, and George A. Austin, A Study of Thinking (New York: Wiley Publishing, 1956), quoted in Francis M. Dwyer, Jr., op. cit., p. 236.

[34] Robert Morris W. Travers, et al., Research and Theory Related to Audiovisual Information Transmission (Salt Lake City, Utah: University of Utah, Bureau of Educational Research, 1964), quoted in Francis M. Dwyer, Jr., op. cit., p. 236.

Dwyer's studies in evaluating visualized instruction indicated, in general, that where the use of visuals did make a difference in increasing student achievements, illustrations with only a small amount of realistic detail were more effective. Therefore, Dwyer says that it does not necessarily follow, even when visuals are used to supplement and compliment the oral and verbal instruction, that student achievement will improve. One important point to remember, the effectiveness of visual aids is dependent not only on the presentation, but also on the selection of the right visual for the right time and with the right grade level. As Dwyer states:

> The effectiveness of a particular visual in facilitating student achievement of a specific objective depends on the type of information needed by the student to achieve that objective.[35]

Music educators when presented with opinions such as the above would necessarily become apprehensive in using untried and untested visual aids. Yet, visual aids are being produced in ever-increasing numbers, therefore the need to begin some system of evaluation is evident.

Harry E. Homberg, in his study "Investigation and Evaluation of Audio-Visual Materials Pertaining to the Undergraduate Music Education Curriculum," listed a bibliography of materials and also a composite undergraduate

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[35]Francis M. Dwyer, Jr., "Explanatory Studies in the Effectiveness of Visual Illustrations," Audio Visual Communication Review, XVIII, 3 (Fall, 1970), pp. 245-246.

curriculum with the materials categorized. He also evaluated audiovisual aids as to their suitability for use in the undergraduate music education curriculum. Each aid included in his study was personally examined and evaluated in accordance with his basis for judgment.[36] Still, he only evaluated the filmstrips, without testing for their effectiveness in pupil achievement.

It would seem feasible, according to Janet French, in her article, "The Evaluation Gap," that a main thrust in present-day educational service agencies would be to establish national centers for the control and evaluation of all widely used instructional materials. While other media have, at least partially, developed such centers, no comparable procedure has been instituted for filmstrips.[37]

Carlton W. H. Erickson agrees that the value of visual aids can be determined only through a study of the results of their use. In his book, Fundamentals of Teaching with Audiovisual Technology, he makes the point that audiovisual materials have no "magic" in themselves,

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[36]Harry E. Homberg, "Investigation and Evaluation of Audiovisual Materials Pertaining to the Undergraduate Music Education Curriculum (Unpublished Ed.D. dissertation at Florida State University, 1953).

[37]Janet French, "The Evaluation Gap, the State of the Art of A/V Reviewing, with Special Emphasis on Filmstrips," Library Journal (March 15, 1970), p. 104.

but contain a rich potential when properly used by thoughtful teachers. He further states: "It is the crucial linkage of audiovisual materials between 'teaching purpose' and pupil accomplishment that determines their value."[38]

The author proposed specifically to so test statistically the effectiveness, in terms of pupil achievement, of 2 sets of visual aids used in the teaching of music appreciation. The following chapter is a description of the methods and procedures employed to conduct the study.

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[38]Carlton W. H. Erickson, Fundamentals of Teaching with Audiovisual Technology (New York: The Macmillan Company, 1965), p. 130.

CHAPTER II

METHODS AND PROCEDURES

The present study was conducted by means of a control-group experiment. The sample which participated, the instruments employed, and the procedures followed in the study are briefly described in this chapter.

The Sample

The sample which participated in this study consisted of 72 students from the General College, Gardner-Webb College, Boiling Springs, North Carolina. Gardner-Webb is a four-year Baptist liberal arts college with an undergraduate enrollment of 935 men and 485 women. The school year is organized on the semester system. The library presently holds 61,270 volumes. The college offers curricula toward the following degrees: A.A. in secretarial science and nursing; and a B.A. and B.S. in Biology, Business Administration, Education (elementary and secondary), English (English and literature), French, Spanish, Health professions (predentistry and premedical), Music, Music Education, Religion, Theology, and Social Sciences (Economics, History, Political Science, and Sociology). As a

liberal arts college the following courses in the following areas are required of all students: English, fine arts, history, mathematics, physical education, religion, science, and social studies. Admission requirements are the satisfactory completion of the standard 16 high school units. Achievement tests are recommended but not required. Selection of students is based on high school records, personal recommendations of school officials, and any other evidence of the ability to succeed in college, including test scores and extracurricular activities. Applications from out-of-state students and foreign students are encouraged. Approximately 85% of the applicants accepted for the fall of 1971 ranked in the top three-fifths of their high school classes and had combined SAT scores above 700.

The students in the sample enrolled in either section, Music Appreciation 125a or Music Appreciation 125b, during the spring semester of the 1971-1972 academic year. Class I (experimental) was scheduled at 9:00 A.M. on Monday, Wednesday, and Friday; and Class II (control) met at 10:00 A.M. on the same days. This course is one of the several which may be elected for completion of the fine arts requirement for the Bachelor of Arts degree. Each student who pursues this degree must take 3 hours of Fine Arts in either music, art or drama. Students other than those pursuing the B.A. degree program may elect the course and apply it toward other degrees in the college.

The registration process involved selection of the course by each student as part of his class load for that particular semester. At the outset of this study, the sample comprised 52 males and 20 females; 21 freshmen, 26 sophomores, 10 juniors, and 15 seniors. The mean quality point ratio for the entire sample was 2.2. The mean SAT scores for the combined classes was 375 verbal and 402 math, 777 total. The mean of the general college student body was 378 verbal, 416 math, 794 total, revealing that the total sample, though close, was slightly below the college average.

Class I consisted of 26 males and 10 females; of these 13 were freshmen, 9 sophomores, 5 juniors, and 9 seniors. The mean quality point ratio of this group was 2.2. The means of the SAT scores for group I were 373 verbal, 401 math, and 774 for the total.

Class II consisted of 26 males and 10 females. Eight of these students were freshmen, 17 were sophomores, 5 juniors, 6 seniors. The mean quality point ratio of this group was also 2.2. The mean of the SAT scores for group II was 378 verbal, 404 math, and 782 for the total.

Statistical mortalities incurred due to personal or administrative procedures resulted in the loss of 5 students from this study. There were 2 males and 1 female from Class I, and 2 males lost from Class II.

A breakdown of each class as to the students' majors reveals:

Class I

Biology	1	Ministerial	0
Business	3	Physical Education	13
Education	3	Psychology	3
English	1	Religious Education	3
Forestry	1	Secretarial	1
Language Arts	1	Social Science	2
Mathematics	1	None declared	3

Class II

Biology	1	Ministerial	3
Business	5	Physical Education	8
Education	3	Psychology	3
English	1	Religious Education	5
Forestry	0	Secretarial	0
Language Arts	0	Social Science	2
Mathematics	2	None declared	3

Instruments Used in the Study

A survey of pre-collegiate musical experiences was taken from each student upon enrollment in the course (see Appendix 1). The survey, devised by the author, was adopted from a similar survey sheet formulated by the Music Educators National Conference.[1] The MENC used it to ascertain the pre-college music experiences of music education majors. The author's survey was designed to point out to the student and the writer the initial degree of participation in and familiarity with the general subject of the course. The original format of the MENC survey was

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[1]Music Educators National Conference, Inquiry Form for MENC Student Member Chapters concerning Pre-College Experience for Potential Music Educators.

duplicated on two 8½- by 11-inch pages. The survey consisted of four major areas in which the student might have been an active participant. They were: A. School Group Activities; B. Community Music Activities; C. Music in the Home; D. Individual Experiences. Although not all of the items included in this survey were used in the treatment of data for this study, they were, nonetheless, considered helpful to the instructor for a more complete understanding of the student's previous involvement in music.

For the measurement of musical achievement Tests 3 and 4 of the Music Achievement Tests, henceforth referred to as MAT, by Richard Colwell[2] were chosen as the instrument best suited to the purposes of the study. Some reasons for selecting this battery of tests were:

(1) the content--these tests measured achievement in the areas that the writer wished to measure; (2) the reliability--it rated .90 by Kuder-Richardson Formulae 21; (3) the tests are nationally standardized. According to Colwell, the MAT was designed:

> to provide an accurate measurement of achievement for some of the most important objectives of the music education program. The tests are constructed to be useful to the classroom teacher and the music specialist, and can be administered and interpreted by the teacher or the specialist. The tests furnish

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[2]Richard Colwell, MAT--Music Achievement Tests 3 and 4, Interpretive Manual (Chicago: Follett Educational Corporation, 1970).

> essential information in the terms of objectives . . . MAT is appropriate for use with any music textbook series, providing a logical and continuing measurement program. The information offered by MAT is vital to diagnostic work, program planning, curriculum revision, and evaluation of objectives. . . . Situation norms are provided, depending upon which test or tests are given, for grades 3 through college.[3]

Test 3 of the MAT provided standardized data on four musical skills (see Appendix 2). They were:

Part 1--Tonal Memory
Part 2--Melody Recognition
Part 3--Pitch Recognition
Part 4--Instrument Recognition
Subtest (a) Solo Instruments
Subtest (b) Accompanied Instruments

The MAT Tonal Memory test consists of 20 items measuring the listener's ability to recognize whether two chords are the same or different, and when different, to determine which note has been changed. First, a four-note chord is played in block form on the piano and immediately an arpeggiated chord is played on the same instrument, being either identical or with one note altered. The second chord is arpeggiated from the bass note upwards for easier identification of the placement of the altered tone, the purpose being to detect the chord change, not to identify the separate soprano, alto, tenor, and bass notes. The listener then determines whether the second chord is the same as the first block chord. If changed, the student names which of the four pitches has been

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[3] Ibid., p. 9.

altered. The bass note, being the first note of the arpeggio heard, makes the alteration of this note easier to identify than when some of the other notes are changed. The answers are recorded for each item by filling in the blank marked "1," "2," "3," or "4," thereby indicating whether the first (lowest), second, third, or fourth (highest) note of the arpeggiated chord is different from that of the block version. In some instances both chords are identical, and in this case a blank marked "0" is filled in, indicating no change.[4]

The Melody Recognition Test of the MAT consists of 20 items measuring the listener's ability to determine whether a melody is in the high, middle, or low voice of a harmonized version as played by a string trio. In the three-part setting the melody is always in the same octave as when originally introduced. The listener fills in the blank marked "H" for the highest voice, "M" for the middle voice, and "L" for the lowest voice. If he fails to hear the melody, or is in doubt, there is a blank marked "?"

The Pitch Recognition Test of the MAT, containing 20 items, involves some music reading. The first pitch which is played is identical with the first written note for that particular item. After hearing this pitch, the student is given a moment to look at the second written

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[4]Richard Colwell, MAT, Interpretive Manual, pp. 100-101.

note and hear it mentally. Three more pitches are played and the listener then selects the one matching the second written note and marks the appropriate blank, "1," "2," or "3." When no pitch seems correct, the student fills in the blank marked "0."[5]

The Instrument Recognition Test section of the MAT consists of items requiring more subtle discriminations. The Instrument Recognition Test is in two parts: Subtest a, Solo Instruments; and Subtest b, Accompanied Instruments. All instruments are played within their normal ranges and representative timbres. Subtest a contains recognition of the instrument as it is played alone. It has 10 items which measure the listener's ability to select the correct choice from four different choices, with a fifth choice provided if the student thinks that none of the other four are correct. The answer is indicated by filling in the blank corresponding to the name of the instrument. Subtest b contains only 5 items and measures the listener's ability to identify, according to its timbre, one solo instrument within an orchestral setting. Since five items are not an adequate number for reliable judgment no separate score is computed--the information being only for the benefit of the teacher.[6]

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[5]Richard Colwell, MAT, Interpretive Manual, pp. 103-104.

[6]Ibid., p. 106.

Test 4 of the MAT uses the same basic design, but on four different musical skills (see Appendix 3). They are:

Part 1--Musical Style
  Subtest a Composers
  Subtest b Texture
Part 2--Auditory-Visual Discrimination-Rhythm
Part 3--Chord Recognition
Part 4--Cadence Recognition

The Musical Style section of Test 4 of the MAT is constructed utilizing composers' names as synonymous with the general characteristics of the style. The test was devised to determine whether the listener can place a musical selection into the correct style category through the use of the composer's name. Subtest a--20 items--measures the listener's ability to match a composer's name with his appropriate style. A short orchestral excerpt is played and the student is asked to select from four possible choices the composer whose style most closely resembles the excerpt. The three other choices represent stylistic periods decidedly different from the correct answer. The response is recorded by filling in the blank corresponding to the correct composer's name. Subtest b--20 items--measures the listener's ability to identify texture as to monophonic, homophonic, and polyphonic. Each item, taken from standard musical literature and performed on the paino, is of sufficient length to enable the student to determine its texture. Answers are recorded by filling in the blanks marked "M" for monophonic, "H"

for homophonic, and "P" for polyphonic, or "?" if uncertain.[7]

The Auditory-Visual Discrimination Test (14 items) of the MAT is designed to test the listener's understanding of musical symbols. The student is asked to match the music he hears with the notation he sees on the answer. The four-measure phrases are always played correctly and the errors in rhythm occur in the musical notation found on the student's answer sheet, thereby measuring the listener's ability to accurately read rhythmic notation. The answers are recorded by filling in the blanks below each measure in which the student detects an error.

The Chord Recognition portion of Test 4, MAT (15 items) measures the listener's ability to recognize a repeated chord from among three trial chords. Played in block form on the piano, the original chord is sounded, followed by the trial chords, and answers are recorded in blocks marked "1," "2," or "3" for each trial chord or "0" if the original chord is not heard again, and "?" if the student is in doubt.[8]

The last section, Cadence Recognition (MAT), consists of 15 items and measures the listener's ability to recognize three types of cadences. A short musical phrase,

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[7]Richard Colwell, MAT, Interpretive Manual, pp. 166-167.

[8]Ibid., pp. 169-170.

ending with a cadence, is played on the piano. The student is asked to identify the cadence by filling in the correct blank marked "F" for full cadence, "H" for half cadence, and "D" for a deceptive cadence. A "?" blank is provided for those who are unsure.[9]

The MAT Tests 3 and 4 were scored by machine by the publishers, this being deemed advisable to insure accuracy of the results.

The instrument chosen to measure the general scholastic ability of the students was the Scholastic Aptitude Test, hereafter referred to as the SAT. The SAT was designed to measure the scholastic ability and preparation of students applying for admission to college. These tests are given every year at centers throughout the United States. Reports from such testings are sent to the students, to designated colleges and other institutions The students receive their report in a three-digit number, or standard score. The scale for the SAT scores extends from 200 to 800 with all scores being interpreted only as they compare to the College Board Scale. The standard error of measurement for the SAT verbal score is 33 and the reliability coefficient is .89; for the SAT mathematical score, the standard error is 36 and .87 is the reliability coefficient. The error of measurement means that a

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[9]Richard Colwell, MAT: Interpretive Manual, p. 174.

student's score, for example, should be considered as a range from approximately 16.5 above or 16.5 points below the score given for the verbal section. The reliability coefficient is an expression of the degree with which individuals maintain their relative standing on two equivalent forms of the test.[10]

Instructional Materials

The specific visual aids selected by the author to be studied through this experiment were taken from two series: (1) the Basic Elements of Music series, by Drs. Melvin Good and Richard Busse; and (2) An Audio Visual History of Music series by Henry W. Simon. These two series met the criteria set forth by the author for inclusion in the study. The criteria were: (1) relevance, (2) ease of operation, (3) maturation level appropriate for college-age students. The Basic Elements of Music series is a set of 40 filmstrips with sound recordings which provide narration and musical examples. The series is divided into four broad areas containing ten filmstrips each; they are: (1) Rhythm, (2) Pitch and Melody, (3) Harmony, and (4) Form. From each of these areas, the author selected only those filmstrips which proved compatible with the selected text and course syllabus. Not all of the

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[10]College Entrance Examination Board, College Board Score Reports (Princeton, New Jersey: 1971), p. 4.

filmstrips were used due to the limited class time available and the suitability to the syllabus. Those selected for use were:

1. "The Science of Sound"
2. "Intervals"
3. "Part-singing"
4. "Melody Construction"
5. "Cadences"
6. "Harmony Reading Practice"
7. "Motive, Phrase, and Period"
8. "Double Period and Phrase Group"
9. "Unity, Variety, and Contrast"
10. "Simple Compositional Structure"
11. "Variation Form"
12. "Multi-Movement, Vocal, and Free Forms"

After personally viewing each of these filmstrips, the author selected an optimum place for their inclusion in the class procedure. The visuals themselves consisted of specially prepared color designs and drawings which approximate musical print in a simplified form. All musical excerpts and diagrams constructed are easily readable. Occasional humorous caricatures are included which add interest to the presentation of the material.

The second visual series, An Audio Visual History of Music, consists of eight filmstrips correlated with recordings which contain narration and brief musical examples emphasizing musical style and historical perspective.

The parts of this series are entitled:

1. "From the Beginning through the Middle Ages" (Rhythm, Melody and Harmony)
2. "High Renaissance" (16th century)
3. "The Age of the Baroque" (1600-1750)
4. "The Classical Age" (1750-1800)
5. "The Early Romanticism" (1800-1850)

6. "The Later Romanticism" (1850-1900)
7. "Into the Twentieth Century"
8. "Music of Our Time"

These visuals are made up of prints, paintings, charts, photographs and other material contemporary with each period covered. The narration provided on the accompanying recording introduces the major musical figures and historical developments of each period. The recording also contains a brief excerpt of the music of the era to underline the points discussed. Again, class time did not permit the inclusion of all eight filmstrips (nos. 1 and 6 were omitted). The author contended that their omission was due to their lack of relevance with the text and the course syllabus.

Because viewing of these filmstrips was emphasized as outside classwork, it was necessary to provide facilities, machines, and library study areas for use by the student. This necessitated: (1) re-recording each accompanying record on to cassette-type tape reels; (2) the purchase and positioning in the library of a Dukane Sound-Filmstrip Reader. Once the viewing device was set up in the designated area, the students were instructed as to its use. Student access to the visual aids and viewing machine, along with the cassette-type recordings, was controlled by the library desk, under the guidance of the head librarian.

The text chosen for the experiment, The Art of Sound, by Jack Sacher and James Eversole,[11] published 1970, was selected during a seminar conducted at the University of Oklahoma during the fall of 1970, entitled "Seminar in the Teaching of Music Appreciation." Many texts were reviewed and from among those considered, the adopted text emerged as one which, in the opinion of the author, provided a unique and comprehensive approach to the teaching of this particular course.

The headings and divisions of the text give some indication of the arrangement and emphasis of the material covered:

Part I Aesthetics and Perception
1. Aesthetics, Art and Music
2. The Performer and the Perceiver
3. How Music Has Changed with its Times

Part II The Composer and his Materials
4. Tools of Performance
5. Tools of Composition
6. How a Composer Composes

Part III Musical Genres
7. For the Solo Voice - Song
8. For the Stage
9. For Vocal Groups
10. Music for Instruments - The Symphony
11. Music for Instruments - The Concerto
12. Music for Instruments - Other Forms
13. Music for Instruments - Solo and Chamber Music

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[11] Jack Sacher and James Eversole, The Art of Sound (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971).

Companion recordings to this textbook are available, the contents of which are:

Side One

1. Wagner: Aria, "Du bist der Lenz"
2. Wagner: Scene, "Siegmund heiss' ich"
3. Wagner: Prelude to Act II of Die Walkure
4. Verdi: Quartet, "Bella figlia dell' amore"
5. Mozart: Recitative and Sextet, "Riconosci in queste amplesso"
6. Schubert: Im Fruhling
7. Schubert: Erlkonig
8. Berg: Lyric Suite 1st movement

Side Two

1. Mozart: Symphony No. 40 in g minor K 550, 1st movement
2. Smetana: The Moldau
3. Brahms: Trio in E-flat for Horn, Violin, and Piano Op. 40, 2nd movement

Side Three

1. Beethoven: Symphony No. 5 in c minor, Op. 67, 3rd and 4th movements
2. Bartok: Piano Concerto No. 3, 1st movement
3. Schubert: Quintet in A "Trout", 4th movement
4. Berlioz: Fantastic Symphony, Theme of 1st movement

Side Four

1. Bolero, Thematic excerpt
2. Debussy: Voiles
3. J.S. Bach: Little Fugue in g minor
4. Handel: Aria, "Every Valley Shall Be Exalted"
5. Handel: Pastoral scene from Messiah
6. Palestrina: "Agnus Dei II" from Missa Brevis
7. Sollberger: "Music for Sophocles" Antigone
8. "Greensleeves"
9. "Requiem Aeternam," Mode VI
10. "A Bicycle Built for Two" (contrasting settings)

The author's philosophy is stated in the introduction:

> The basic teaching philosophy behind The Art of Sound is that music ought to be approached in the manner in which the student will hear it. The students who go to an opera, a symphonic concert, or a chamber recital may not necessarily experience a historical panorama or a program arranged in a particular chronological way. Rather, he will hear a group of works with a common orientation . . . therefore, we have approached the history of music as a tool for focusing on the genres of music rather than as the major vehicle for the organization of the course.[12]

Because his own philosophy of the teaching of music appreciation was similar to that of the authors of The Art of Sound, and he had a personal conviction of the need for a fresh approach to the teaching of this subject, the writer selected this textbook for use in his experimental study.

Procedures

A pilot study was undertaken at the University of Oklahoma during the fall semester of 1971. During this pilot period the author taught two sections of an undergraduate course entitled "Introduction to Music." He limited himself to the use of the textbook chosen for his testing program in order to become thoroughly familiar

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[12]Jack Sacher and James Eversole, "Teacher's Manual," The Art of Sound (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971), p. i.

with its content and format. The textbook, The Art of Sound, by Sacher and Eversole, was selected also for its compatability with the chosen audio visual materials. Regarding the use of such aids in a classroom situation, Sacher and Eversole state:

> We would like to recommend the use of visual materials, such as transparencies, scores, slides, pictures, films, filmstrips, and the like. Recognizing that the attention of the unskilled listener will tend to wander, we have found that focusing the eye as well as the ear was an effective tool for intensifying listening acuity. To this end, we not only urge the use of visual materials but have provided a separate volume of line scores of all the music discussed in the text.[13]

Because the visual aids could not be used indiscriminately and still be of value to the course or the experiment, decisions were made as to precisely where to include the various visual aids chosen for use in the experiment. During this time the writer was able to peruse and adapt the accompanying teacher's manual to his own course outline and procedures. Each chapter outline was adopted verbatim or adapted to meet the needs of the classroom situation. Three teacher-made tests administered to the two classes were compiled from the suggested questions found in the manual's appendix, thus assuring optimum use of the text as well as accurate testing procedures. These questions were provided by the authors of the text for the expressed purpose of aiding the teacher in test construction.

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[13]Sacher and Eversole, "Teacher's Manual," p. ii.

With further revision these same tests were used during the experimental semester's periodic examinations for the course.

The authors' permission was requested and given along with expressed support from Drs. Bernard Russe and Melvin Good (see Appendix 4). Scripts to accompany the visual aids were obtained in an interview with Dr. Good at the State Department of Education, Raleigh, North Carolina, in January, 1972. The ability to read the script and make preliminary preparations was considered advisable in order to achieve maximum control. The scripts for the other series, An Audio Visual History of Music, were already included as part of its package. The author had previously used these filmstrips and was already acquainted with their content.

At the outset of this experiment, the writer realized that many forces relative to school operation could have a bearing on the procedures. Maximum cooperation was received from the selected college as he had been acquainted with its personnel for several years. Permission was granted in writing by the departmental chairman for the author to conduct the experiment on the campus of Gardner-Webb College (see Appendix 5). The college administration agreed to provide necessary funds to purchase the audio-visual materials and equipment. In conference with Dr. George Cribb, the Fine Arts Department

chairman at Gardner-Webb College, permission was obtained for scheduling the class periods, 9:00 a.m. and 10:00 a.m. (two optimum hours), with each meeting on Monday, Wednesday and Friday. The registrar of the college, Mrs. Dorothy Edwards, cooperated in randomly assigning students to sections and in attempting to assign an equal number to each section. Mr. Bill Malone, Head Librarian, gave permission to make full use of the facilities and equipment of the library. Assignments would be made to the experimental class which would encourage the use, outside of class, of the visual aids. It was necessary, in order to insure adequate control, that a separate area be set aside for the assigned viewing by the experimental group. Control was provided through adherence to a roll sheet, containing the names of the experimental class to be used for the issuance of the visual aids to these students only.

To further insure control for the internal validity of the experiment, the author constructed an "overview" of the semester's course which included (1) the syllabus by daily assignment, (2) the exact place in the syllabus for the inclusion of the visual aids, and (3) the related listening assignments which were made to both the control and the experimental classes (see Appendix 6a & b). These assignments came, in part, from the suggested list found

in the teacher's manual accompanying the text.

During the opening class of the semester, the pre-collegiate musical experience information form was administered by the author (for results see Appendix 7a & b). The results were tabulated into readable form and kept on file for review. The MAT was given by the author at the beginning of the instructional period, January, 1972. The individual answer sheets were then sent to the computer center of Prairie State College, Chicago Heights, Illinois, for machine scoring. The tabulated results, along with punched computer cards, were immediately returned. These were also filed for later use.

Existing SAT scores on file in the Guidance Office and the Office of the Registrar of the college were utilized for the purpose of this study (see Appendix 8a & b). The SAT scores, both separate and combined, were recorded on the personal data form of each student. This data form, devised by the author, was used to record all pertinent data on each individual student (see Appendix 9). Finalization of the testing and recording of the data completed the preliminary and pretest procedures necessary to the experiment.

The in-class procedure for the experimental class involved using the textbook, teacher lectures, selected listening, and finally, the employment of the visual aids as the experimental variable at predetermined, appropriate

times. The use of the visual aids, when employed, consisted of a brief introduction by the author and student viewing of the visual aid (which was accompanied by a recording especially designed for each aid). The author made a brief summation at the close of the viewing. The average length of time taken by the visual aids was 25 to 30 minutes. The instruction, consisting of lectures with related listening, continued for the remainder of the period. In addition to the above, a daily "log book" was kept for both classes. This "log book" contained a list of records used for class listening and enrichment, topics discussed, and comments by the author relative to the class procedures. The class attendance was recorded along with the general atmosphere of the classes each day.

The out-of-class procedures for the experimental class consisted of study assignments taken from the syllabus as well as assignments which encouraged the reviewing of the filmstrips. The assignments consisted of selected terms or words to be defined, chosen from a manual especially designed by the authors of the filmstrip series (see Appendix 10a).

In-class procedures for the control class consisted of using the textbook, teacher lectures, and special lectures during which the actual script from the filmstrips was expounded. These lectures omitted only those words and phrases which referred to the visual connotations.

To insure adequate control, the author previewed the script of each filmstrip and struck through the words having visual connotations prior to the class recitation. Thus only the visual aspect of the study was omitted in the control class.

Out-of-class procedures for the control class consisted of assignments as well as special definition sheets similar to those received by the experimental class (see Appendix 10b). The study sheets were designed to require outside work which covered the same material as the visual, but would not require the viewing of the filmstrip. This procedure provided for equivalency in out-of-class procedures. The assignment sheets were collected from the control and experimental groups as a part of the regular classwork routine. The sheets were read and the completed paper was identified by a check mark. Because no letter grade was given, letter grades had no bearing on the study.

The posttest, MAT 3 and 4, was administered to each class during the regularly scheduled examination periods. Even though the teacher-made examination had already been given and the grades decided, there was, except for the statistical mortalities, a 100% response on the part of the students. The test was again scored by machine. The results of the print-outs and cards were returned to the author (see Appendix 11a & b). Data from the pre- and posttest, plus all other pertinent data, were

compiled on the teacher-devised data sheet.

Special IBM data punched cards were made ready for analysis by the Data Processing Department of Gardner-Webb College, using an IBM 129 Key Punch Data Recorder. This instrument provided automatic right-justification as well as verification of data. The data on each student was carded from the personal data sheet devised by the author. Once compiled, codified and recorded properly, the data was taken to the computer center of Appalachian State University in Boone, North Carolina, for processing of results.

In conference with Dr. Michael Carter, statistician for the university, the author secured permission for the use of their computer facilities. The author then retained the services of Dr. Carter for the preliminary analysis of the results. Dr. Carter supplied the necessary computer program which analyzed the scores through an analysis of covariance using several factors as the covariate. From these computer print-outs, the author was able to secure the adjusted means for all scores necessary for the correct analysis of the data.

The study obtained data from 68 students enrolled in the courses, Music Appreciation 125a or 125b. It involved the assistance of the administration of Gardner-Webb College, the department chairman of the Fine Arts Department, the Head Librarian and his staff, the entire

music faculty, and the Data Processing Department. The returns were 100% complete with the full cooperation of all concerned.

With the completion of the course, coding of the data, and acquisition of the preliminary results, the next step was to analyze statistically the data. Chapter III is a complete analysis of the results obtained from this study.

CHAPTER III

PRESENTATION AND INTERPRETATION OF DATA

The data collected from the visual aid experiment were obtained from the following instruments:

1. Pre-Collegiate Music Experience Survey
2. The Scholastic Aptitude Test Scores
3. The Music Achievement Test (Nos. 3 and 4) used both as pretest and posttest

Differences between the experimental and control classes in SAT scores were negligible and the two classes were found to be not significantly different from one another according to pre-treatment MAT scores. Table 1 shows the results of a *t* test for the significance of differences between independent sample means as applied to the MAT raw scores.

Even though the MAT pretreatment scores were not significantly different for the two groups, some differences in means and standard deviations did exist. Consequently, in the treatment of data, the posttreatment achievement scores were adjusted, using either pretreatment achievement scores or SAT scores as the covariate.

TABLE 1

t TEST FOR THE SIGNIFICANCE OF DIFFERENCES BETWEEN EXPERIMENTAL AND CONTROL GROUPS ACCORDING TO MAT PRETEST SCORES

	Experimental Group N = 33		Control Group N = 35					
	M	SD	M_2	SD	$M_x - M_c$	s	t	P
Pre 3	32.24	13.50	35.37	10.34	-2.13	12.16	-0.72	.50
Pre 4	39.70	12.79	43.11	8.74	-3.41	11.06	-1.27	.30

The first procedure in treating the data was to compare the adjusted posttreatment MAT, Test 3 scores for the experimental and control groups. Test 3 included subtests on tonal memory, melody recognition and instrument recognition, and a subtest on pitch recognition, the scores of which were included in the total for analysis but which were not analyzed separately.

Table 2 presents the adjusted means scores for the experimental and control groups for MAT Test 3, using the appropriate pretest or SAT scores as the covariate.

TABLE 2

MEANS OF ADJUSTED MAT, TEST 3, POST-TREATMENT SCORES

	Experimental N=33 M	Control N=35 M	Total N=68 M	SD
MAT, Test 3, Total Score Pretest--Covariate	37.5	36.9	37.2	11.7
MAT, Test 3, Total Score SAT aptitude--Covariate	36.6	37.7	37.2	11.7
MAT, Test 3, Total Score SAT Total--Covariate	36.6	37.7	37.2	11.7
MAT--Tonal Memory Pretest--Covariate	10.8	11.6	11.2	4.3
MAT--Melody Recognition Pretest--Covariate	10.5	9.3	9.9	3.8
MAT--Instrument Recognition Pretest--Covariate	7.3	7.9	7.6	3.4

Differences between the classes appear to be negligible. In order to test the significance of differences, however, the analysis of covariance procedure was employed. Table 3 shows the analysis of covariance results for the data presented in Table 2. The null hypotheses state that no significant differences between the experimental and control groups are observed, for the total test or for any of the three subtests.

With 1 and 65 degrees of freedom, an F ratio of 3.99 is required to reject a null hypothesis at the .05 level of significance. The reader will note that only one of the F ratios shown in Table 3 approaches that value. The null hypotheses of no differences between groups must be accepted according to the MAT Test 3 results. The visual aids apparently had no significant effect on the musical learning of the experimental group for the areas included in Test 3.

The one area for which the results approach a significant difference is melody recognition. Since the task that the students were asked to perform in the Melody Recognition subtest was strictly aural, the importance of this result is held in some question. However, the visual aids employed in the experimental class did include melodic excerpts for the students to follow, and it is possible that this practice enabled the experimental group to increase in ability to recognize melodies.

TABLE 3

ANALYSIS OF COVARIANCE RESULTS FOR DIFFERENCES BETWEEN EXPERIMENTAL AND CONTROL GROUPS IN MAT TEST 3

		Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
2a:	MAT, Test 3 Total with pretest as covariate	Between Groups	1	8.05	8.05	
		Within Groups	65	1740.30	26.77	
		Total	66	1748.35		0.30
2b:	MAT, Test 3 Total with SAT aptitude as covariate	Between Groups	1	18.54	18.54	
		Within Groups	65	7244.68	111.40	
		Total	66	7263.20		0.17
2c:	MAT, Test 3 Total with SAT total as covariate	Between Groups	1	23.94	23.94	
		Within Groups	65	8898.42	136.90	
		Total	66	8922.36		0.17
2d:	Tonal Memory Pretest as covariate	Between Groups	1	11.68	11.68	
		Within Groups	65	857.59	13.19	
		Total	66	869.25		0.89
2e:	Melody Recognition Pretest as covariate	Between Groups	1	24.95	24.95	
		Within Groups	65	458.30	7.05	
		Total	66	483.25		3.54
2f:	Instrument Recognition Pretest as covariate	Between Groups	1	5.91	5.91	
		Within Groups	65	358.83	5.52	
		Total	66	363.74		1.07

Because of the content of the filmstrips the melody recognition portion of the MAT Test 3 would be the one most likely to have been influenced by the visual aids. The second area of the MAT Test 3 could possibly have been influenced by the visual aids though actual practice in identifying wrong notes from a melodic phrase was not included in the visual aids. The improvement in instrument recognition would probably have been least affected by the visual aids. In fact, in the tonal memory and the instrument recognition sections, the most improvement was revealed in the control group.

Table 4 presents the adjusted mean scores for the experimental and control groups for MAT Test 4, using the appropriate pretest or SAT scores as the covariates.

As with Test 3, differences appear to be negligible but with slightly wider ranges between the means of the two classes. The significance of the differences was tested by the analysis of covariance method for the data presented in Table 4. The null hypotheses state that no differences between the experimental and control groups would be observed, for the total of Test 4 or for any of its subtests.

TABLE 4

MEANS FOR THE ADJUSTED MAT, TEST 4, POST TREATMENT SCORES

	Experimental N=33 M	Control N=35 M	Total N=68 M	SD
MAT, Test 4, Total score Pretest as covariate	46.8	46.9	46.85	11.67
MAT, Test 4, Total score SAT Aptitude as covariate	45.2	48.4	46.85	11.67
MAT, Test 4, Total score SAT Total as covariate	45.1	48.6	46.85	11.67
MAT, Test 4, Musical Style Pretest as covariate	10.1	10.2	10.1	3.15
MAT, Test 4, Texture Pretest as covariate	11.9	11.8	11.85	4.6
MAT, Test 4, Audiotary-Visual Discrimination as covariate	5.7	5.7	5.7	3.4

With 1 and 65 degrees of freedom, an F ratio of 3.99 is required to reject the null hypothesis at the .05 level of significance. The reader will note that none of the F ratios in Table 5 approaches the value necessary to reject a null hypothesis. The null hypotheses that no differences between the groups exist must be accepted according to the MAT Test 4 results. The visual aids used in the study apparently had no significant effect on the music achievement of the experimental group in the areas of musical style, texture and audio-visual discrimination.

TABLE 5

ANALYSIS OF COVARIANCE RESULTS FOR DIFFERENCE BETWEEN EXPERIMENTAL AND CONTROL GROUPS IN MAT, TEST 4

		Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
4a:	MAT, Test 4 Total with pretest as covariate	Between Groups	1	1.38	1.38	
		Within Groups	65	2122.22	32.65	
		Total	66	2133.60		.04
4b:	MAT, Test 4 Total with SAT Aptitude as covariate	Between Groups	1	170.48	170.48	
		Within Groups	65	6794.28	104.52	
		Total	66	6964.77		1.63
4c:	MAT, Test 4 Pretest as covariate	Between Groups	1	185.26	185.26	
		Within Groups	65	8387.94	129.04	
		Total	66	8573.20		1.44
4d:	Musical Style Pretest as covariate	Between Groups	1	0.59	0.59	
		Within Groups	65	534.38	8.22	
		Total	66	534.98		.07
4e:	Texture Pretest as covariate	Between Groups	1	0.29	0.29	
		Within Groups	65	672.57	10.35	
		Total	66	672.86		.02
4f:	Audio Visual Discrimination Pretest as covariate	Between Groups	1	0.02	0.02	
		Within Groups	65	347.41	5.34	
		Total	66	347.44		.004

In order to determine whether or not significant differences occurred in achievement between students from the various class years within each group, an analysis of variance procedure was applied to the adjusted posttreatment scores. Table 6 presents the means and the standard deviations of students in the experimental group by class year as well as the analysis of variance results.

TABLE 6

ADJUSTED MAT TEST 3 POST-TREATMENT SCORES
FOR EXPERIMENTAL GROUP BY CLASS YEAR

Class	N	M	SD
Freshmen	10	35.07	5.54
Sophomores	9	38.4	4.69
Juniors	5	38.5	3.66
Seniors	9	38.9	7.34
Total	33	37.5	5.90

ANALYSIS OF VARIANCE RESULTS
INDEPENDENT VARIABLE: CLASS YEAR
DEPENDENT VARIABLE: ADJUSTED MAT, TEST 3 POSTTEST

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Between Groups	89.56	3	29.85	
Within Groups	1057.37	29	36.46	
Total	1146.93	32		0.82

The reader will note that the adjusted achievement scores among the sophomore, junior and senior students varied very little, although the variance of scores within the senior group is considerably greater than among the sophomores and juniors.

According to analysis of variance, there is no significant difference in the achievement according to MAT Test 3 among the four class years of the experimental group. With 2 and 29 degrees of freedom, an F ratio of 2.95 is necessary to reject the null hypothesis. The achievement level in the areas of musical learning represented in MAT Test 3, although slightly lower for freshmen students, is not significantly so.

Table 7 shows the MAT Test 3 means and standard deviations for the control class by class year and the analysis of variance results.

TABLE 7

ADJUSTED MAT TEST 3 POST-TREATMENT SCORES FOR CONTROL GROUP BY CLASS YEAR

Class	N	M	SD
Freshmen	7	38.0	4.15
Sophomores	17	37.6	4.19
Juniors	5	35.6	4.17
Seniors	6	34.4	2.16
Total	35	36.8	4.13

TABLE 7 (Continued)

ANALYSIS OF VARIANCE RESULTS
INDEPENDENT VARIABLES: CLASS YEAR
DEPENDENT VARIABLES: ADJUSTED MAT TEST 3 POSTTEST

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Between Groups	61.76	3	20.59	
Within Groups	534.55	31	17.24	
Total	596.31	34		1.19

With 3 and 31 degrees of freedom, an F ratio of 2.91 is needed to reject a hypothesis of no difference. As with the experimental class, the analysis of variance shows no significant difference among class years within the control group. It is interesting to note that the pattern of mean scores for the control group is exactly opposite that of the experimental group. In the experimental group, freshmen scored lowest and seniors highest, the latter group showing a considerably greater variance within itself. In the control group, freshmen scored highest, seniors lowest, and the seniors group had a considerably smaller variance. The writer believes this to be due to differences in the two samples rather than to differences due to treatment.

Tables 8 and 9 present the MAT Test 4 adjusted post-treatment means and standard deviations by class year for the experimental and control groups, respectively.

TABLE 8

ADJUSTED MAT, TEST 4 POST-TREATMENT SCORES
FOR EXPERIMENTAL GROUP BY CLASS YEAR

Class	N	M	SD
Freshmen	10	47.6	5.66
Sophomores	9	44.8	6.76
Juniors	5	48.5	5.36
Seniors	9	46.9	5.22
Total	33	46.8	5.98

ANALYSIS OF VARIANCE RESULTS
INDEPENDENT VARIABLE: CLASS YEAR
DEPENDENT VARIABLE: ADJUSTED MAT, TEST 4 POSTTEST

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Between Groups	59.14	3	19.72	
Within Groups	1119.65	29	38.61	
Total	1178.79	32		0.51

The analysis of variance results for differences in the MAT Test 4 mean scores by class years are consistent with those for Test 3. No significant differences are found, and it is concluded that all class years achieved relatively equally within each group. Moreover, the experimental treatment apparently had no significant effect upon students' achievement according to year in college.

TABLE 9

ADJUSTED MAT, TEST 4 POST-TREATMENT SCORES
FOR CONTROL GROUP BY CLASS YEAR

Class	N	M	SD
Freshmen	7	43.7	3.27
Sophomores	17	47.4	5.63
Juniors	5	48.8	4.08
Seniors	6	47.9	5.31
Total	35	46.9	5.25

ANALYSIS OF VARIANCE RESULTS
INDEPENDENT VARIABLE: CLASS YEAR
DEPENDENT VARIABLE: ADJUSTED MAT, TEST 4 POSTTEST

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Between Groups	99.01	3	33.00	
Within Groups	865.14	31	27.91	
Total	964.15	34		1.18

To further analyze achievement within the experimental and control groups, the t test for significance of difference between independent sample means was applied. Students were classified according to sex, general music experience, choral music experience, and instrumental music experience. Table 10 shows the means and standard deviations, s' (best estimate of standard deviation for the total sample), the difference between means, t value and probability level (P) for the MAT Test 3 results from the experimental group.

The t test was applied to test a hypothesis of no differences according to sex, general music, choral music,

TABLE 10

t TEST FOR SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS CLASSIFICATIONS WITHIN THE EXPERIMENTAL GROUP FOR MAT TEST 3 ADJUSTED POST-TREATMENT SCORES: EXPERIMENTAL GROUP

Classification	Males=24	Females=9	Gen. Music=8	No Gen. Music=25	Choral Ex.=9	No Choral Exp.=24	Instru. Ex.=4	No Instru. Ex.=29
M	38.3	35.6	38.5	37.2	37.2	37.7	38.1	37.5
SD	5.70	5.96	8.12	4.94	5.06	6.44	1.85	6.47
s'	5.96		6.06		6.29		6.29	
$M_1 - M_2$	2.7		1.3		-0.5		0.6	
t	1.16		0.53		-0.20		0.18	
P	.30		.60		.90		.90	

and instrumental music experience within the experimental group. By observing the *t* value and probable level in Table 10 the reader will note that the null hypothesis must be accepted in each case. The greatest difference occurred between males and females (males having scored higher) but the difference is not significant at the .05 level. Differences were especially negligible for the classifications of "some" and "no" choral and instrumental music experience. Previous music experience had no significance upon student achievement according to those areas of musical learning included in MAT Test 3.

The same procedure was followed for the MAT Test 3 results from the control group. These data are shown in Table 11.

As with the experimental group, no significant differences in Test 3 achievement were found between students in the control group classified according to sex and the various types of previous music experience.

Tables 12 and 13 show the *t* test results as applied to MAT Test 4 for the experimental and control groups respectively.

The reader will note that no significant differences are found in Test 4 achievement within either group as classified by sex and the various types of previous musical experience. The *t* test was not applied for choral experience within the control group since the mean scores

TABLE 11

t TEST FOR SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS CLASSIFICATIONS WITHIN THE CONTROL GROUP FOR MAT TEST 3 ADJUSTED POST-TREATMENT SCORES: CONTROL GROUP

Classification	Males=25	Females=10	Gen. Music=14	No Gen. Music=21	Choral Ex.=6	No Choral Ex.=29	Instru. Ex.=5	No Instru. Ex.=30
M	37.0	36.5	37.2	36.6	34.7	37.3	38.8	36.5
SD	3.75	4.94	5.23	3.17	3.15	4.16	3.75	4.09
s'	4.24		4.24		4.12		4.16	
$M_1 - M_2$	0.5		0.6		-2.6		2.3	
t	0.31		0.28		-1.24		1.09	
P	.80		.80		.30		.30	

TABLE 12

t TEST FOR SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS CLASSIFICATIONS WITHIN THE EXPERIMENTAL GROUP FOR MAT TEST 4 ADJUSTED POST-TREATMENT SCORES: EXPERIMENTAL GROUP

Classification	Males=24	Females=9	Gen. Music=8	No Gen. Music=25	Choral Exp.=9	No Choral Exp.=24	Instru. Exp.=24	No Instru. Exp.=29
M	45.9	49.1	46.4	46.9	48.9	46.0	47.6	46.7
SD	5.83	5.73	4.55	6.36	4.97	6.13	6.01	5.96
s'	5.99		6.16		6.02		6.16	
$M_1 - M_2$	-3.2		-0.5		2.9		0.9	
t	-1.37		-0.20		1.23		0.27	
P	.20		.90		.30		.80	

TABLE 13

t TEST FOR SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS CLASSIFICATIONS WITHIN THE CONTROL GROUP FOR MAT TEST 4 ADJUSTED POST-TREATMENT SCORES: CONTROL GROUP

Classification	Males=25	Females=10	Gen. Music=14	No Gen. Music=21	Choral Exp.=6	No Choral Exp.=29	Instru. Exp.=5	No Instru. Exp.=30
M	46.2	48.9	46.6	47.2	47.0	47.0	48.6	46.7
SD	5.27	4.63	5.42	5.12	6.40	4.98	3.91	5.39
s'	5.25		5.40				5.36	
$M_1 - M_2$	-2.7		-0.6				1.9	
t	-1.38		-0.32				0.73	
P	.20		.80				.50	

were identical for those with and without that experience.

It is rather interesting to observe that in both the experimental and control groups, males scored lower than females in Test 4, whereas they scored higher in both groups for Test 3. Although none of these differences is significant at the .05 level, for Test 4 the differences according to sex classification most nearly approach significance.

None of the classifications of students tested here show a significant difference in achievement according to either Test 3 or Test 4 of the MAT. It may be an encouraging result that previous musical experience had no significant effect upon achievement in this music appreciation course, or one may consider these results an indictment of the quality of previous musical experiences brought to the class. Whichever the case, it is apparent that the visual aid treatment produced no different results among students in the experimental class from that of the control group, at least according to the results from this measurement instrument.

The fact that no significant differences were observed between experimental and control groups is held as a conclusion of this study. The researcher is well aware that some differences may have occurred that were not measured in this investigation. The testing instrument was as comprehensive as could be found among published

materials; however, these measurements were restricted to the cognitive domain. They did not include any measurement of the affective domain; and certainly this is an area that must be seriously considered.

Although no quantitative measurement of student attitudes between the experimental and control groups was taken during the course of the study, it seemed appropriate to relate the writer's observations regarding this area as recorded in his "log book." These observations regarding attitude pertain to such factors as absenteeism, participation in class discussions, class make-up, sex, and student age.

It was observed that the experimental class had a higher incidence of absenteeism than the control class. As the experiment progressed, the writer began to notice a greater degree of absenteeism in the experimental class, yet the control class attendance was not out of the ordinary. The author believes that this greater incidence of absenteeism was possibly indicative of a lack of response on the part of the students to the in-class procedures which employed visual aids.

Those students who were absent from the experimental class still had an opportunity to view the filmstrips in the library. This exposure was insured by the recording of responses on the assigned work sheets provided in the library. These responses could only be obtained from the

filmstrips. A check of those students viewing the filmstrips was occasionally made by the author by scanning the library cards which were imprinted with the student's name prior to issuance of the materials. Comments from the library staff indicated no problems in students' working with the visual aids. Even though these assignments were returned, indicating the filmstrips had been viewed, the author believes that the higher percentage of absenteeism among students in the experimental group could have been caused by the students' attitude toward the class, which in turn may have resulted from the visual aids approach.

It appeared that the use of visual aids may have precipitated a lower response in motivation regarding the participation of the students in class discussion. In the experimental class there were few questions raised in the summary portions of the lectures, whereas in the control class it was noticeable that the students felt more freedom to ask questions or make comments. This was possibly due to a certain amount of restriction imposed on the experimental students by the recorded narration. They probably felt less opportunity to comment on the lecture content, whereas the control class felt more freedom to join the discussion at will.

There were also differences in the make-up of the classes which could have had an effect on the outcome of

the study. Twelve of the students among 33 in the experimental class were students from the athletic department, compared with 7 of 35 in the control class. Although this may not be a normal method of comparison, the large number of varsity athletes did possibly contribute particular attitudes which could have affected the study. Many of these students select the music course without any real concern for increase in cultural knowledge or aesthetic sensitivity. Their concern is more for the credit the course provides for their curriculum requirements.

Besides the differences in group attitudes due to the attitudes of these individual students, the varsity athletes also contributed to the higher degree of absenteeism in the experimental class. These students were necessarily away from campus on trips on several occasions.

Another problem directly related to the above in the make-up of both classes was the disproportionate number of males. Of 68 students in the experimental and control classes 46 of these were males. Even at the college level, old prejudices regarding "classical" music as "stuffy" music still had to be overcome. This perennial problem in music education could also have been a factor which influenced the outcome of this study.

The author noted that upperclassmen, most noticeably the seniors, in the experimental class became restless and appeared, at times to be bored when compared to the upperclassmen in the control class. The author would

hypothesize that the age of the student may be in inverse proportion to his receptiveness to visual aids. There seems to be a point of diminishing returns regarding age in relation to a program involving the concentrated use of filmstrips. There was no statement made by a student to the author which directly supports this hypothesis; rather, this supposition derives from the writer's observations of the "tone" of the experimental class as compared to the control class.

Finally, as a result of this study the author is concerned about the attitudes of the college student regarding teachers who use visual aids as part of their class procedure. Some students have the opinion that teachers who use visual aids in the classroom have difficulty in expressing themselves, or that they are "just plain lazy." This mistaken idea is the result of unfounded opinions on the part of the student regarding a teacher's sense of security in the classroom.

These concerns regarding other factors which could influence the results of this study may have been heightened by the writer's personal apprehension regarding the preciseness and accuracy he desired for this experiment. They may possibly have had no effect upon the experiment, but the author contends they were problems encountered which should be brought to the reader's attention.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The purpose of this study was to investigate the use of visual aids for teaching music appreciation at the college level. More specifically, the study compared two methods of presentation for the teaching of music appreciation. The procedures examined were (1) the conventional approach to teaching music appreciation and (2) the media approach using filmstrips as visual aids.

The subjects of this study were 68 students from the general college at Gardner-Webb College, Boiling Springs, North Carolina during the 1971-1972 school year, spring semester.

The subjects were placed in two groups: a control group, using a conventional pattern of study and class assignments; and an experimental group, making use of a concentrated presentation utilizing filmstrips which augmented the educational process with visual stimuli. Subjects in each of these two groups were enrolled and taught separately for one semester in two classes in music appreciation. The

two groups were randomly signed during the registration for the spring semester, 1971-1972.

The subjects were given a pretest, Music Achievement Test, Tests 3 and 4. Both classes were given an exact form of this test at the close of the semester (the posttest). Mean scores of both groups on these two tests, with emphasis on selected subparts, were calculated and used for comparison in terms of the experimental variable involved in the hypothesis of the study.

Other instruments used in the study were the (1) Scholastic Aptitude Test, used to obtain a measure of general academic ability; and (2) a pre-collegiate music survey, used to obtain a measure of the previous musical experience of all subjects in the study. Additional information used in the study was obtained through a student data sheet which was completed by the author from varied college sources. The author had the results of scores from all tests placed on computer cards. Care was taken to insure that the scores listed on the computer cards were correct by having the cards read and verified automatically.

At the completion of the course, in conference with Dr. Michael Carter, statistician for Appalachian State University at Boone, North Carolina, the author secured the necessary computer program, which analyzed the scores through an analysis of covariance using several different factors as the covariates.

The null hypotheses listed under number 1 were tested by analysis of covariance using either the appropriate pretest or SAT scores as the covariate. The results are as follows:

1. No significant difference is observed between the experimental and control groups in:
   a. adjusted post-treatment scores for MAT Test 3.
   b. adjusted post-treatment scores for the Tonal Memory subtest of MAT Test 3.
   c. adjusted post-treatment scores for the Melody Recognition subtest of MAT Test 3.
   d. adjusted post-treatment scores for the Instrumental Recognition subtest of MAT Test 3.
   e. adjusted post-treatment scores for MAT Test 4.
   f. adjusted post-treatment scores for the Style subtest of MAT Test 4.
   g. adjusted post-treatment scores for the Texture subtest of MAT Test 4.
   h. adjusted post-treatment scores for the Auditory-visual Discrimination subtest of MAT Test 4.

No significant differences were found to exist between the experimental and control classes according to adjusted post-treatment scores for the MAT Test 3 total scores, or for any of the subtest scores analyzed (null hypotheses, 1a, 1b, 1c, 1d). However, one difference did appear which approached near significance. In the subtest

entitled Melody Recognition, the experimental class scored somewhat higher than the control group ($F=3.54$), indicating that there is the possibility that the use of visual aids increased the students' ability to recognize melodies.

No significant differences were found to exist between the experimental and control classes according to adjusted post-treatment scores for the MAT Test 4 total scores, or for any of the subtest scores analyzed (null hypotheses 1e, 1f, 1g, 1h). The mean scores, adjusted by the pretest as covariate, were nearly identical and no significant differences between the experimental and control classes were observed in the areas of musical style, texture and auditory visual discrimination.

The null hypotheses listed under number 2 were tested by two different methods. Null hypothesis number 2a was tested by analysis of variance, using the adjusted post-treatment scores (pretest as covariate). Null hypotheses 2b, 2c, 2d, and 2e were tested by means of the *t* test for the significance of difference between independent sample means. Results from the testing of these null hypotheses were as follows:

2. No significant differences in adjusted post-treatment mean scores will be observed within the experimental (or control) group according to classification of students by:
   a. class year.

b. sex.

c. general music experience.

d. choral music experience.

e. instrumental music experience.

No significant difference was found to exist within either the experimental or control classes among the various class years (null hypothesis number 2a). It was of some interest to note that the pattern of mean scores for the control group was exactly opposite that of the experimental group--in the former, younger students scored higher while in the latter, the older students scored higher. These differences were attributed by the researcher to differences in the sample rather than to differences due to treatment.

No significant difference was found to exist within the experimental (or control) class when tested by the *t* test of significance according to sex, general music, choral music, and instrumental music experience (null hypotheses 2b, 2c, 2d, and 2e). Neither sex nor previous music experience had any significant effect upon student achievement in the experimental (or control) class according to those areas of musical learning included in MAT Tests 3 and 4.

Conclusions

Based on the findings of this study, the writer made the following conclusions:

1. The visual aids, as they were used in this study for teaching music appreciation, did not aid the students in attaining a higher rate of achievement. The students in both the experimental and control classes were fairly consistent in their rate of achievement as revealed by adjusted posttest scores of the MAT Tests 3 and 4. Those students who were taught through a concentrated exposure to visual aids showed no greater overall increase in achievement than those who were taught by the conventional method of lecture-discussion.
2. The fact that no significant differences were ascertained as a result of comparisons between sex and previous musical experience in either class indicated that neither sex nor previous musical experience can serve as a basis for predicting success in a course of music appreciation. In some cases those students with music experience did less well in individual achievement when compared to those with no previous musical experience. This observation held true in both the experimental and control classes.

Recommendations for Further Study

Even though the data from this study forced the writer to accept the null hypothesis, he believes that visual aids still warrant a role in teaching music appreciation. The author recommends:

1. that studies be made to test the effectiveness of

visual aids in the affective domain. It is entirely possible that visual aids can be used to affect students' attitudes and understanding of concepts.

2. that the cognitive domain be further explored, utilizing other types of media under different conditions. Different results may come from a study which applies an approach alternating with various other media.
3. that new evaluative instruments be designed to determine the effectiveness of visual aids in both the affective and cognitive domains. In reviewing the related literature the author was concerned that no tools of evaluation could be found which would comprehensively evaluate visual aids. The writer believes that this area would be one worthy of further study.
4. that additional studies be made to test the effectiveness of visual aids utilizing different procedures and techniques. Alternate procedures could produce different results.
5. that additional studies be conducted to ascertain which types of visual images (i.e., pictures, paintings, diagrams) have the greatest impact on student achievement.

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APPENDIX 1

PRE-COLLEGIATE MUSICAL EXPERIENCE

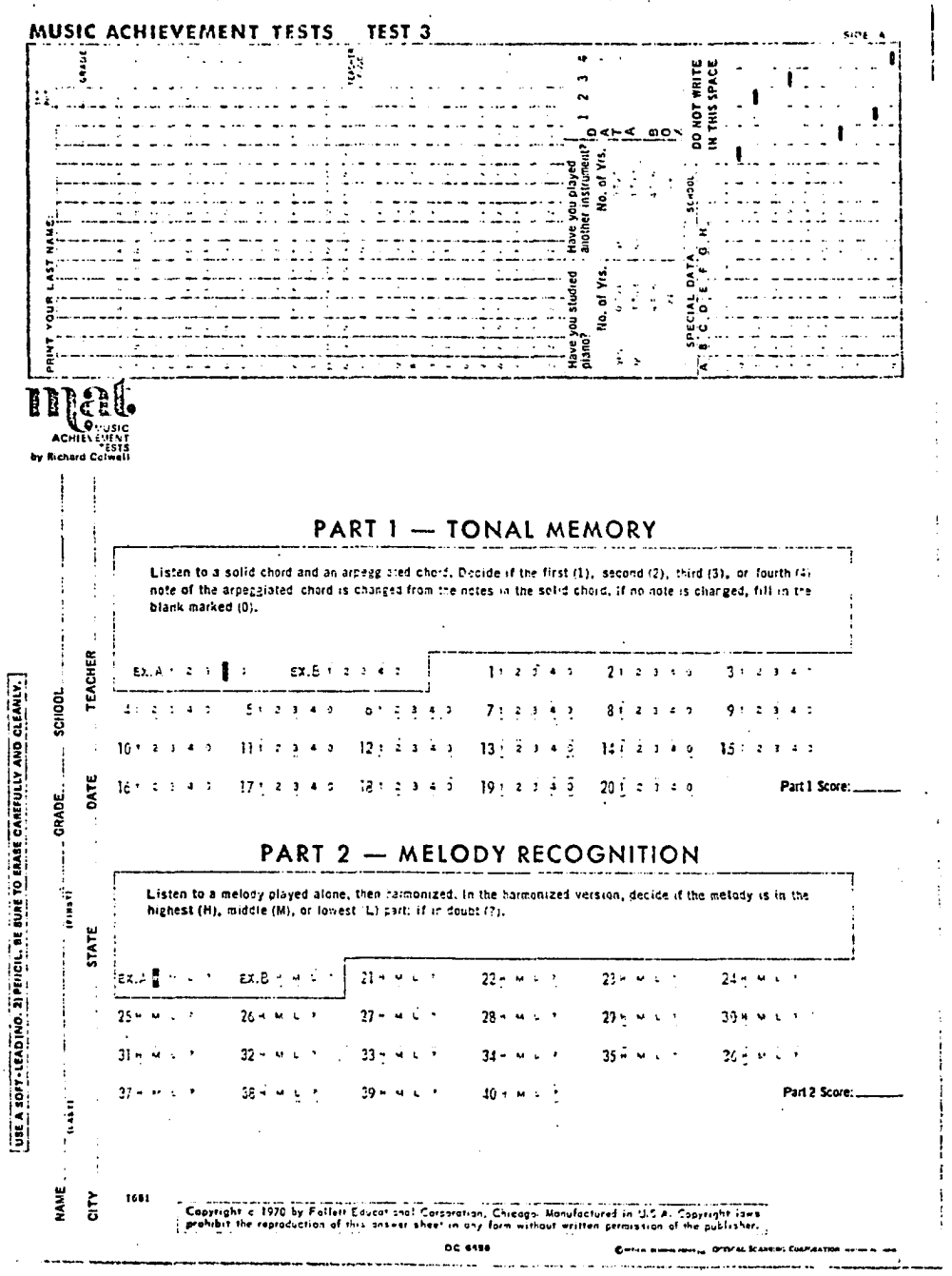
Directions: Please indicate the degree to which you participated in the following pre-collegiate music activities by placing a small circle (o) in the appropriate corresponding level of participation.

	Some	None
General Music Classes		
Large Ensembles (Chorus)		
Large Ensembles (Band)		
School Service Activities (games, parades, assemblies)		
Individual Instruction (School)		
Family Music Ensemble		

	Very Much	Quite a Bit	Some	Very Little	None
Concerts by Outside Artists					
Attending Local Concerts					
Personal Listening (own record collection)					

Name _____
Last First Initial

APPENDIX 2



MUSIC ACHIEVEMENT TESTS TEST 3

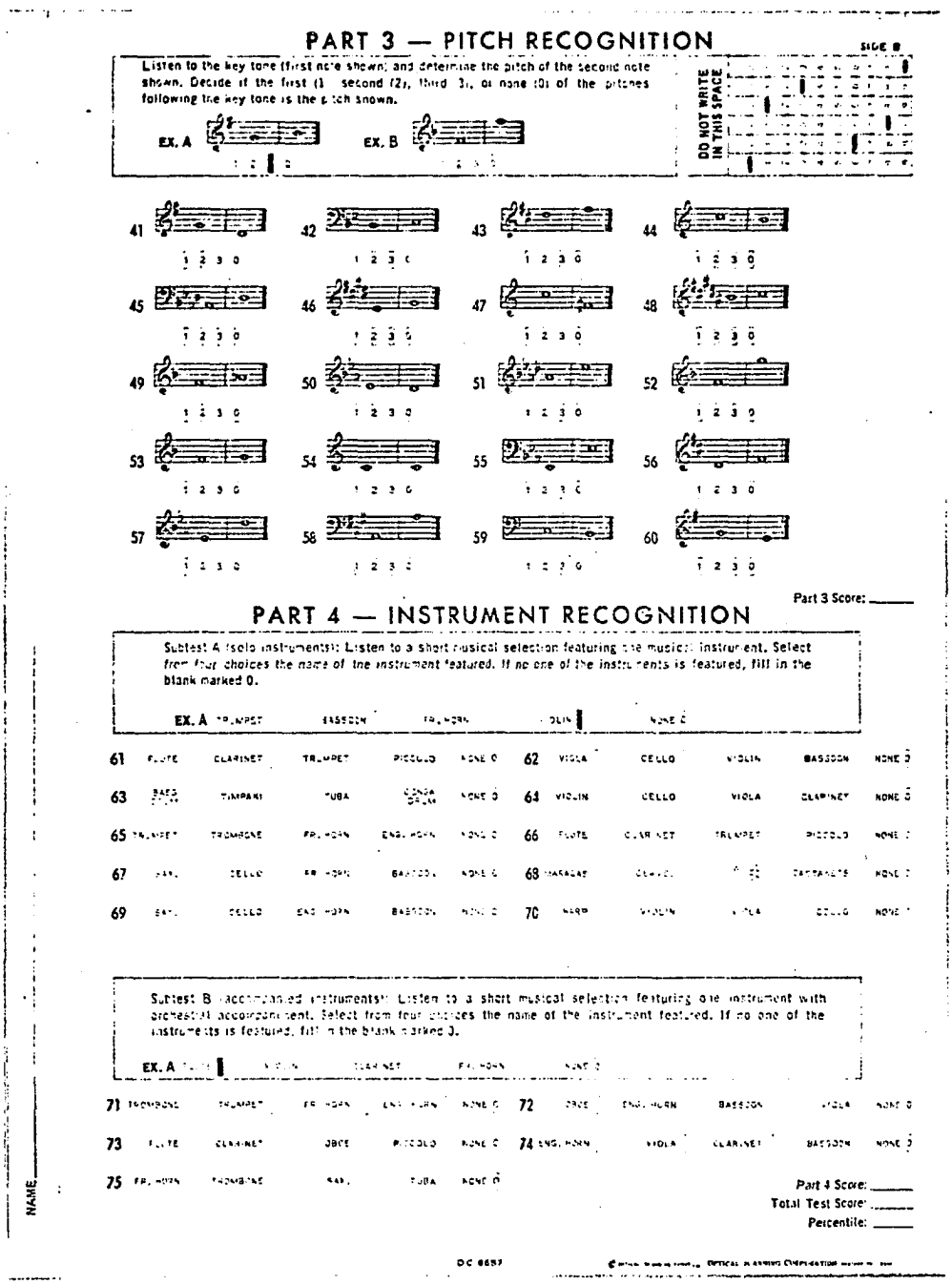
PART 1 — TONAL MEMORY

Listen to a solid chord and an arpeggiated chord. Decide if the first (1), second (2), third (3), or fourth (4) note of the arpeggiated chord is changed from the notes in the solid chord. If no note is changed, fill in the blank marked (0).

PART 2 — MELODY RECOGNITION

Listen to a melody played alone, then harmonized. In the harmonized version, decide if the melody is in the highest (H), middle (M), or lowest (L) part; if in doubt (?).

Music Achievement Test 3 by Richard Colwell. Copyright 1970 by Follett Publishing Company, division of Follett Corporation. Used by permission.



PART 3 — PITCH RECOGNITION

SIDE B

Listen to the key tone (first note shown) and determine the pitch of the second note shown. Decide if the first (1), second (2), third (3), or none (0) of the pitches following the key tone is the pitch shown.

EX. A EX. B

DO NOT WRITE IN THIS SPACE

41 42 43 44

45 46 47 48

49 50 51 52

53 54 55 56

57 58 59 60

Part 3 Score: _____

PART 4 — INSTRUMENT RECOGNITION

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

EX. A TRUMPET BASSOON FRENCH HORN VIOLIN NONE 0

61 FLUTE CLARINET TRUMPET PICCOLO NONE 0

62 VIOLA CELLO VIOLIN BASSOON NONE 0

63 BASS DRUM TIMPANI TUBA CONGA DRUM NONE 0

64 VIOLIN CELLO VIOLA CLARINET NONE 0

65 TRUMPET TROMBONE FRENCH HORN ENGLISH HORN NONE 0

66 FLUTE CLARINET TRUMPET PICCOLO NONE 0

67 HARP CELLO FRENCH HORN BASSOON NONE 0

68 MARACAS CELLO CLAVES CASTANETS NONE 0

69 HARP CELLO ENGLISH HORN BASSOON NONE 0

70 HARP VIOLIN VIOLA CELLO NONE 0

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

EX. A FLUTE VIOLIN CLARINET FRENCH HORN NONE 0

71 TROMBONE TRUMPET FRENCH HORN ENGLISH HORN NONE 0

72 OBOE ENGLISH HORN BASSOON VIOLA NONE 0

73 FLUTE CLARINET OBOE PICCOLO NONE 0

74 ENGLISH HORN VIOLA CLARINET BASSOON NONE 0

75 FRENCH HORN TROMBONE HARP TUBA NONE 0

NAME _____

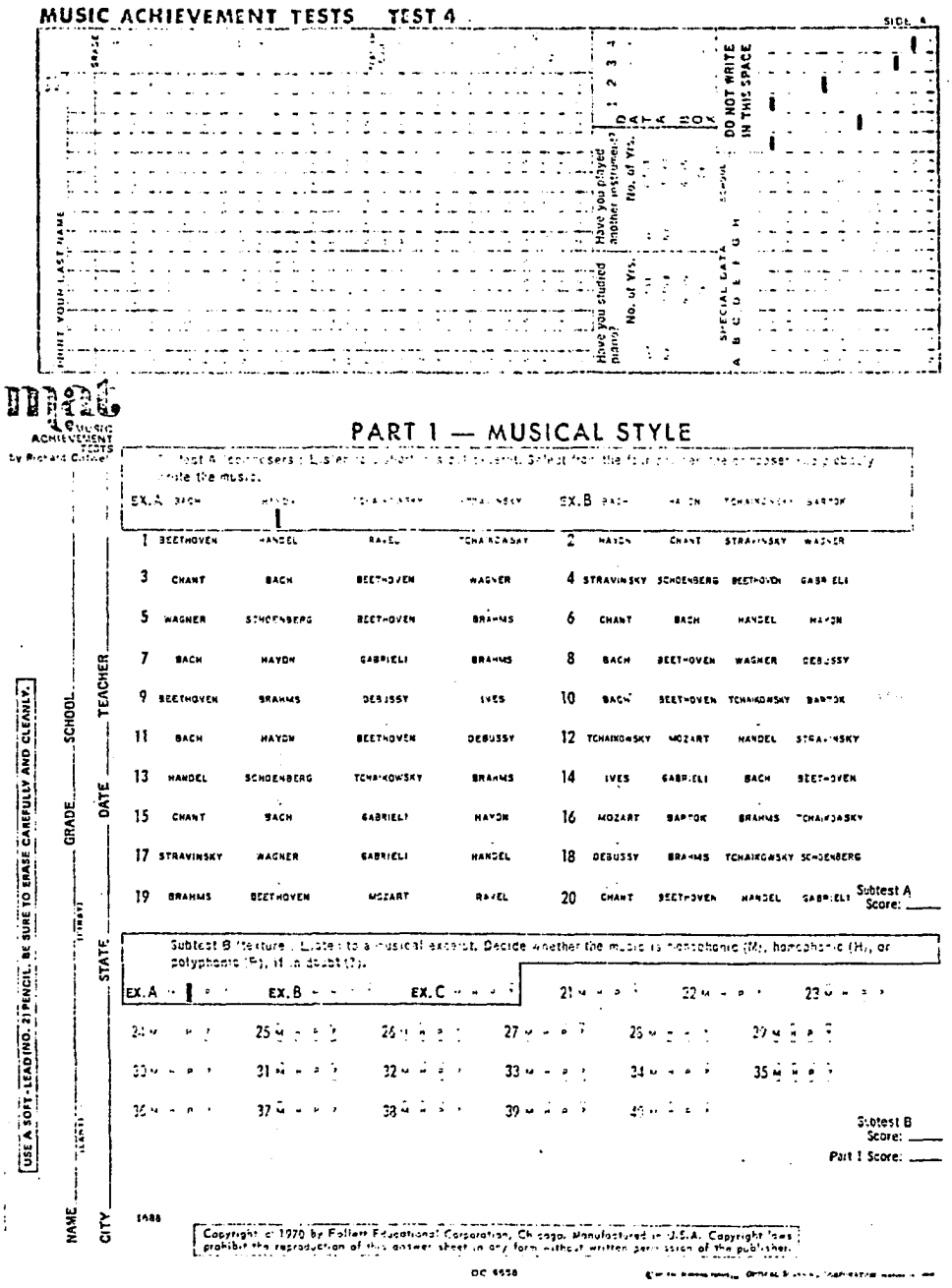
Part 4 Score: _____

Total Test Score: _____

Percentile: _____

DC 6697

APPENDIX 3


MUSIC ACHIEVEMENT TESTS TEST 4

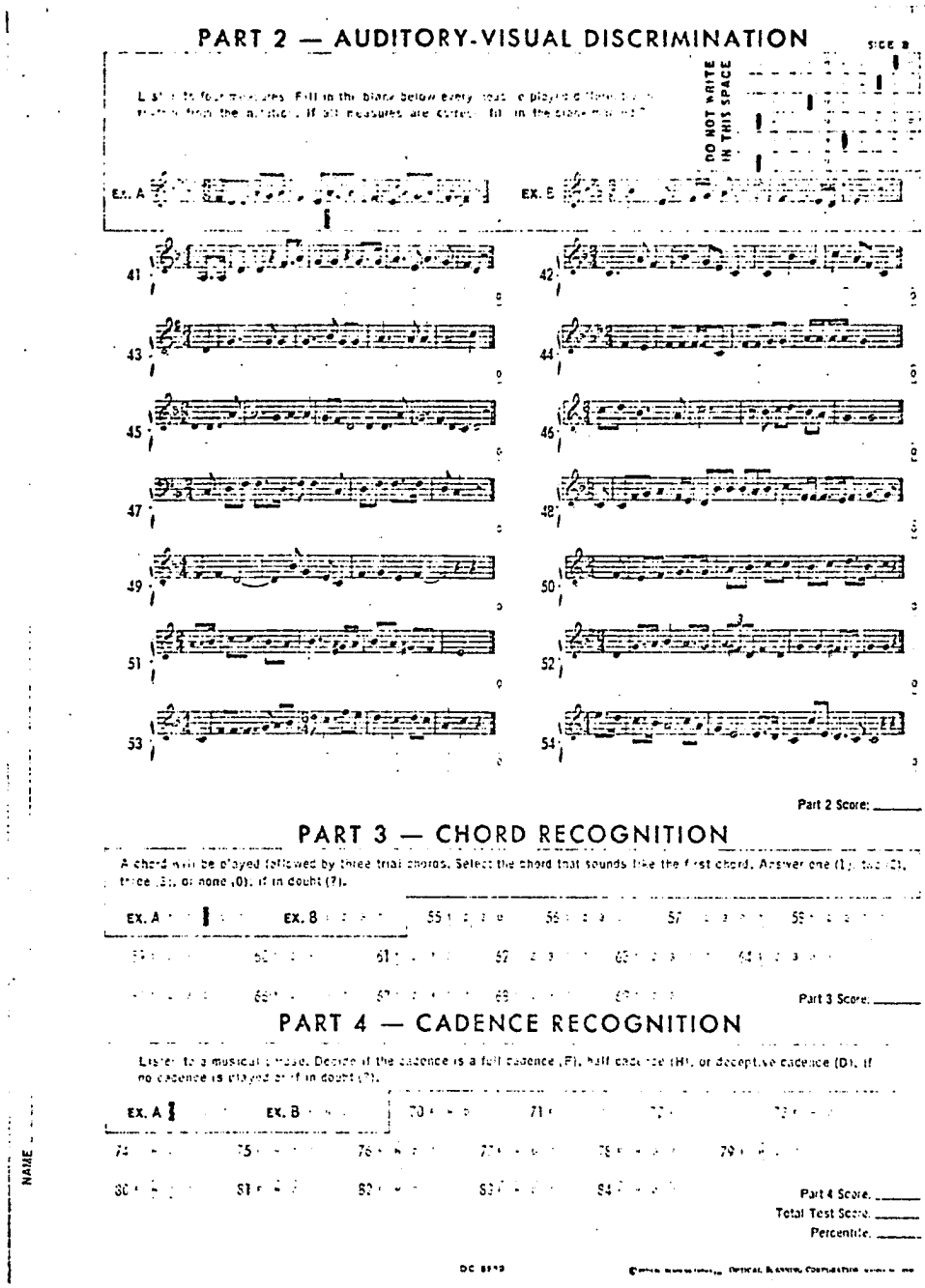
PART 1 — MUSICAL STYLE

Subtest A Score: ____

Subtest B Score: ____

Part 1 Score: ____

Music Achievement Test 4 by Richard Colwell. Copyright 1970 by Follett Publishing Company, division of Follett Corporation. Used by Permission.



PART 2 — AUDITORY-VISUAL DISCRIMINATION

DO NOT WRITE IN THIS SPACE

Part 2 Score: _____

PART 3 — CHORD RECOGNITION

A chord will be played followed by three trial chords. Select the chord that sounds like the first chord. Answer one (1), two (2), three (3), or none (0), if in doubt (?).

Part 3 Score: _____

PART 4 — CADENCE RECOGNITION

Listen to a musical phrase. Decide if the cadence is a full cadence (F), half cadence (H), or deceptive cadence (D), if no cadence is played or if in doubt (?).

NAME

Part 4 Score: _____

Total Test Score: _____

Percentile: _____

APPENDIX 4

DEPARTMENT OF PUBLIC INSTRUCTION

STATE OF NORTH CAROLINA RALEIGH

July 6, 1971

Mr. Jerry R. Hill
535 Sooner, Apartment C
Norman, Oklahoma 73069

Dear Mr. Hill:

I will be most flattered to have you use the "Basic Elements of Music" series in the experimental study you are conducting at Gardner-Webb College.

I would appreciate it if you would let me have a copy of your study results when the experiment is completed.

Let me know if I can be of any help to you.

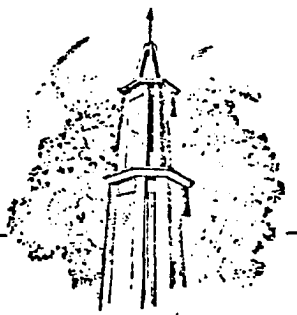
Sincerely yours,

Melvin Good

Melvin Good
Consultant
Division of Cultural Arts

MG/wep

APPENDIX 5



Gardner-Webb College

BOILING SPRINGS, NORTH CAROLINA 28017

FOUNDED 1905

7 July 1971

TO WHOM IT MAY CONCERN:

The Department of Fine Arts of Gardner-Webb College will be happy to co-operate with Mr. Jerry R. Hill in the implementation of the experimental study proposed in Music Appreciation during the Second Semester of the 1971-1972 school year. Mr. Hill will be assigned two sections of the course to be used as the basis of this study and he will be given the freedom to conduct the experiment according to the requirements of his graduate committee at the University of Oklahoma.

George R. Cribb, Chairman
Department of Fine Arts

cc: Mr. Thomas J. McGraw
Vice-President for Academic Affairs

APPENDIX 6A

SYLLABUS FOR MUSIC APPRECIATION 125
9:00 a.m. AND 10:00 a.m.
MONDAY-WEDNESDAY-FRIDAY

Chapter	Date	Material	Filmstrip Used
	Jan. 12	Pretesting	
	14	Pretesting	
I	17	What Is Art	
	19	Music as an Art Form	Science of Sound
II	21	What the Performer Does	
	24	The Role of the Perceiver	
III	26	Basic Principles	
	28	Discipline and Feeling	
	31	Periods of Music History	
IV	Feb. 2	Nature of Media The Voice	
	4	Instruments and Their Use	
V	7	Interaction of Melody and Rhythm	Intervals
	9	Aspects of Rhythm	Melody Construction
	11	Aspects of Melody and Nature of Melody	Motive, Phrase, and Period Double Period and Phrase Group
	14	Interaction of Music Materials	Harmony Reading Practice (tape)

Chapter	Date	Material	Filmstrip Used
VI	Feb. 16	Form	Unity, Variety, Contrast
	18	Form and the Listener--Performance	Simple Structure
	21	Review	Variation Form
	23	Test on Previous Material	
VII	25	Types of Song	Part Singing
	28	Art Song	
VIII	March 13	Opera and Other Forms (Theater)	Baroque Era
IX	15	Large Choral Works	Early Romanticism
	17	Smaller Choral Works	Renaissance Era
X	20	Symphony of the Classical Period	Classical Era
	22	Symphony of the Romantic Period (Aus. & German)	
	24	Symphony of Other Romantic Countries	
XI	27	Concertos of Baroque and Classical Periods	
	29	Concertos of Romantic and 20th Century	Multimovement, Free, and Vocal Forms
	31	Listening to a Concerto	
	Apr. 3	Test on Previous Material	
XII	5	Descriptive Music	
	7	Exoticism	

Chapter	Date	Material	Filmstrip Used
	Apr. 10	Nationalism	
	12	Other Program Music	Into the 20th Century
XIII	14	Nature of Chamber Music	
	17	Chamber Music before Haydn and Mozart	
		Chamber Music--Classical	
	19	Chamber Music--19th and 20th Century	Music of the 20th Century
	21	Organ Literature	
	24	Impressionism	
	26	Jazz and Popular Folk Music	
	28	Avant-Guard Electonic	
	May 1	Review	
	3	Teacher Test	

APPENDIX 6B

LISTENING ASSIGNMENT FOR TEST PERIOD I

Voice Types

Soprano	"There were Shepherds"--Messiah
Alto	"Behold, a Virgin Shall Conceive"--Messiah
Tenor	"Every Valley"--Messiah
Bass Baritone	"Like a Refiners' Fire"--Messiah

(or any other quoted work in the text)

Choral Groups

Glee Club	"Church Anthems"--West Point
Chorale	"Wachet Auf"--Bach
Chorus	"For Unto Us a Child Is Born"--Messiah

(any other choral work quoted in text)

Keyboard Instruments

Organ	"Organ Fugue in g Minor"--Bach

Orchestral Instruments

"Young Persons' Guide to the Orchestra" Britten

Tools of Composition

a. Melody

b. Rhythm

c. Tempo

d. Motive or Theme

e. Phrase

f. Period

g. Texture

h. Phrasing

i. Mode

k. Tonality

The above factors are discernable to some extent in all music, but especially of note in two examples used: "Symphony No. 40 in g Minor" by Mozart and "Bolero" by Ravel. These should be used for description purposes.

(These were all listened to in class as well as being assigned for listening outside of class.)

LISTENING ASSIGNMENT FOR TEST PERIOD II

"Erlkönig"	Schubert
"Im Fruhling"	Schubert
"Marriage of Figaro" (Sextet)	Mozart
"Wachet Auf"	Bach
"Agnus Dei" Missa Brevis	Palestrina

"Symphony No. 40 in g minor" 1st movement	Mozart
"Symphony No. 5 in c minor" 1st movement	Beethoven
"Symphony No. 9" (Choral) 1st and 4th movements	Beethoven
"New World Symphony" 1st and 2nd movements	Dvorak
"Brandenburg Concerto No. II"(all)	Bach
"Emperor Concerto No. 5" 1st movement	Beethoven

LISTENING ASSIGNMENT FOR TEST PERIOD III

Scheherazade	Rimsky-Korsakov
Moldau	Smetana
1812 Overture	Tchaikovsky

(All chamber music on accompanying record)

La Mer	Debussy
Children's Corner Suite	Debussy
"What Is Jazz"	Bernstein
"History of Jazz"	Follett Recording

(These and other recordings were played in class, but only these were necessary for studying for the examination.)

APPENDIX 7A

PRE-COLLEGIATE MUSICAL EXPERIENCE DATA
EXPERIMENTAL GROUP

Subject Number	General Music Experience		Choral Music Experience		Instrumental Music Experience	
	Some	None	Some	None	Some	None
1		x		x		x
2		x		x		x
3	x			x		x
4		x		x		x
5	x		x		x	
6		x		x		x
7		x		x		x
8		x		x		x
9		x		x		x
10		x		x		x
11		x		x		x
12		x	x			x
13	x		x			x
14		x		x		x
15	x			x		x
16	x		x			x
17		x		x		x
18		x		x		x
19		x		x		x
20		x		x		x
21		x		x		x
22		x	x		x	
23		x	x			x
24		x		x		x
25		x	x			x
26		x		x		x
27		x	x			x
28	x		x		x	
29	x			x		x
30		x		x		x
31	x			x		x
32		x		x	x	
33		x		x	x	
Totals	8	25	9	24	5	28

APPENDIX 7B

PRE-COLLEGIATE MUSICAL EXPERIENCE DATA
CONTROL GROUP

Subject Number	General Music Experience		Choral Music Experience		Instrumental Music Experience	
	Some	None	Some	None	Some	None
1	x		x			x
2		x		x	x	
3		x		x		x
4		x		x		x
5		x	x			x
6		x		x		x
7	x		x			x
8		x		x		x
9		x		x		x
10		x		x		x
11		x		x		x
12	x			x		x
13		x		x	x	
14	x			x		x
15		x		x		x
16	x		x			x
17	x			x		x
18		x		x		x
19		x		x		x
20		x		x	x	
21	x			x		x
22	x			x		x
23		x		x	x	
24	x			x	x	
25	x			x		x
26		x		x		x
27	x		x			x
28	x		x			x
29		x		x		x
30		x		x		x
31	x			x		x
32		x		x		x
33		x		x		x
34		x		x		x
35		x		x		x
Totals	13	22	6	29	5	30

APPENDIX 8A

PERSONAL DATA: EXPERIMENTAL GROUP

Subject Number	Sex	Class	Verbal	SAT Math	Total
1	M	Se	277	282	559
2	M	So	398	575	973
3	M	Se	425	598	1023
4	M	So	423	344	767
5	F	Fr	361	309	670
6	M	Fr	290	320	610
7	F	Se	383	367	750
8	M	Fr	420	370	790
9	M	Jr	407	386	793
10	F	Se	452	328	780
11	M	Jr	361	413	774
12	M	Se	374	451	825
13	F	So	573	592	1165
14	F	Jr	279	277	556
15	M	Fr	340	310	650
16	M	Fr	362	379	741
17	M	Se	246	347	593
18	M	So	318	500	818
19	M	So	314	428	742
20	M	Se	391	382	773
21	M	Fr	437	452	889

Subject Number	Sex	Class	Verbal	SAT Math	Total
22	M	Fr	390	520	910
23	F	Fr	493	518	1011
24	M	Jr	333	302	635
25	M	So	447	630	1077
26	M	So	297	276	573
27	F	Fr	320	320	640
28	M	So	381	334	715
29	F	Fr	266	223	489
30	F	Fr	417	490	907
31	M	Se	349	425	774
32	M	Se	407	448	855
33	M	Jr	438	479	917
Total: Boys	M		367	414	782
	SD		55	96	135
Girls	M		394	380	774
	SD		95	117	206
National Norms Boys	M		390	422	812
	SD		122	130	Not Available
Girls	M		393	382	775
	SD		118	117	Not Available

APPENDIX 8B

PERSONAL DATA: CONTROL GROUP

Subject Number	Sex	Class	Verbal	SAT Math	Total
1	M	Se	473	500	973
2	M	Se	315	328	643
3	F	Se	451	430	881
4	M	So	242	413	655
5	F	Fr	260	280	540
6	F	Fr	417	357	774
7	M	Jr	342	384	726
8	M	Fr	260	250	510
9	M	So	467	658	1125
10	M	So	286	480	766
11	M	So	310	380	690
12	M	So	571	439	1010
13	M	So	452	566	1018
14	M	So	394	398	792
15	M	So	447	526	973
16	M	Fr	320	270	590
17	M	So	361	389	750
18	M	So	314	356	670
19	F	Jr	350	398	748
20	M	Jr	282	307	589
21	F	Fr	330	370	700

Subject Number	Sex	Class	Verbal	SAT Math	Total
22	M	So	391	456	847
23	F	So	427	432	859
24	M	Fr	470	420	890
25	F	So	440	312	752
26	M	So	389	366	755
27	F	Se	415	419	834
28	F	Fr	352	356	708
29	M	Jr	573	543	1116
30	F	So	392	359	751
31	M	Jr	354	490	844
32	M	Se	255	261	516
33	M	Se	349	407	756
34	M	So	336	333	669
35	M	So	428	398	826
Total: Boys	M		373	413	787
	SD		89	97	170
Girls	M		383	371	755
	SD		57	47	92
National Norms: Boys	M		390	422	812
	SD		122	130	Not Available
Girls	M		393	382	775
	SD		118	117	Not Available

APPENDIX 9

PERSONAL DATA SHEET

Last Name First Sex Class

Scholastic Aptitude Total

Verbal Math Total Group

Pre-Collegiate Musical Experience

	Some	None
General Music Classes		
Large Ensembles (Chorus)		
Large Ensembles (Band)		
School Service Activities (games, parades, assemblies)		
Family Music Ensemble		

	1 Very Much	2 Quite a Bit	3 Some	4 Very Little	5 None
Concerts by Outside Artists					
Attending Local Concerts					
Personal Listening (own record collection)					

Pre-Test 3

Total Part 1 2 3 4

Pre-Test 4

Total Part 1 1a 1b 2 3 4

Post-Test 3

Total	Part	1	2	3	4

Post-Test 4

Total	Part	1	1a	1b	2	3	4

APPENDIX 10A

SAMPLE QUESTION SHEET FOR EXPERIMENTAL CLASS OUT-OF-CLASS PROCEDURES

PITCH AND MELODY

Practice Exercise 3

Name_____

Class_____

Part I: Draw the following music symbols in the spaces provided.

1. The Staff
2. Ledge Lines above and below the staff
3. Treble Clef Sign
4. Bass Clef Sign
5. Sharp
6. Flat
7. Natural Sign
8. Double Sharp
9. Double Flat
10. Key Signature (G Major)
11. Line Names in Treble Clef
12. Line Names in Bass Clef
13. Space Names in Treble Clef
14. Space Names in Bass Clef

APPENDIX 10B

SAMPLE QUESTION SHEET FOR CONTROL CLASS OUT-OF-CLASS PROCEDURES

Study Question Number 3

Draw a Grand staff, placing on it the appropriate clef signs. Name with letter names the lines and spaces on it. Write what you find to be the key of E major (the key signature). Define ledger lines.

APPENDIX 11A

INDIVIDUAL RAW SCORE DATA
MAT TEST 3
EXPERIMENTAL GROUP

Subject Number	Tonal Memory		Melody Recognition		Pitch Recognition		Instrument Recognition		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	0	2	6	6	2	8	2	9	10	25
2	8	8	8	10	10	8	6	4	29	30
3	16	20	16	20	8	15	7	13	51	68
4	17	13	17	18	11	11	13	15	52	57
5	12	12	12	13	9	11	9	12	44	48
6	8	5	8	9	4	6	4	3	24	23
7	6	12	6	17	10	8	8	5	36	32
8	7	7	7	8	3	8	4	3	17	26
9	5	13	5	4	6	10	6	4	23	31
10	10	12	10	12	11	6	6	4	41	34
11	10	4	10	7	5	1	2	8	20	20
12	6	5	6	10	5	7	9	9	24	31
13	20	20	20	20	15	19	7	12	62	71
14	6	7	6	8	3	8	4	3	17	26
15	9	10	9	8	12	3	5	7	39	28
16	14	14	14	14	12	12	3	4	42	44
17	7	6	7	7	2	6	1	4	16	23
18	5	4	5	10	4	9	2	3	14	26
19	8	8	8	8	7	5	4	4	28	25
20	9	9	9	8	5	13	2	2	25	32
21	4	14	4	9	10	10	4	6	32	39
22	6	12	6	10	10	15	11	11	43	48
23	6	16	6	11	11	9	9	6	43	42
24	7	5	7	8	5	8	4	8	20	29
25	12	17	12	14	20	20	9	11	61	62
26	9	7	9	10	6	5	2	3	22	25
27	8	15	8	8	10	6	10	13	45	42
28	16	14	16	18	3	1	14	13	47	46
29	6	11	6	7	5	6	1	6	24	30
30	10	13	10	6	11	7	6	5	37	31
31	9	13	9	8	6	4	2	7	32	32
32	13	12	13	10	8	10	8	9	39	41
33	6	12	6	6	9	9	12	12	38	29
Total	33									
M	9.12	10.66	9.12	10.36	7.81	8.61	5.94	7.21	33.24	36.55
SD	3.91	4.57	3.91	4.20	4.02	4.34	3.61	3.80	13.50	13.10

INDIVIDUAL RAW SCORE DATA
MAT TEST 3
CONTROL GROUP

Subject Number	Tonal Memory		Melody Recognition		Pitch Recognition		Instrument Recognition		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	16	18	16	15	15	15	10	12	59	60
2	7	13	7	9	13	11	6	4	40	37
3	15	14	15	11	11	13	8	8	50	46
4	8	13	8	3	3	3	3	7	22	26
5	10	7	10	7	7	3	4	4	24	21
6	11	11	11	13	10	10	12	14	47	48
7	7	14	7	12	11	5	11	11	45	42
8	16	17	16	17	14	15	8	7	52	56
9	6	11	6	5	10	9	7	11	36	36
10	7	5	7	8	7	9	5	9	25	31
11	5	5	5	8	12	11	3	4	27	28
12	11	14	11	7	4	9	7	11	33	41
13	8	11	8	8	8	5	5	9	30	33
14	9	15	9	9	10	13	9	11	42	48
15	16	16	16	16	9	13	3	6	43	51
16	9	14	9	9	5	8	5	8	34	39
17	8	5	8	7	7	3	2	5	23	20
18	7	10	7	10	7	5	6	4	24	29
19	13	13	13	8	4	10	4	7	36	38
20	6	8	6	10	10	13	8	8	31	39
21	13	14	13	13	10	12	7	11	42	50
22	6	4	6	10	4	5	2	6	23	25
23	10	17	10	10	12	11	8	10	46	48
24	14	17	14	14	13	13	11	15	54	59
25	8	14	8	12	4	8	5	5	25	39
26	7	11	7	10	6	6	4	8	29	35
27	10	15	10	10	10	10	7	7	44	42
28	11	12	11	11	10	8	3	5	36	36
29	11	5	11	7	4	10	3	8	26	30
30	6	13	6	7	8	6	4	2	28	28
31	13	11	13	12	15	11	9	7	47	41
32	8	5	8	9	6	7	8	9	28	30
33	10	13	10	9	5	5	7	8	34	35
34	7	14	7	5	3	5	7	10	31	34
35	4	12	4	0	4	3	2	6	22	21
Total	35									
M	9.51	11.74	9.51	9.46	8.31	8.66	6.09	7.91	35.37	37.77
SD	3.31	3.97	3.31	3.48	3.58	3.61	2.76	2.97	10.34	10.46

APPENDIX 11B

INDIVIDUAL RAW SCORE DATA
MAT TEST 4
EXPERIMENTAL GROUP

Subject Numbers	Styles: Composers		Styles: Texture		Auditory Visual Discrimination		Chord Recognition		Cadence Recognition		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	6	14	10	1	4	3	10	6	10	11	40	35
2	6	10	9	6	3	2	12	6	4	7	34	31
3	8	13	16	19	7	10	15	15	11	11	57	66
4	15	17	16	17	9	11	15	14	11	10	66	69
5	7	12	7	9	9	8	13	11	11	7	47	47
6	9	9	8	17	6	4	12	13	5	5	40	38
7	3	8	7	9	5	4	12	14	7	5	34	40
8	7	17	6	5	3	4	10	10	2	5	28	31
9	11	10	9	8	0	5	14	12	5	11	39	46
10	9	9	10	13	3	3	13	11	6	7	41	43
11	6	11	7	8	2	3	8	6	5	3	28	31
12	7	9	1	7	2	4	9	10	6	6	25	36
13	15	17	18	20	8	13	14	15	12	13	67	78
14	7	5	7	6	2	5	4	12	2	5	22	33
15	7	7	10	12	3	6	11	15	9	8	40	48
16	3	7	16	16	5	5	14	13	6	8	44	49
17	3	9	4	8	5	5	5	8	7	9	24	39
18	9	8	7	11	3	4	7	9	8	8	34	40
19	4	10	5	7	4	5	12	12	2	5	27	39
20	7	11	10	12	5	3	13	15	8	5	43	46
21	6	3	4	11	4	2	12	14	2	7	28	37
22	5	9	15	16	12	10	14	14	8	6	54	55
23	7	15	12	18	10	14	15	13	10	7	54	67
24	6	5	9	8	4	5	5	9	4	4	28	30

Subject Numbers	Styles				Auditory Visual Discrimination		Chord Recognition		Cadence Recognition		Total	
	Composers		Texture									
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
25	15	12	16	18	13	14	15	15	10	15	69	74
26	3	6	17	10	4	2	15	10	10	10	49	38
27	9	15	11	11	3	5	7	9	4	8	34	48
28	3	7	17	18	4	4	15	15	10	7	49	51
29	2	4	4	3	3	5	5	2	9	9	23	28
30	6	12	9	16	2	1	10	14	8	8	35	48
31	6	9	11	10	4	3	9	12	5	4	35	38
32	8	10	7	7	4	6	11	11	4	7	34	41
33	3	13	8	10	9	9	12	14	6	8	38	54
Total 33												
M	6.91	10.09	9.79	11.12	4.97	5.67	11.15	11.48	6.88	7.55	39.70	45.12
SD	3.39	3.69	4.94	4.97	3.05	3.51	3.35	3.25	2.94	1.98	12.79	13.31

INDIVIDUAL RAW SCORE DATA
MAT TEST 4
CONTROL GROUP

Subject Numbers	Styles				Auditory Visual Discrimination		Chord Recognition		Cadence Recognition		Total	
	Composers		Texture									
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	10	14	16	15	8	12	15	15	4	8	53	64
2	5	6	11	12	4	5	15	13	9	11	44	47
3	6	12	19	18	9	12	13	15	10	9	57	66
4	9	10	8	8	2	6	8	8	6	4	33	36
5	5	9	14	9	2	3	4	9	6	5	31	35
6	6	11	18	19	7	2	13	13	6	8	50	53
7	8	11	9	12	7	8	12	14	8	8	44	53
8	4	6	20	18	3	8	14	14	9	9	50	55
9	8	9	16	12	5	4	12	14	9	6	50	45
10	4	12	10	12	2	3	12	13	6	5	34	45
11	2	13	5	7	3	7	14	9	8	9	32	45
12	9	13	7	13	5	4	14	12	5	5	40	47
13	5	9	15	15	2	5	13	14	5	9	40	52
14	6	9	14	13	4	5	11	12	6	8	41	47
15	11	11	15	19	7	7	14	15	10	11	57	63
16	7	9	9	4	5	6	14	15	9	5	44	39
17	6	9	8	10	7	6	10	10	7	8	38	43
18	4	11	7	10	4	5	13	11	8	8	36	45
19	6	11	7	9	2	5	13	13	10	11	38	49
20	4	6	9	15	3	3	13	13	7	6	36	43
21	16	13	18	17	10	11	12	14	6	8	62	63
22	4	9	8	9	5	4	7	5	8	8	32	35
23	6	13	14	20	10	11	14	13	7	8	51	65
24	10	14	18	16	13	14	15	14	7	9	63	67
25	4	7	13	16	2	5	9	8	5	6	33	42
26	6	8	11	7	8	3	12	13	7	10	44	41

Subject Numbers	Styles				Auditory Visual Discrimination		Chord Recognition		Cadence Recognition		Total	
	Composers		Texture									
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
27	8	13	15	19	7	9	14	15	11	11	55	67
28	8	7	7	13	4	3	9	11	9	7	41	41
29	7	11	11	8	5	3	10	8	6	9	39	39
30	5	12	9	10	5	2	9	11	6	8	34	43
31	4	10	16	16	2	6	15	13	8	10	45	55
32	6	6	9	9	5	9	13	15	7	11	40	42
33	9	9	10	9	2	2	12	13	9	8	42	41
34	5	15	8	8	5	1	14	15	5	6	37	45
35	7	6	9	12	4	2	14	12	9	7	43	39
Total 35												
M	6.57	10.11	11.80	12.54	5.09	5.74	12.17	12.34	7.37	7.97	43.11	48.49
SD	2.66	2.60	4.15	4.18	2.75	3.31	2.54	2.51	0.54	1.43	8.74	9.80