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KING, Wilbert Allen, 1930-
THE EFFECTS OF VIDEO TAPE FEEDBACK ON THE ACHIEVEMENT OF STUDENTS IN A BEGINNING CONDUCTING CLASS.

University of Maryland, Ed.D., 1971
Education, higher

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THE EFFECTS OF VIDEO TAPE FEEDBACK ON THE ACHIEVEMENT OF STUDENTS IN A BEGINNING CONDUCTING CLASS

by
Wilbert Allen King

Dissertation submitted to the Faculty of the Graduate School
of the University of Maryland in partial fulfillment
of the requirements for the degree of
Doctor of Education
1971

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APPROVAL SHEET

Title of Dissertation: The Effects of Video Tape Feedback on the Achievement of Students in a Beginning Conducting Class

Name of Candidate: Wilbert A. King
Doctor of Education, 1971

Dissertation and Abstract Approved: Mary de Vermond
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ABSTRACT

Title of Dissertation: The Effects of Video Tape Feedback on the Achievement of Students in a Beginning Conducting Class

Wilbert A. King, Doctor of Education, 1971

Thesis directed by: Professor Mary de Vermond, Ed.D.

The problem examined in the present study was: "What are the effects of video tape feedback on the achievement of students in a beginning conducting class?" The question was studied in two phases. The problem was delimited and the experimental procedures were developed in Phase I. During Phase II, the experimental phase, the procedures developed in Phase I were used to test the hypothesis.

The experiment was based upon the hypothesis that students who have their conducting recorded on video tape and who study the video tapes of their conducting privately, aided by a self-evaluation guide, acquire more conducting skill than students who do not have access to video tapes of their conducting.

The subjects of the experiment included all students who had enrolled in the beginning conducting course at the University of Maryland at College Park during the Fall Semester, 1970. An experimental group of 22 students was randomly drawn from the total conducting enrollment. Forty-two subjects completed all experimental requirements; 22 in the experimental group and 20 in the control group. All

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students were taught by the same instructor in two sections.

The basic instructional procedure used for the subjects in the experimental group was identical to that of the subjects in the control group. In addition, the subjects in the experimental group had their conducting recorded on video tape a total of five times during the semester. On the day following these recording sessions, each subject in the experimental group was allotted a 15 minute period in which to study and evaluate the tape of his conducting. A "Video Tape Self-Evaluation Sheet" was provided for each subject in the experimental group as an aid in self-evaluation.

The experiment was a randomized, experimental group-control group, pre-test-post-test design. A pre-test and post-test of the conducting of each subject in the two groups was done by means of video tape recordings. These tests of the conducting of each subject in the two groups were rated by a panel of three conducting teachers. The judges assigned a score to each subject on each of the ten physical attributes of conducting. These scores were the basis of the statistical analysis.

Two null hypotheses were tested in the present study.

1. There will be no difference in the mean score of the two groups on the post-test of conducting ability.

2. There will be no difference in the mean score of the two groups on the post-test of conducting ability as adjusted by the pre-test results.

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The major statistical treatment of the data was accomplished by the analysis of covariance procedure. In addition, statistical procedures were used to develop an estimate of the reliability and internal consistency of the testing instrument. The reliability coefficient was found to be .91.

The results of the experiment, based upon the statistical analysis, indicated that the experimental treatment did produce a significant difference between the mean scores of the two groups. The null hypothesis of no difference between the unadjusted criterion score means was rejected beyond the .01 level, while the null hypothesis of no difference between the adjusted criterion score means was rejected beyond the .025 level.

The findings of this study indicate that video tape feedback as used in this experiment seems to have a significant positive effect on the achievement of students in a beginning conducting class.

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DEDICATION

...for Lesli and Judson, except for whom this research would be pointless...

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ACKNOWLEDGMENTS

The author wishes to acknowledge the assistance provided by the following individuals:

Professor Rose Marie Grentzer, Chairman, Music Education, University of Maryland, who served as major advisor and whose Apprenticeship Program provided time and resources to carry out Phase I of this study.

Professor Mary de Vermond, of the University of Maryland Music Faculty, and Associate Professor Charles E. Johnson of the University of Maryland Measurements and Statistics Faculty, who assisted in preparation of the research report and statistical procedures of this study.

Professor Corwin Taylor, of the University of Maryland Music Faculty, who taught both sections of the conducting class and who provided invaluable assistance in organization of details and selection of music to be conducted.

Mr. Douglas McCroy of the Educational Technology Center of the College of Education, University of Maryland, who provided technical advice throughout both Phase I and Phase II of this study.

In addition, the computer time for the project was supported in full through the facilities of the Computer Science Center of the University of Maryland.

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TABLE OF CONTENTS

Chapter		Page
DEDICATION		ii
ACKNOWLEDGMENTS		iii
I.	INTRODUCTION	1
	Need for the Study	1
	Purpose of the Study	2
	Methodology of the Study	3
	Definition of Terms	5
II.	PROBLEM	7
	Statement of the Problem	7
	Assumptions	9
	Hypothesis	11
	Incidence of the Problem	11
	Review of the Literature	15
	The teaching of conducting	15
	Video tape recording equipment	21
	Informal studies	21
	Formal studies	22
	Visual records of conducting	24
	Summary	27
	Limitations of the Study	28
III.	PROCEDURES	29
	Research Design	29
	Subjects	29
	Groups	33
	Experimental Treatments	36
	Teaching Aids	39

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Chapter		Page
	Equipment	40
	Evaluation	43
	Pre-test procedures	46
	Post-test procedures	47
	Evaluation procedures	48
	Statistical Treatment	51
	Statistical Analyses	52
IV.	STATISTICAL RESULTS	54
V.	DISCUSSION OF RESULTS	65
	Statistical Results	65
	Procedural Results	69
VI.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	72
	Summary	72
	Conclusions	75
	Recommendations	76
APPENDIX 1.	LETTER TO SUBJECTS IN THE EXPERIMENTAL GROUP	78
APPENDIX 2.	INSTRUCTIONS FOR STUDENTS STUDY TAPES 1 and 2	80
APPENDIX 3.	INSTRUCTIONS FOR STUDENTS STUDY TAPES 3 and 4	82
APPENDIX 4.	INSTRUCTIONS FOR STUDENTS STUDY TAPE 5.	84
APPENDIX 5.	VIDEO TAPE SELF-EVALUATION SHEET	86
APPENDIX 6.	SELF-EVALUATION SHEET STUDY TAPE 5.	89
APPENDIX 7.	INFORMATION SHEET	91
APPENDIX 8.	INSTRUCTIONS FOR STUDENTS, PRE-TAPE AND POST-TAPE	93
APPENDIX 9.	BRIEF BIOGRAPHY OF JUDGES	95
APPENDIX 10.	VIDEO TAPE EVALUATION POINTS	97
APPENDIX 11.	TALLY SHEET	102
SELECTED BIBLIOGRAPHY		104

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LIST OF TABLES

Table		Page
1.	Summary of Experience of Subjects.	32
2.	Correlation of Items with Total Scores on Post-Test.	55
3.	Correlation of Judges on Pre-Test and Post-Test.	58
4.	Treatment Means and Standard Deviations on Post-Test Scores	61

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LIST OF FIGURES

Figure		Page
1.	Research design paradigm.	30
2.	Distribution of subjects into groups.	35
3.	Calendar of conducting activities	38
4.	Disposition of equipment.	42
5.	Arrangement for viewing	44
6.	Adjudicator's record.	50
7.	ANOVA on test scores.	57
8.	Comparison of judges' scorings.	59
9.	ANOVA on unadjusted criterion scores.	62
10.	Homogeneity of regression test.	63
11.	ANCOVA on adjusted criterion scores	64

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CHAPTER I

INTRODUCTION

Need for the Study

The present-day educational scene, from early childhood education through higher education, is notable for the amount of emphasis being placed on innovative practices. Many of the administrative, curricular and methodological beliefs and practices of the previous generation are now being questioned. Along with the questioning and impatient attitude, the educational establishment is being presented with the products of technology at a rapid pace. Teaching aids in the form of electronic equipment and computer-oriented systems are being fashioned which are more accessible to schools and colleges through refinements in durability, flexibility, weight, mobility and reduction in cost. Some of the technological advances enable educators to achieve goals which previously could not be attained in the prevailing organizational and curricular structure. Other technological advances permit more depth in the curriculum due to the compression of time required to master certain intermediate steps in the educational process.

An issue of current significance in higher education pertains to the adaptation of this wealth of educational technology to the requirements of individual students in

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specific courses. Circumstances of accessibility should not be the lone or the most predominant consideration in the adoption of an instructional technique generated by such advances in technology. Nor should products of technology be repudiated without careful study and experimentation within the educational establishment. The principal concern prior to adoption or rejection should be addressed to the consequent effect on student achievement and student growth produced by the use of new educational devices.

Purpose of the Study

One of the promising devices created by technological advance is the video tape recorder. The principal advantage of the video tape recorder over previous filming techniques is the flexibility permitted by the immediate play-back feature of the video tape recorder. That is, video tape does not require processing. For this reason, it appears that the video tape recorder might be a useful tool to augment traditional classroom procedures and practices.

The present study is an effort to add to existing knowledge of the effects of using the video tape recorder in the field of music teaching, specifically for the teaching of conducting. An attempt is made herein to generate knowledge concerning the consequences of using the video tape recorder in a specific, limited and defined situation. The purpose of this study is to isolate the effects of video tape feedback on the achievement of students in a beginning conducting class. It is thought that through studies such as

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the present one teachers might be able to determine with some certainty whether or not the needs of individual students can be served by classroom use of the video tape equipment.

Methodology of the Study

The study reported herein was carried out at the University of Maryland at College Park. The total study encompassed three phases of work and was accomplished over a two-year period. Phase I began in the Fall Semester, September, 1969, when the writer was assigned as an observer to the beginning conducting class. During this time, the problems of the beginning conducting student were observed and analyzed, informal video-taping was carried out and various evaluative tools were examined. In addition, preliminary determination was made as to the most suitable placement of the video camera, which physical gestures might best be observed from each camera angle, and the nature of questions which might be most useful to a student in subsequent observations of his conducting.

As a result of the work done in Phase I, it was decided that additional attention needed to be focused on the specific problems of the individual student. Further, observations of the informal interaction between a student and a video tape recording of his conducting indicated that perhaps a video tape technique could be developed which could serve as an aid in solving the "class versus individual" time distribution. The informal evidence also pointed to

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the need for some type of evaluative assistance to the student because of his inexperience both in conducting and in self-evaluation.

Phase I culminated in a proposal to undertake an experimental study, the goal of which was to test the hypotheses formed during this initial phase. Permission was sought to use the entire population of students who registered for the beginning conducting course in the Fall of 1970. This permission was granted and the research proposal was approved on July 31, 1970. Phase II of the study began in September, 1970.

During Phase II of the study (hereinafter termed the experiment) a pre-tape of the conducting of all beginning conducting students was made, subjects in the experimental group were given the experimental treatment and a post-tape of the conducting of all beginning conducting students was made, as described in detail in Chapter III. The experimental phase was concluded in January, 1971, coincidental with the termination of the Fall Semester.

On January 27, 1971, Phase III of the study began when a panel of judges met on the campus of the University of Maryland at College Park for the purpose of viewing and evaluating the conducting tapes of all students. Subsequently, the data were assembled, statistical analyses of the data were accomplished, and the findings were reported.

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Definition of Terms

Because of the complexity of the concepts studied in this experiment, it was necessary to adopt specific, limited definitions for certain terms. The following is a discussion of these terms.

Feedback--According to Webster's Third New International Dictionary, feedback is:

> The partial reversion of the effects of a given process to its source or to a preceding stage so as to reinforce or modify it, used especially in biological, psychological and social systems.[1]

In the present study, the term "feedback" is used to refer to the delayed feedback of the consequences of a past action (conducting a musical composition) which reach the individual through his senses and by which his conducting behavior may be improved. A fuller discussion of feedback will be found on page 13 of this dissertation.

Baton technique--Whether or not a baton is used by a conductor, certain physical gestures are common in conducting musical ensembles. All of these movements and gestures are included in baton technique as used herein.

Video tape techniques--By this term is meant techniques of using the video tape recorder as an educational tool. Included here are time sequences, number of tapings

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[1]Philip B. Gove, ed., Webster's Third New International Dictionary, Springfield, Mass.: G. and C. Merriam Co., 1966, p. 834.

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for each individual, and viewing schedules. The physical techniques associated with operation of the equipment are not included in this term.

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CHAPTER II

PROBLEM

Statement of the Problem

The problem which emerged from the preliminary work and which formed the basis for Phase II of the study is: "What are the effects of video tape feedback on student achievement in a beginning conducting class?" The focal point of the study was the physical dimension of conducting. That is, those physical gestures and movements by which a leader impels a musical group to perform as an ensemble. For more systematic study, these physical dimensions of conducting were analyzed and organized into ten distinct attributes, all in the physical domain, all of vital importance to the conductor's effectiveness on the podium, and all observable by a person other than the conductor. These attributes are:

preparatory beat--the motion by which a conductor signals the group to prepare to perform;

attack--the motion by which a conductor indicates the exact moment to begin;

basic beat movement--the motions by which a conductor shows meter, speed and weight of given notes;

dynamic indication--the motion by which a conductor depicts the volume of sound to be performed;

cuing--the motion by which a conductor signals a sub-

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group of an ensemble to begin performing;

independence of hands--the separate use of hands by the conductor for different purposes, avoiding redundancy or extraneous motion;

release--the motion by which a conductor signals a group or sub-group to stop;

posture--the use of the body to portray the character of the music being performed;

face and eyes--the use of the face and eyes to depict the character of the music being performed;

attention to musical detail--the motion by which a conductor shows phrase rise and fall, phrase endings, fermata, tenuto, change in pace or volume, and the like.

From a study of the literature (see Review of the Literature below) on the teaching of conducting and from the observations made in Phase I of the present study, it was concluded that the ten above listed attributes are relevant to the problem in two ways. In the first instance, it would appear that these attributes are subsumed under the concept of "baton technique." Secondly, the preliminary study convincingly demonstrated that an observer is able to determine differences among students in these ten skills and further, several observers are able to agree on the relative effectiveness of each student in these ten physical attributes of conducting.

A further problem addressed in the present study centers on the suitability of the video tape equipment for classroom use. Although this aspect of the problem will not

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be subjected to direct statistical analysis, it is believed to be of equal importance with the basic problem propounded in this study. It seems to the writer, that, regardless of how valuable any technological system might be in the improvement of higher education, introduction of that system will be delayed or neglected if its use is shown to be cumbersome, disruptive or expensive in terms of time and financial resources. For the above reasons, an attempt was made in the present experiment to suggest answers to basic procedural questions:

a. How many technicians are needed to operate the equipment in a satisfactory manner?

b. Is the configuration of the equipment such that the instructor or one of the students in the conducting class could operate it satisfactorily?

c. If the equipment is to be used in a regular classroom, how much time before class is required to prepare the equipment for use?

d. Would it be possible for a student to re-play his own tape segment without the aid of a technician?

The findings on these questions are reported in Chapter V under "Procedural Results."

Assumptions

The use of video tape as an aid in the training of conductors implies certain assumptions. The first of these recognizes the fact that baton technique is primarily a physical skill and that skill development is an individual

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process. A subsequence to the first assumption is that the observation of other conductors (classmates) has but limited application in the development of a novice conductor.

The third assumption recognizes that a student must be convinced that he has a problem before he can begin to devise a means to correct his problem. It was the experience of the writer during Phase I of the present study that some students were unable to accept the criticism offered by their peers, and would go so far as to cite personal animosity as the genesis of the criticism.

Another assumption relative to the use of video tape feedback in a conducting class recognizes that the conducting course should not be terminal, and because of this should focus at least part of the student's attention on the process of self-evaluation. This assumption would probably hold for many types of physical skill. In conducting, however, where the physical skill is but the means to musical expression, rather than an end in itself, a student must develop a critical awareness of his problems and the skills for improving his own conducting which he can carry into his professional life, thus releasing time for the study of the artistic aspects of musical performance.

The final assumption is that if a student is convinced that he is doing something in a clumsy or inefficient manner, he will take steps to correct the fault. In Phase I of the present study it was found that students are not easily convinced that they are using unclear or redundant motions in their conducting. However, once they understand

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the criticism and its possible effects on musical performance, they may try to improve their technique.

The above presented discussion tends to imply that there is a need for some refinement of the pedagogical techniques used in the beginning conducting class. The preliminary study produced evidence indicating that a video tape technique might be useful in this endeavor. That is, by means of video tape one can provide the student with an exact image of what transpired while he was conducting, an image that can be viewed repeatedly and studied intensely.

Hypothesis

As a result of the observations made during Phase I, the conclusion was reached that video tape feedback was an independent variable, the effects of which could be isolated and tested by an experimental procedure. The problem was, therefore, translated into the following research hypothesis: Students who have their conducting recorded on video tape and who study the video tapes of their conducting privately, aided by a self-evaluation guide, acquire more conducting skill than students who do not have access to video tapes of their conducting.

Incidence of the Problem

Preliminary studies, including a review of research and expository literature on conducting, and Phase I of the present study indicated that beginning conducting students encounter difficulties chiefly in two areas. In the first instance, problems arise in response to the interpretation

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and musical comprehension of the score, such things as tempo, style, dynamic level, fermatas, cues--"what to conduct." The second set is generated by the determination of the gestures necessary to convey the conductor's wishes to an ensemble, "how to conduct."

In the present study it was decided that since baton technique appears to be generally considered a prerequisite to effective conducting, an effort would be made to evaluate a potential method, video tape feedback, for accomplishing the physical goals in a beginning conducting class. In this respect the attention of the experimenter was focused on physical behavior, or more specifically, to muscle control.

Mowrer speaks of muscle control as increasingly refined discrimination and response.[1] He states, in addition:

> A behavior sequence is not ineluctably determined but is subject to continuous modification on the basis of the "meaning of the situation." Behavior is a continuous, on-going function of the informational feedback from all senses, internal and external; it is, in a word, a function of the total psychological field.[2]

The term feedback as used by Mowrer above generally refers to those consequences perceived by a person as emanating from his present action, and by which his behavior is regulated. The importance of feedback in the learning sequence is discussed by Bilodeau, who states:

> Studies of feedback or knowledge of results show it to be the strongest, most important vari-

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[1]O. Hobart Mowrer, Learning Theory and Behavior, New York: John Wiley and Sons, Inc., 1960, p. 488.

[2]Ibid., p. 309.

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> able controlling performances and learning. It has been shown repeatedly that there is no improvement without knowledge of results, progressive improvement with it, and deterioration after its withdrawal.[3]

As a result of examining the problem addressed in the present study, the existence of several additional dimensions of the feedback concept became apparent. One can identify these as direct and indirect feedback; and immediate and delayed feedback. Direct feedback is the perceived consequences of an on-going behavior pattern, by which an individual regulates his goal-seeking action. Cronbach summarizes, "Feedback of consequences guides correction."[4] This type of direct feedback is also immediate feedback in that it occurs during the act. This aspect of direct immediate feedback can be observed in conducting. The musical response of the ensemble is one of the most important means by which a conductor guides his conducting motions and gestures.

However, the existence of other types of feedback were noted during Phase I and Phase II of this study. Any feedback which occurs after termination of an act is herein termed delayed feedback. In the traditional method of instruction in conducting a special type of delayed feedback can be identified; that is, delayed indirect feedback. Delayed indirect feedback is the response of an individual

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[3]Edward A. Bilodeau and Ina M. Bilodeau, "Motor Skill Learning," Annual Review of Psychology, Vol. 12 (1961), pp. 243-80.

[4]Lee J. Cronbach, Educational Psychology, 2nd Edition, New York: Harcourt, Brace and World, 1963, p. 275.

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other than the subject to an action which has been completed by the subject. This concept is also known as the "critique." In the critique all parties are requested to remember and comment upon the details of the past action.

Delayed feedback by means of the video tape recorder is similar to the delayed indirect feedback associated with the critique, except that the use of the video tape recorder permits the introduction of the possibility of reviewing and studying both the act and its musical consequences simultaneously and repeatedly. This possibility was not previously available to conducting students. In addition, the study of the video tape can be undertaken at a time when the student conductor is not emotionally upset or defensive, as is often the case with the beginning conducting student when facing an ensemble of his peers.

Up to the present time the conducting student has been exposed only to delayed indirect feedback which had been first internalized by the instructor or by other students. With the introduction of the video tape equipment, the student can be confronted with direct delayed feedback. This feedback, being in the form of an exact duplication of the visual and aural scene of the conducting experience, might be thought to contain more valuable cues for the student than those originating from other persons.

In his work entitled Educational Psychology, Cronbach extends his discussion of feedback to include self-analysis. In this connection he provides a warning to the conducting teacher who would confront his students with video tape re-

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cordings of their conducting when he states:

> Conscious analysis of his own program sometimes helps the learner to improve, sometimes creates confusion. It is important that the teacher know what the program for successful performance should be, however. Knowing the actions to be performed and the cues that guide them is the first step toward designing practice situations and identifying the learner's errors.[5]

Since self-analysis seems to be a natural by-product of the self-confrontation made possible by the video tape recorder, Cronbach's warning was taken into account when developing the experimental treatment for the present study. An attempt was made to minimize confusion for the student by the introduction of specific questions which were designed to focus the attention of the student on particular aspects of his conducting. These details of the study are more fully described on page 39.

Review of the Literature

The teaching of conducting

In studying the literature on conducting and the teaching of conducting, one encounters many textbooks on the subject, but very little empirical evidence offered in justification for the methods and techniques suggested therein. There does not appear to be any exhaustive research available on the conductor's work. The textbooks on conducting are, rather, based on the experiences of the authors either in professional conducting capacities or as teachers of conductors.

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[5] Ibid., p. 280.

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Many authors and teachers, however, seem to be in agreement that one of the requirements of a conductor is an adequate baton technique. Elizabeth Green, in describing a conductor, says, "He knows his score thoroughly and can convey its meaning to the players through superbly trained hands."[6] Later she states, "The technique of conducting is based on gestures made by the hand and/or baton."[7]

Grosbayne suggests that for the conductor there are two categories of problems to solve. One is the composer's message (style and interpretation), and the other is the physical techniques required to achieve a faithful reading of the composer's intentions.[8]

In his text, entitled The Grammar of Conducting, Max Rudolf approaches the teaching of conducting by giving a thorough grounding in the techniques of conducting basic beat patterns, using a variety of styles. The styles listed are (1) non-expressivo, (2) light staccato, (3) full staccato, (4) expressivo legato, (5) marcato, and (6) tenuto.[9]

Sir Adrian Boult and Ralph Vaughan Williams refer to the technique of conducting in terms of the beat, the start,

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[6]Elizabeth A. H. Green, The Modern Conductor, 2nd Edition, Englewood Cliffs, N. J.: Prentice Hall, Inc., 1969, p. 1.

[7]Ibid., p. 7.

[8]Benjamin Grosbayne, Techniques of Modern Orchestral Conducting, Cambridge, Mass.: Harvard University Press, 1956, p. xix.

[9]Max Rudolf, The Grammar of Conducting, New York: G. Schirmer, Inc., 1950, Chapters 1-5.

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interpretation, rehearsal, accompanying and recitative.[10]

In The Psychology of Conducting, Peter Paul Fuchs fairly well summarizes the current thinking concerning the requirements of a conductor:

> What can we teach our "middle class students?" First of all a clear beat, something that most musicians are grateful for. We can train their sense of rhythm particularly in the asymmetrical patterns. We can help them develop their auditory ability to distinguish intervals and harmonies. We can then awaken their sense of style and sharpen their sensitivity for the spiritual values of music. And finally, we can introduce them to the technical requirements and idiosyncracies of various orchestral instruments, and also of vocalists, and explain how to deal with them.[11]

In one of the few attempts to study conducting pedagogy in a more scientific way, Getchell sought to determine practices among teachers of conducting. His study was based on questionnaires which were sent out to 180 collegiate conducting teachers. Of these, 120 were returned. From an analysis of these responses and a review of the literature on conducting, Getchell designed a course of study suitable for beginning conducting students. The section dealing with baton technique is pertinent to the present study:

> The beginning conducting course should be so designed to train the student conductor in the fundamental techniques of conducting, with an emphasis on baton technique. The student, upon completion of the course, should be able to demonstrate facility in:

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[10]Adrian C. Boult and Ralph Vaughan Williams, "Conducting," Grove's Dictionary of Music and Musicians, edited by Eric Blom, New York: St. Martin's Press, 1954, Fifth Edition, Vol. II, pp. 397-405.

[11]Peter Paul Fuchs, The Psychology of Conducting, New York: MCA Music, 1969, p. 14.

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a. Conducting with or without a baton, the common meter patterns. Also, to demonstrate an introductory knowledge of the subdivided two-, three-, and four-beat patterns.

b. Accurately establishing and maintaining tempo according to commonly-used metronome markings.

c. Comprehending the meanings and significance of commonly-used musical terms and symbols.

d. Understanding the clefs and transpositions used by the instruments of the band and orchestra.

e. Indicating, clearly, preparatory beats and attacks on all counts, or fractional parts of counts, of a measure in any of the common meters.

f. Indicating holds on all counts and half-counts of the common meters.

g. Indicating releases on all counts and half-counts of the common meters.

h. Indicating dynamic variations through physical gesture.

i. Indicating, with clarity and confidence, simple accelerandos and ritards.

j. Fitting baton gestures to the style of the music in the following three styles: legato, staccato, marcato.

k. Use of the left hand, both as a rhythmic device and as an interpretive device.

l. Conducting, with confidence and musical perception, a composition of Class D or easy Class C difficulty, using a 2-line score or a 3-line score.[12]

Matthews questioned school music conductors on the adequacy of their collegiate training. The respondents to his questionnaire indicated their belief that the following items are essential for training of school music conductors:

1. preparatory beat and starting
2. cut-offs and releases
3. conducting of an actual group
4. dynamics, changes in volume or accents
5. drill on beat patterns
6. changes in tempo

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[12]Robert W. Getchell, An Investigation of, and Recommendations for, the Beginning Conducting Class in the College Curriculum. Unpublished Doctoral Dissertation, University of Iowa, 1957, p. 269.

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7. knowledge of expression terms
8. subdivided and compound beats.[13]

In constructing A Theoretical Basis for College Instrumental Conducting Courses, Labuta summarizes the skills necessary for a conductor and which should be achieved in a college class:

> 1. The student has the ability to solve technical problems associated with time-beating and ensemble.
> 2. The student exemplifies the expression of the music in his gestures.
> 3. The student interprets the music in a manner consistent with the style.
> 4. The student can accurately evaluate and correct performance.
> 5. The student rehearses efficiently and effectively.
> 6. The student effectively prepares the full score for rehearsal and performance.
> 7. The student reads the full score after sufficient preparation.
> 8. The student has an aural concept of the music he is performing.
> 9. The student is able to lead musical groups effectively.[14]

Of these nine skills, numbers 1, 2, 3 and 9 are applicable to the present study.

From this review of the literature about the teaching of conducting it would appear that the main emphasis in the beginning conducting class is placed upon the physical skills necessary to control the musical responses of a group of musicians. Cronbach defines psychomotor skill as

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[13]Glenn T. Matthews, An Analysis and Evaluation of Methods for Training Skills in School Music Conducting. Unpublished Doctoral Dissertation, University of Oregon, 1963. Abstract.

[14]Joseph Labuta, A theoretical Basis for College Instrumental Conducting Courses. Unpublished Doctoral Dissertation, University of Illinois, 1965, p. 148.

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". . . repetitive behavior in which a complex sequence of actions is carried out in a more or less fixed way."[15] According to Cronbach the index of that skill is the ability to reach the goal with fewer pauses to make choices or to correct errors.[16]

Since an important function of the beginning conducting class is to help students attain a high measure of physical skill, it would seem, then, that a sequence of conduct-analyze-conduct would be a sound pedagogical approach. Indeed, this has been the procedure in conducting classes for many years. However, since only one student can be performing at any given time, such a procedure is time-consuming. It is easy to perceive that if the class were sufficiently large, a student would be afforded perhaps as few as three opportunities to conduct during a semester course. Whether this much conducting and analysis would be enough to solve all of the physical problems that a student might encounter, would, in all probability, depend on the ability, perception and motivation of the student. Such limited experience might not be enough to produce any real progress in skill development.

The introduction of the portable video tape recorder seems to open the door to revolutionary techniques in skill mastery. Writing in the February 4, 1971 edition of The Evening Star, Leroy Pope describes a training program for

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[15]Cronbach, op. cit., p. 270.

[16]Ibid., p. 271.

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salesmen which has as its basis the use of video tape equipment as an aid in making the salesmen more conscious of their mistakes in selling. Mr. Pope quotes one of the trainees as attributing to the work with the video tape feedback a ten percent increase in his sales record.[17]

Video tape recording equipment

Video tape recording equipment appears to make available to classroom teachers a technique used to train athletes for many years. In writing in the January 1968 issue of Audiovisual Instruction, Gustafson cites two unique qualities of the portable video tape recorder, namely, the instant replay feature and the erase capability.[18] Regular motion picture filming equipment is less useful in teaching because of the requirement that the film be processed prior to playback. Movie films are also more expensive since the images recorded thereon are permanent, thus the film can be used only one time.

Informal studies

As early as May 1967 Daellenbach reported that the portable video tape recorder was being used at the Eastman School of Music in teaching and research situations. These included conductor training, student teacher evaluation,

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[17]Leroy Pope, "Videotape Trains Salesmen," The Evening Star, Washington, D. C., February 4, 1971, Section All.

[18]Kent L. Gustafson, "PVTR," Audiovisual Instruction, Vol. 13, February 1968, p. 192.

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studio teaching, marching band coaching and data gathering for a teaching behavior project.[19] Others have reported using the portable video tape equipment in teaching music. The principal uses reported were in conducting and instrumental methods classes.[20]

None of these reports include empirical evidence on the outcomes of the use of video tape equipment. However, concurrently with these informal trials, formal experimentation was being conducted, sponsored by the United States Office of Education or individual universities. This research endeavor had as its goal the development of techniques for using the video tape recorder and for evaluation of these techniques in an experimental setting.

Formal studies

The video tape technique has been used to train counselors, teachers, athletes and musicians. Areas of experimentation have included, among others, eye contact behavior of teachers, interaction behavior of teachers, self-concept of student teachers, development of teaching strategy, supervision of student teachers and micro-teaching by undergraduates. A considerable number of such experiments have been completed to date. In most cases the re-

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[19]Charles Daellenbach, "Video-Tape Recorders at Eastman," The Instrumentalist, Vol. 21, No. 10, May 1967, pp. 26, 28.

[20]See Otis Kitchen, "Video Tape Recorders at Elizabethtown College," The Instrumentalist, Vol. 22, No. 6, January 1968, pp. 24-26, and Labuta, op. cit., p. 223.

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sults have been disappointing, as the following cases tend to indicate.

Karasar studied the effect of video feedback on teachers' eye-contact mannerisms. He concludes:

> There were not significant differences at the .05 level between teachers who received video feedback and those who received no video feedback in the eye-contact mannerisms. It was concluded that the video feedback may not have any significant effect on eye-contact mannerisms.[21]

In another feedback study, Shively, Van Mondfrans, and Reed report, "The video tape treatment appeared to be relatively weak in producing changes in teaching performance."[22] The authors continue, "Much of their reaction to the video tape appeared to be centered around how they looked rather than to the critical aspects of their teaching behavior."[23]

Hedges, in his research report concerning the use of video tape in teacher training, makes this curious observation:

> The use of video tape recordings did not significantly improve the overall classroom teaching performance of the student teachers in

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[21]Niyazi Karasar, Impact of Video Feedback on Teachers' Eye-Contact Mannerisms in Microteaching, Washington, D. C.: Document Reproduction Service, 1970, p. 90.

[22]Joe E. Shively, Adrian P. Van Mondfrans, and Cheryl L. Reed, The Effect of Mode of Feedback on Microteaching, Washington, D. C.: Document Reproduction Service, 1970, p. 8.

[23]Ibid., p. 9.

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this limited trial, but did contribute to the interest and motivation of the student teachers.[24]

The final case to be reported here is that completed by Bern in 1968. Bern states, "The statistical results permit no expression of confidence in the significance of the video tape feedback."[25]

There are many more such reports available both in the ERIC Document File and the University Microfilms Library. Further analysis of these reports by the present author leads to the conclusion that video tape techniques, used in ways as described in the above experimental reports, require further refinement and experimentation before the video tape recorder can be accepted as a valid teaching tool.

Visual records of conducting

The two experiments most nearly related to the present study were conducted by Zdzinski at Columbia University and Hunter at North Texas State University. In a potentially important experiment in the field of training conductors, Zdzinski attempted to determine whether a filmed record of conducting would produce new information for the students or engender an awareness of their status as con-

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[24]Lowell E. Hedges, The Feasibility of Using Video Tape Techniques in Pre-service Teacher Education in Agriculture. Unpublished Doctoral Dissertation, Ohio State University, 1970, p. 5.

[25]Henry A. Bern, Improving the Quality of Teacher Performance by the Use of the Video Tape Recorder, Washington, D. C.: Document Reproduction Service, 1968, p. 1.

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ductors.[26]

The experimental procedure consisted of a college conducting class being taught two-thirds of a semester by a conduct-criticize-conduct method. During the remaining third of the semester the conducting of the students was filmed by an 8 mm movie camera. On viewing the film of their conducting the students were asked to note those aspects of their conducting which were "as expected" and those which were "surprising." Zdzinski hypothesizes:

> The use of visual records as a means of direct feedback will offer, to the conducting student, opportunities for increased awareness of factors involved in his conducting skill beyond what is normally offered through the standard instructional procedures of the college conducting class.[27]

Zdzinski goes on to state:

> In order for the hypothesis to be established as being true, it will be necessary to demonstrate that the use of visual records does in fact provide the student of conducting with information that would not normally be available to him through the usual means, thereby giving him a potential for better mastery of the skill.[28]

At the close of the experiment, it was found that the students were able to identify a significant amount of information concerning their conducting which would not have been available through regular class work. The study lists 22 such factors identified by the students:

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[26]Edwin E. Zdzinski, The Use of Visual Records on 8 mm Film for Performance Analysis as a Means of Developing Improved Feedback for Learning Conducting Skill. Unpublished Doctoral Dissertation, Columbia University, 1969.

[27]Ibid., p. 30. [28]Ibid., p. 31.

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posture
left hand effectiveness
size of beat motions
eye contact
preparation of cuing
interest, variety and contrast
effective expression of intentions
communication of character of music
definition of motions
beat placement
facial expression
character of dynamics and articulations
preparation of dynamics and articulations
left hand mirroring
timing of beat motions
general manner
superfluous motions
quality of motions
lip movement
flexibility of feet
character of cuing
leadership.[29]

It must be noted, however, that Zdzinski's study makes no attempt to determine if this "new awareness" by the student actually resulted in improved conducting. Moreover, the subjects in the Zdzinski experiment were graduate students, most of whom had had conducting experience as part of their daily work as music teachers.

The Hunter study was designed to take advantage of the instant replay feature of video tape recordings.[30] In Hunter's experiment a control group was taught in the traditional conduct-critique-conduct fashion, while an experimental group was immediately exposed to the visual record of

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[29] Ibid., p. 141.

[30] John R. Hunter, Instant Replay Television as a Method for Teaching Certain Physical Aspects of Choral Conducting. Unpublished Doctoral Dissertation, North Texas State University, 1968.

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their conducting. It was hypothesized that in this way a subject could see how he conducted as the critique was taking place, resulting in more improvement of his conducting.

After ten weeks of this activity, Hunter reports, an analysis of the pre-test and post-test data failed to produce results significant at the .05 level of confidence. In conclusion, Hunter refers to two conditions in his experiment which may account for the lack of a significant outcome. These are: (1) the experiment ran for but ten weeks, which may be too short a period of time considering the complexity of the conducting skills and (2) the judges had access to the pre-test ratings when they evaluated the post-test tape, since the same scoring sheet was used for both.[31]

Summary

In this section an effort was made to summarize the pertinent research on the conducting class in a collegiate curriculum and film techniques as they might relate to such a class. Since mixed results were reported, it appears that until further controlled experimentation has been accomplished, leading to more refined techniques for the use of direct feedback methods, the college conducting class should probably be organized on the traditional conduct-critique-conduct framework, even though this method is cumbersome and time-consuming. For as long as video tape recording is used without clear expectation of positive results, it must be classified as a potential teaching aid only. Clearly, the

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[31] Ibid., p. 68.

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equipment is too costly and educational funding too austere to sanction the use of unproven devices.

Limitations of the Study

There are many aspects of the college conducting course which might have been investigated. Along with physical techniques, various writers make a strong case for the inclusion in the conducting course of subjects such as musicianship (style), score reading, rehearsal techniques, seating arrangements, and repertoire. In this study, however, the focal point was physical technique and, specifically, the relationship of video tape feedback to the improvement of physical technique.

Further, no attempt was made to judge the scope and sequence of the conducting course as offered at the University of Maryland, or to question the suitability of the point in the music curriculum at which the beginning conducting course is made available to the students. The treatment which was developed for use in this study was superimposed over the regular class work of the students. By this course of action, and by the design of the experiment, it was possible to isolate the effects which are solely attributable to the experimental treatment, that is, the individual student viewing and studying of his own conducting as recorded on video tape.

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CHAPTER III

PROCEDURES

Research Design

Since the hypothesis to be tested relates to the results of a classroom experience, the research had to be designed in such a way as to account for the initial differences among any group of students who might enroll in a beginning conducting class. It was therefore decided to use a research design which incorporated randomization, the pre-test-post-test and experimental group-control group features. According to Kerlinger this design is considered the "classical design" of research.[1] Figure 1 is a paradigm shown by Kerlinger to illustrate this research concept, where Y_b is the pre-test score, X is the treatment, Y_a is the post-test score and R indicates randomization is used in establishing the groups. Under the provisions of this design it is possible to adjust the post-test results on the basis of the findings on the pre-test results.

Subjects

The subjects of the experiment were those students who had registered for the introductory conducting course

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[1]Fred N. Kerlinger, Foundations of Behavioral Research, New York: Holt, Rinehart and Winston, Inc., 1964, p. 308.

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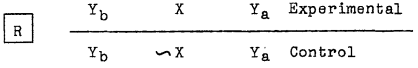

Fig. 1. Research design paradigm.

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(Music 160) during the Fall Semester, 1969, at the University of Maryland. Initially, a total of 44 students were enrolled in two sections. Section one, which met at 10 a.m. on Monday, Wednesday and Friday, had an enrollment of 24 students. Section two, which met at 1 p.m. on Monday, Wednesday and Friday, had an enrollment of 20 students.

The majority of the students in the experiment were classified as Juniors at the University of Maryland. An average of 76 credit hours had been completed by the subjects at the outset of the experiment. A total of 38 of the 44 students were in the Bachelor of Science program majoring in Music Education. Of these, 16 were enrolled in the instrumental emphasis, and 22 were enrolled in the vocal emphasis. Four of the remaining six students were in the Bachelor of Music program; two were composition majors and two were piano majors. Of the final two students, one was in the Master of Music program majoring in Theory and History of Music and one was majoring in Elementary Education, with a minor in Music Education.

Six of the 44 students reported that they had had *some* previous conducting experience, either in a school or in a church group. However, none of the students reported any previous training in conducting. All but two of the students reported having participated in a musical ensemble--either vocal, instrumental or both prior to enrollment in college. Table 1 is a summary of the background and experience level of the students. It is noted that the background of the subjects of the experiment does not substantially

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Table 1

Summary of Experience of Subjects

Degree	
Bachelor of Science in Music Education	
Instrumental Emphasis	16
Vocal Emphasis	22
Total	38
Bachelor of Music	
Composition	2
Piano	2
Total	4
Other	
Master of Music	1
Bachelor of Science in Elementary Education	1
Total	2
Total Students	44
Conducting Experience	
Some previous experience	6
No previous experience	38
Total	44
Conducting Training	
Some previous training	0
No previous training	44
Total	44
Ensemble Experience (Prior to College)	
Some experience	42
No experience	2
Total	44

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differ from the background of the students observed in Phase I of this study.

In a study such as the present one, which had as its main goal the evaluation of a classroom teaching technique over the time-span of an entire semester, two substantial considerations are logistics and scheduling. Because of the press of other university activities, the subjects were asked to adhere rigidly to the agreed-upon time sequence. It can be considered noteworthy that only two of the original 44 subjects failed to complete the experimental requirements. (One disenrolled from the course and one was hospitalized during the recording of the post-test tape.) There were no delays caused by equipment malfunction and but one delay caused by temporary closing of the building which housed the research facilities.

Groups

Prior to the experiment it was decided to draw a random group of one-half of each class section to serve as the experimental group, while the other half was to function as the control group. The same instructor taught both sections in order to control the teacher variable. The morning section yielded 12 subjects for each group, while the afternoon section yielded ten subjects for each group, allowing a total of 22 subjects in the experimental and 22 subjects in the control group. Subsequently each section of the control group was reduced by one student for reasons above noted. Thus, the control group totals were changed to 11

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and nine subjects. Group divergence which might occur because of time of day was controlled by this procedure. Figure 2 shows a model of the distribution of subjects into groups.

The events of the experiment tend to support the above scheme, in that it was possible to record the conducting of 10 or 12 students in a class hour without undue haste. Each subject was enabled to try more than one interpretation of a passage of music and to repeat a portion of his performance with which he was not pleased or for purposes of comparison within the individual student time limit.

The assignment of students to the two groups was accomplished by a process of randomization. The name of each student in each class section was placed on a card and the decks were shuffled. A coin toss determined that the first name pulled would be subject number one in group number one in that class, while the second name would head the list of group two in that class. The remaining names were randomly drawn and assigned to a group. The odd numbered draws were placed in group one and the even numbered draws were placed in group two. The identical process was repeated for the second class section.

After both classes had been thus grouped, a coin toss was used to determine which group would receive the experimental treatment and which group would serve as the control group in each class. During the second meeting of the classes all students had their conducting recorded on video tape. This video tape of student conducting, made prior to

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A.M. Section		P.M. Section	
Experimental Group	Control Group	Experimental Group	Control Group
12 students	11 students	10 students	9 students

Total in Experimental Group 22

Total in Control Group 20

Total Subjects 42

Fig. 2. Distribution of subjects into groups.

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any instruction in conducting, was recorded at this time to serve as the pre-test of the conducting ability of the students. Only after completion of the pre-test video tape, were the students notified of their group assignment. All of the subjects agreed to participate in the group to which he/she had been assigned. Appendix 1 contains a sample of the letter addressed to each subject included in the experimental group.

Experimental Treatments

The treatment to which the subjects of the experiment were exposed was comprised of two approaches to the mastery of conducting skills. One approach herein referred to as "traditional" was used for all students, while the other herein referred to as "experimental" was used only for the experimental group.

The traditional procedure in a beginning conducting class is characterized by the sequence: conduct-critique-practice-conduct. In this procedure the conducting student receives delayed feedback from the instructor and the other members of the class relative to the effectiveness of his conducting, and ways in which he might improve his technique.

The experimental procedure devised for this study includes the traditional model, that is, conduct-critique-practice-conduct. In addition, however, a new step was introduced, so that the model for the experimental students became conduct-critique-self evaluation by video tape feedback-practice-conduct. The treatment of subjects in the

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experimental and control groups was identical except that self-evaluation by means of video tape recordings was introduced for the subjects in the experimental group.

Figure 3 is a summary of the sequence of events which occurred during the experiment. On five occasions during the semester, at three-week intervals, the students in the experimental group had their conducting recorded on video tape. In the first two tapes (used mainly for orientation to conducting, viewing tapes and the self-evaluation procedure) the students were simply asked to conduct their assigned composition. In tapes three and four the students were given more time (three minutes each) in which to rehearse a portion of a composition or try out several conducting techniques. In tape number five the students were again asked to conduct the composition through without rehearsal. The varied instructions for students will be found in Appendices 2, 3 and 4.

The procedures for viewing the tapes were structured so that students could view their tapes several times or could stop to re-view segments which they found unclear or complex. In order to provide this time, each student in the experimental group signed up for a 15 minute segment of television time on the day following the taping session. Each student could then choose a time of day (usually from 11 a.m. to 8 p.m.) when he was under least pressure of scheduled activities and could bring his powers of concentration to bear on the task of observing and evaluating his performance. After viewing and studying the tape of his

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14 Sept.	First Class Meeting Students fill out Information Sheets
16 Sept.	Second Class Meeting Video tape all students at 10 a.m. and 1 p.m. Assignment of students to the experimental and control groups.

SCHEDULE OF RECORDING AND ANALYSIS

23 Sept.	First Study Tape Recorded
24 Sept.	First Study Tape Observed
14 Oct.	Second Study Tape Recorded
15 Oct.	Second Study Tape Observed
4 Nov.	Third Study Tape Recorded
5 Nov.	Third Study Tape Observed
23 Nov.	Fourth Study Tape Recorded
24 Nov.	Fourth Study Tape Observed
16 Dec.	Fifth Study Tape Recorded
17 Dec.	Fifth Study Tape Observed

SCHEDULE FOR POST-TAPE RECORDING OF ALL STUDENTS

14 Jan.	Final Exam Tape of 10 a.m. Class
18 Jan.	Final Exam Tape of 1 p.m. Class

Fig. 3. Calendar of conducting activities.

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performance, the subject was asked to complete the "Video Tape Self-Evaluation Sheet," which was immediately collected by the experimenter. The subject then had a period of three weeks to practice for his next video tape performance.

Teaching Aids

As has been previously noted, a key issue in the use of video tape recording in education is the tendency for self-evaluation to become enmeshed in self-confrontation or, more basically, cosmatology. In order to minimize the personal effects (both positive and negative) of seeing oneself on television, a "Video Tape Self-Evaluation Sheet" consisting of 33 items was devised to fit the particular circumstances of the classes with which the experimenter was concerned.[2] The questions in the evaluation sheet are asked in dialogue fashion with the words "you" and "your" most often used in order to focus attention on what the subject is doing (on the television screen) rather than on how the subject "looks." Previous research and Phase I of the present study indicated the desirability of such an aid.

Further, to aid the subjects to concentrate on specific conducting problems during the viewing experience, most of the questions in the self-evaluation guide imply both a positive and negative aspect of the particular problem therein addressed. The value of the experimental treatment and the results of the experiment depended upon the

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[2]The Video Tape Self-Evaluation Sheet was adapted from Labuta, op. cit., 223-224. (See Appendix 5.)

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degree to which the attention of the students was drawn to these specific conducting problems. Indeed, several subjects commented that the self-evaluation sheet alone was very effective in summarizing aspects of conducting covered in the textbook and in class lecture sessions.

After viewing the fifth tape of their conducting, the students were asked to arrange the ten aspects of conducting into the order of their improvement during the semester (see Appendix 6). This was used to help the student summarize his thinking about his progress and to indicate areas needing further practice prior to the final tape.

The basic materials used in the course included The Modern Conductor, by Green, and a collection of compositions compiled by Don Malin.[3]

Equipment

The equipment used in the present experiment consisted of a Sony Video Camera, model CVC-2100A, a Sony Video Tape Recorder, model CV-2200, and a Sony Television Monitor, model CVM-220U. During Phase I various camera and tape recorder dispositions were tried. It was found that an image with good resolution could be recorded using available classroom light. By placing the camera slightly to the right of the subject it was found that the image of the conductor in

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[3]Elizabeth A. H. Green, The Modern Conductor, 2nd Edition, Englewood Cliffs, N. J.: Prentice Hall, Inc., 1969, and Don Malin (compiler), Choral Perspective, Choral Music from the Renaissance to the Twentieth Century, New York: Edward B. Marks Music Corp., 1969.

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action was enhanced; one could get a clear view of both the right and left hand action and still capture facial expressions, as well as head, shoulder and general body movement, such as swaying, bowing, etc. The distance of the camera from the subject was held at approximately ten feet, capturing an image of the subject from above the head to just below the waist.

The video tape recorder and monitor were placed behind or alongside the camera, allowing a single technician to operate all equipment. The students who comprised the performing ensemble were seated in a semi-circle, the first row of which was at the distance of the camera. Thus, the conductor being recorded did not look directly into the camera, but in order to gain eye contact with the ensemble members it was necessary for the conductor to raise his head to the level of the camera. Figure 4 shows the disposition of the equipment as used both in recording the pre- and post-test tapes and the five study tapes.

Since all of the equipment was transported on a mobile table, it was convenient to set up for viewing the study tapes. In fact, the flexibility permitted by this arrangement probably contributed to the fact that all experimental subjects were able to view their tapes between the time the recording was made and the next regular class meeting. No special room accommodations were necessary, since the equipment could be moved as a unit from one location to another. For this experiment, however, a separate room was made available for viewing of the tape and all students were

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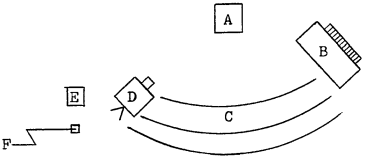

A. Conductor
B. Piano
C. Ensemble
D. Camera
E. Recorder
F. Technician

Fig. 4. Disposition of equipment.

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able to view their tapes under identical conditions. Figure 5 shows the arrangement used for viewing the study tapes by the experimental subjects.

Evaluation

As stated earlier, the research design of the present study called for a pre-test/post-test routine. Written examination items were considered, such as "What would you do if . . ." questions, and "Diagram your right hand gestures in (a given situation)." However, these items were rejected on grounds that the written examination technique would not be sufficiently responsive to the particular research problem addressed in this study.

Since the experiment was limited to certain physical aspects of conducting, it was thought that the most direct means of evaluation would be in the physical domain. This decision at once solved and created some problems of evaluation. By restricting the testing to physical gestures, it became possible to concentrate on overt behavior. On the other hand, it then became necessary to design an observation and evaluation tool which would overcome certain faults, such as bias of the observer, pre-judgment of the observer, observer fatigue and intervening experience of the observer between the pre-test and post-test.

The jury system of evaluating musical performance has been a common technique for some time. In this system, a student performs for a jury of experts who rate the quality of performance. Usually, the final score is a composite of

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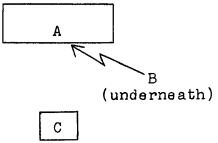

A. Television Monitor

B. Video Tape Recorder

C. Subject

Fig. 5. Arrangement for viewing.

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the individual scores assigned by the jury members. It was thought that, if certain conditions could be met, this technique could be adapted to the needs of the present study.

Of first importance, a decision had to be made as to the minimum number of judges required to achieve an unbiased judgment of each student's conducting ability. The conclusion was reached that three judges, if they were sufficiently experienced in the solution of conducting problems and oriented to the specific physical techniques to which the subjects had been exposed, could provide such a carefully considered evaluation.

Secondly, a determination had to be made as to the identity of the judges. There are a sufficient number of qualified judges on the faculty of the University of Maryland, but bias might enter into the observations of judges who knew the strengths and weaknesses of the students to be evaluated. It was thus decided that the three judges should not be of the University of Maryland community. In this way it was possible to keep the results of evaluation free from contamination generated by previous association of some judges with some students.

The solution to the third and fourth problems was inherent in the technology used in the experiment. By recording on video tape the conducting of students prior to any instruction in conducting and then again at the end of the treatment cycle, it was possible to have the judges observe all student test tapes at one sitting. This procedure eliminated the possibility that intervening experiences

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might change the judges' attitudes or that changes would have to be made in the judging staff between the pre-test and post-test. In addition, the tape evaluation process could be interrupted while the judges rested, thus overcoming contamination caused by fatigue of the judges.

Pre-test procedures

At the first meeting of the classes each student was asked to fill out an information sheet (see Appendix 7) and was told that he would have his conducting recorded on video tape during the following class meeting. As the students reported for the second class, they were handed an instruction sheet (see Appendix 8) which detailed the procedure to be followed during the taping session. The composition selected for the pre-test tape was America, the Beautiful.[4] This arrangement was chosen after careful consideration of several alternatives. Hunter, in his study of instant replay television in conducting, concludes that a key issue in this type of experiment is the relative complexity of the pre-test composition.[5] In his study, Hunter had his subjects conduct America for the pre-test tape. In an attempt to find possible reasons for the lack of significant results at the conclusion of his experiment, Hunter states that America

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[4]Samuel A. Ward, "America, the Beautiful." Twice 55 Community Songs, The Brown Book, Evanston, Ill.: Summy Birchard Co., 1957, Selection Number 4.

[5]Hunter, op. cit., p. 68.

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is not a satisfactory pre-test composition because it is too easy, and is not of sufficient length to provide the latitude of interpretation desirable in a testing situation. Hunter concludes that the students may have appeared to be better conductors on the pre-test tapes than was actually the case.

Accepting Hunter's warning, it was determined that America, the Beautiful seemed to satisfy the requirements of familiarity, length and relative complexity. Since this was a beginning conducting class, no instruments were used, so that the student conductors had but four sections in the ensemble.

Prior to beginning the recording session, the song was sung once so that the members of the ensemble could refresh their memories in the specific voice parts. Each person was called to conduct in random order by the experimenter, who recorded the order for later identification.

Post-test procedures

The post-test procedures were designed to be identical with those of the pre-test, there being but one exception. In the post-test, each subject chose his composition from an approved list. The compositions on the approved list were all comparable in complexity, and all contained similar opportunities for displaying the conducting ability of the subjects. The selections were as follows:

1. I Am the Phoenix, by Orazio Vecchi, ed. Malin;
2. Agnus Dei, by Giovanni Pierluigi da Palestrina, ed. Zipper;

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3. Sanctus from Mass in B-flat, Franz Joseph Haydn, ed. Cramer;
4. Love is Life's End, from Five Proverbs on Love, by Robert Starer.[6]

In this respect, it is noted that the subjects were not rated on their ability to conduct a specific composition, but on their ability to execute specific physical gestures.

Evaluative procedures

The evaluative procedures used in the present study consisted of three judges not of the University of Maryland faculty who viewed the pre-test and post-test video tapes of each subject and rated each on the ten attributes of conducting. These were:

preparatory beat;
attack;
basic beat movement;
dynamic indication;
cuing;
independence of hands;
release;
posture;
face and eyes;
attention to musical detail.

A scale of five to one was used (five being high).

The judges who evaluated the tapes were each prominent conductors in the Washington, D. C. area. In addition, each had had considerable experience in the training of beginning conducting students at the college level. The judges were Mrs. Evelyn White, Professor of Music at Howard University; Dr. Michael Cordovana, Associate Professor of Music at The Catholic University of America; and Mr. Vito

[6]Malin, op. cit., pp. 16-19; 24-26; 46-49; 85-89.

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Mason, Associate Professor of Music at the American University. Appendix 9 contains further details concerning the qualifications of each of the three judges.

In order to provide the judges with a common focus for observation, a set of 61 questions was devised and made available to each judge. These 61 questions were considered to be the details of the ten physical attributes of conducting which the judges were to observe and score. Appendix 10 contains a list of these 61 questions in the ten previously-discussed categories. Just prior to viewing the tapes the judges were exposed several times to the pre-tapes of the two students who did not complete the experiment. During this time the judges and the experimenter discussed the details of the 61 items in order to minimize personal bias.

Since the subjects had been recorded on both the pre-test tape and the post-test tape in random order and a different reel of tape had been used for each, the judges viewed a total of 84 tape segments on four tape reels. The experimental subjects were intermixed with the control group subjects so that neither group could be identified by the judges. Further, the tape reels were exposed to the judges in random order without announcement as to whether a particular reel contained the pre-test or post-test conducting.

While observing the 84 segments of tape the judges used the "Adjudicator's Record," upon which they rated each subject on the ten categories of the physical dimensions of conducting. Figure 6 shows a sample of the "Adjudicator's Record." While viewing and marking their adjudication sheets

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Student number_____ Adjudicator's Name_____

	1	2	3	4	5	Score	Remarks
Preparatory beat							
Attack							
Basic beat movement							
Dynamic indication							
Cuing							
Independence of hands							
Release							
Posture							
Use of face and eyes							
Attention to musical detail							

Total score_____

Note: While viewing the tape the adjudicator will check the appropriate number next to the conducting factor observed. The number 5 denotes outstanding performance, while the number 1 denotes unsatisfactory performance.

Fig. 6. Adjudicator's record.

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the judges numbered the pages consecutively from one to 84. At the conclusion of the judges' observation of the tapes, the experimenter, who had a record of the order of subjects on each tape and the order in which the tapes were played for the judges, was able to bring together the six evaluation sheets for each subject (three from the pre-test and three from the post-test) for summarization.

The "Tally Sheet" devised for this experiment was used to summarize the judges' scores on each variable, average scores, difference scores, and total scores for each student (see Appendix 11).

Statistical Treatment

Two null hypotheses were devised in order to manage statistically the substantive hypothesis. These were:

1. There will be no difference in the mean score of the two conducting groups on the post-test of conducting ability.
2. There will be no difference in the mean score of the two conducting groups on the post-test of conducting ability as adjusted by the pre-test results.

The basic research design used in this study allowed for a wide variety of statistical treatments to be considered. The following treatments were selected because of their relevance to both the research design and the particular hypothesis which formed the basis of this work.

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1. Item analysis of the evaluation instrument was carried out by completing a correlation matrix between the item scores and the total score of each subject.

2. Related to the above, a reliability and internal consistency estimate was derived by subjecting a random sample of 20 scores to a two-way analysis of variance test. The variables in this procedure were "items" and "persons." The statistical format was therefore a 10x20 table.

3. Inter-correlation of judges on both the pre-test and post-test scores was accomplished by means of a matrix which produced the correlations between the separate scores assigned by each judge on each of the ten test items on both the pre-test and the post-test, total score assigned by each judge on both the pre-test and post-test, and the average score for each subject on each of the ten test items on both the pre-test and the post-test. This correlation matrix consisted of 86 variables.

4. The test for significance of any differences found between the two groups of subjects was accomplished by an analysis of covariance, with the post-test score as the criterion variable and the pre-test score as the covariable.

Statistical Analyses

All of the statistical analyses were accomplished by the I.B.M. 1108 Computer at the Computer Science Center, University of Maryland, College Park, Maryland. The correlation problems were carried out by use of the program entitled "Correlation With Item Deletion," BMD03D. The

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analysis of variance problems were carried out by use of the program entitled "Analysis of Variance for Factorial Design," BMD02V. The analysis of covariance program is entitled "One Dimensional Analysis of Covariance with Homogeneity of Regression Test," ANCOVA, written by Dr. C. M. Dayton of the College of Education, University of Maryland, College Park.

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CHAPTER IV

STATISTICAL RESULTS

Inasmuch as there does not exist a standardized measuring instrument for use with a beginning conducting class, it was necessary to devise such a tool. The evaluative procedure described in the previous chapter was derived from a search of the literature on conducting, the literature on the use of video tape techniques, and Phase I of the present study. Therefore, an important aspect of the treatment of the data consisted of techniques useful in determining the reliability of the test instrument, as well as inter-judge reliability.

The correlation between the ten items on the evaluation instrument are shown in Table 2. The range of correlations with the total score ran from .65 on the item "Independence of Hands" to .92 on the item "Posture." Similarly, the ten items appear to be highly correlated one with another. The lowest correlations both for item with total and item with item is found to be "Independence of Hands," with correlation coefficients ranging from .44 on "Attack" to .59 on "Basic Beat Movement."

As a further check on the internal consistency of the evaluative instrument, Kerlinger suggests a two-way analysis of variance between the test items and the indi-

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Table 2

Correlation of Items with Total Scores on Post-Test

Variables	Preparatory Beat	Attack	Basic Beat Movement	Dynamic Indication	Cuing	Independence of Hands	Release	Posture	Face and Eyes	Attention to Musical Detail	Total Score
Preparatory Beat	1.00	.89	.76	.71	.68	.47	.66	.75	.59	.67	.82
Attack	.89	1.00	.76	.73	.73	.44	.69	.73	.61	.70	.84
Basic Beat Movement	.76	.76	1.00	.74	.79	.59	.74	.83	.69	.80	.90
Dynamic Indication	.71	.73	.74	1.00	.83	.53	.73	.79	.81	.87	.91
Cuing	.68	.73	.79	.82	1.00	.54	.73	.82	.85	.83	.91
Independence of Hands	.47	.44	.59	.53	.54	1.00	.45	.55	.50	.49	.65
Release	.66	.69	.74	.73	.73	.45	1.00	.76	.65	.72	.83
Posture	.75	.73	.83	.79	.82	.55	.76	1.00	.83	.79	.92
Face and Eyes	.59	.61	.69	.81	.85	.50	.65	.83	1.00	.79	.86
Attention to Musical Detail	.67	.70	.80	.87	.83	.49	.72	.79	.79	1.00	.90
Total Score	.82	.84	.90	.91	.91	.65	.83	.92	.86	.90	1.00

vidual scores on those items.[1] Kerlinger defines reliability as ". . . the proportion of error variance to the total obtained variance of the data yielded by a measuring instrument subtracted from 1.00, the index 1.00 indicating perfect reliability."[2] The reliability formula given by Kerlinger is $r_{tt} = 1 - \frac{V_e}{V_{ind}}$; where V_e is the error variance and V_{ind} is the variance on the individual dimension. Figure 7 shows the ANOVA results and the further computations required to produce the reliability estimate. In this case, the reliability coefficient reaches .91, which tends to support the internal consistency found in the correlation matrix shown in Table 2.

Table 3 shows the correlation matrix on the total scores assigned by the judges on both the pre-test and post-test. It can be noted that the lowest correlation on the pre-test occurred between judges one and three, while the lowest correlation on the post-test is shown between judges two and three. Table 3 further indicates stronger correlation among all three judges on the post-test evaluation than on the pre-test evaluation.

Figure 8 shows the means of the raw scores assigned by the judges to the experimental and control groups on the

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[1]Fred N. Kerlinger, Foundations of Behavioral Research, New York: Holt, Rinehart and Winston, Inc., 1964, pp. 435-436.

[2]Ibid.

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Source of Variation	DF	SS	MS
Items	9	39.92800	4.43644
Individuals	19	32.43501	1.70711
Residual (error)	171	26.69289	.15610
Total	191	99.05590	

$$r_{tt} = 1 - \frac{V_e}{V_{ind}}$$

$$= 1 - \frac{.15610}{1.70711} = .91$$

Fig. 7. ANOVA on test items.

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Table 3

Correlation of Judges on Pre-Test and Post-Test

	Pre-test Judge 1	Pre-test Judge 2	Pre-test Judge 3	Post-test Judge 1	Post-test Judge 2	Post-test Judge 3
Pre-Test						
Judge 1	1.00	.39	.09	-.07	.24	.13
Judge 2	.39	1.00	.21	-.15	-.12	.22
Judge 3	.09	.21	1.00	.47	.31	.40
Post-Test						
Judge 1	-.07	-.15	.47	1.00	.54	.57
Judge 2	.24	-.12	.31	.54	1.00	.42
Judge 3	.13	.22	.40	.57	.42	1.00

	Experimental Group	Control Group
Judge 1		
Mean	32.273	30.500
Standard Deviation	7.265	9.484
Judge 2		
Mean	29.955	28.550
Standard Deviation	5.644	5.942
Judge 3		
Mean	27.227	25.750
Standard Deviation	7.387	6.950

Fig. 8. Comparison of judge's scorings.

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post-test. It would appear that Judge One tended to assign higher scores than the other two, and Judge Three tended to assign lower scores than the other two. However, in spite of this difference in the mean scores of the judges, there seemed to be agreement among the judges that the experimental group conducted better than the control group. In fact, there is a very nearly consistent five point difference between Judge One and Judge Three reflected in the mean scores for both groups.

An examination of the overall mean scores of the two treatment groups on the post-test of conducting ability reveals that the experimental group mean score was higher than that of the control group. The mean score of the experimental group was 29.79, while the mean score of the control group was 28.18. These scores are based on a maximum score of 50. The standard deviations calculated on the post-test scores of the two treatment groups amounted to 5.1 for the experimental group and 5.7 for the control group. A comparison of the two treatment groups based on these figures shows the experimental group mean score to be higher, and the standard deviation to be lower than the mean and standard deviation found for the control group. Table 4 shows the means and standard deviations of the two treatment groups on the criterion scores.

The analysis of covariance program used for this study provides a computer print-out which includes an ANOVA Table for the unadjusted criterion scores with an F-ratio, the results of the test for homogeneity of regression ex-

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Table 4

Treatment Means and Standard Deviations on Post-Test Scores

	Mean	Standard Deviation
Experimental Group	29.79	5.1
Control Group	28.18	5.7

pressed as an F-ratio, and an ANCOVA Table on the adjusted criterion scores, with an F-ratio. These are shown in Figures 9, 10 and 11. It is to be noted that a significant F-ratio was produced from all three of these computations. That is, the F-ratio on the unadjusted criterion scores is significant beyond the .01 level, the F-ratio on the homogeneity of regression test is significant beyond the .01 level, and the F-ratio on the adjusted criterion scores is significant beyond the .025 level.

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Source	DF	SS	MS	F
Treatment	1	31.66	31.66	7.71
Error	40	164.16	4.10	
Total	41	195.82		

Fig. 9. ANOVA on unadjusted criterion scores.

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S1	S2	M1	M2
30.5928	128.3590	39.5928	3.3779

F = 9.0568

Fig. 10. Homogeneity of regression test.

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Source	DF	SS	MS	F
Treatment	1	27.61	27.61	6.77
Error	39	158.95	4.08	
Total	40	186.56		

Fig. 11. ANCOVA on adjusted criterion scores.

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CHAPTER V

DISCUSSION OF RESULTS

Statistical Results

One of the key issues to be resolved in designing the experiment was selection of items to be judged and construction of a testing instrument, which would prove valid and reliable. The method of evaluation chosen was similar to the "jury" system commonly used to evaluate musical performance. From a review of literature and Phase I of the present experiment, a set of ten behavior sequences was identified as being, in fact, the component parts of "baton technique." Final determination of the reliability of the testing procedure had to await the outcome of the statistical procedure described in the previous chapter. Both the reliability coefficient and the correlation of test items with the total score tend to indicate that a high level of confidence may be placed in the test instrument. This finding is of increased importance in that it seems to support the findings reported by Zdzinski in his study of new factors of conducting identified by students upon viewing 8 mm movies of their conducting performance.[1]

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[1]Zdzinski, op. cit., p. 141.

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An issue closely allied with the above is the inter-judge reliability. A close study of Table 3 on page 58 shows quite low correlations among judge scorings on the pre-test tapes and mid-range correlations among judges on the post-test tapes. The decision to employ three judges was made in recognition of the possibility that a behavior as complex as conducting might not be easily observed by a single judge. As is the case in evaluating other musical performance, the student score was a composite of the individual judge's scores, thus safe-guarding the outcome from the possible biases and prejudices of a single musician. A further examination of the data produced by the three judges indicates the possibility that the "error of leniency" and the "error of severity" may have been operating in the determinations of the judges.[2]

Since the evaluative instrument was found to have a reliability quotient of .91, a decision was made to proceed to the testing of the null hypotheses. The first of the null hypotheses states that no differences would be found in the mean scores of the two groups on the post-test. This null hypothesis is rejected beyond the .01 level of significance. The evidence would indicate that the experimental group did achieve higher conducting scores than the control group on the post-test of conducting ability.

However, since the groups were formed from regular class rosters, the findings on the post-test alone do not

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[2]Kerlinger, op. cit., p. 517.

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allow the inference to be drawn that the video tape procedure used in this study was the sole factor in the group differences. It is quite possible that the members of the experimental group were better conductors at the beginning of the term. If such were the case, the above result would be of little value. For this reason, it was necessary to form the second null hypothesis. Null hypothesis number two states that there would be no difference in the mean score of the two conducting groups on the post-test, as adjusted by the pre-test scores. The results of the analysis of covariance test for significance produced an F-ratio on the adjusted criterion scores of 6.77. An F-ratio of this magnitude is found to be significant beyond the .025 level, with 1 and 39 degrees of freedom. Thus, the second null hypothesis is rejected.

Lindquist summarizes the meaning of a significant F-ratio on the adjusted criterion scores thus:

> If we . . . find that the mean of the adjusted criterion scores is higher for the group that received Treatment I than for the group that received Treatment II, we would know that the difference is not due to any difference in the X-factor (pre-test) for the two groups, but must be due either to chance fluctuations in random sampling or to the effect of the treatment. If the F-test is significant we can then be reasonably certain that it is due, not to sampling fluctuations, but to real treatment effect.[3]

The analysis of covariance program produces one additional F-ratio. By means of this technique the assump-

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[3]E. F. Lindquist, Design and Analysis of Experiments in Psychology and Education, Boston: Houghton Mifflin Co., 1953, p. 318.

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tion of homogeneity of regression is examined. The data generated by the present study produced an F-ratio of 9.06 on the homogeneity of regression test. This quantity is found to be significant beyond the .01 level. Care must be exercised in the interpretation of this finding, however, since there appears to be some difference of opinion as to the importance of the F-ratio in this instance. According to Lindquist a significant F on the homogeneity of regression test indicates a significant difference in the group regression coefficients, thereby signifying that the treatment effects are different depending on the level of the covariate.[4] Dayton states:

> The assumption of homogeneity of regression is rather critical to the analysis of covariance since it is known that departure from this condition can seriously affect the actual risk of a Type I error.[5]

Guilford states, however, that Type I error, that is, the error of rejecting the null hypothesis when it is true, can be controlled by increasing the acceptance level (alpha). In this case, according to Guilford, the chances are increased that a Type II error will be made, that is, the null hypothesis will be accepted when it is false. It is Guilford's position that a reasonable balance must be achieved between the risks of rejecting true hypotheses and accepting

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[4] Ibid.

[5] C. Mitchell Dayton, The Design of Educational Experiments, New York: McGraw-Hill Book Co., 1970, p. 312.

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false hypotheses.[6] If one follows Guilford's reasoning, it may be prudent to reject the null hypotheses number two, since the F-ratio is significant beyond the .025 level.

Procedural Results

In Chapter II certain procedural-logistical questions were posed, the answers to which were sought during the experimental phase of the study. In order to develop this information the writer functioned as the equipment operator throughout the experiment, while the regularly assigned conducting teacher carried out his normal role. Thus relieved of teaching responsibilities, the experimenter was able to focus attention on these problems and was able to formulate tentative answers to the procedural-logistical questions.

The first of these questions concerned the number of technicians required to satisfactorily operate the equipment. By use of a three-level mobile table, it was found possible to arrange the equipment so that one technician could operate the camera, the video tape recorder and the television monitor. No delays were encountered during either the test recordings or the recordings of the study tapes.

The second question calls for a determination of the relative difficulty of operating the video tape equipment. In this area of concern, the findings support the belief

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[6] J. P. Guilford, Fundamental Statistics in Psychology and Education, 4th edition, New York: McGraw-Hill Book Co., 1965, pp. 206-207.

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that, with minimal instruction, most students and instructors could learn to operate the equipment in a satisfactory manner.

In question number three, the interest was devoted to the time required to prepare the equipment for use in the regular classroom. It was found that after several practice trials of assembling the camera and connecting the camera, recorder and monitor, less than two minutes were required to prepare for a taping session. (This time factor excludes the time required to move the equipment from one location to another.)

Since one of the issues in the present experiment deals with self-analysis, the fourth question was addressed to whether or not a college student might be able to operate the equipment in the play-back mode, thereby eliminating the requirement for a technician being present while tapes were being viewed. The events of the experiment suggest the conclusion that individual students are capable of re-playing their own tape segments without the aid of a technician. However, this procedure might lead to indiscriminate exposure of the video tapes of student conducting, since the instructor would not be able to control the number of tape segments viewed by a student. In addition, the writer would tend to reject this procedure, since it is believed that a video tape recording of an individual's conducting performance is a private matter.

From the experiences encountered in carrying out Phase II of this study, it was found that the video tape

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recorder poses few technical problems and but little organizational revision prior to introduction of the system into the normal classroom. These determinations and the conclusions reached above were not derived from empirical evidence. They are included herein because the answers to such questions must be pondered when making a decision to apply video tape techniques to a classroom situation.

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CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The problem as stated and examined experimentally in the present study was: "What are the effects of video tape feedback on the achievement of students in a beginning conducting class?" A two-phase plan was employed to seek an answer to the research question. The general parameters of the problem were defined and specific procedures and techniques to be used in the experiment were developed and adopted in Phase I. During Phase II, the experimental phase, the procedures and techniques which were developed in Phase I were used to test the previously formulated hypothesis.

The experiment was based upon the hypothesis that students who have their conducting recorded on video tape and who study the video tapes of their conducting privately, aided by a self-evaluation guide, acquire more conducting skill than students who do not have access to video tapes of their conducting. The experiment was designed to extend over the entire semester of the beginning conducting course.

The subjects of the experiment were those students

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who had enrolled in the beginning conducting course at the University of Maryland at College Park during the Fall Semester, 1970. A total of 42 students completed the experiment. The students in each class section were randomly placed into two equal groups. The experimental group was formed from one-half of the students from section one and one-half of the students from section two. The control group was formed in a like manner. Both groups were taught by the same instructor.

The treatment of the subjects in the experimental group was identical to that of the subjects in the control group. In addition, the subjects in the experimental group were administered an experimental treatment. In the experimental treatment the subjects in the experimental group had their conducting recorded on video tape a total of five times during the semester at three-week intervals. On the day following these taping sessions the subjects in the experimental group were each allotted a 15 minute segment of time in which to study and evaluate the tape of their conducting. A "Video Tape Self-Evaluation Sheet" was provided for each subject as an aid in self-evaluation.

The experimental design chosen was a randomized, experimental group-control group, pre-test-post-test design. The testing of the subjects on both the pre-test and post-test was done by means of video tape recordings. The pre-test and post-test conducting of each subject in the two groups was rated by a panel of three judges not of the University of Maryland faculty. The judges assigned a score

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to each subject on each of the ten attributes of conducting considered to be subsumed under the designation baton technique.

The major statistical treatment of the data was accomplished by use of the computer program entitled "One Dimensional Analysis of Covariance with Homogeneity of Regression Test." In addition, statistical procedures were used to develop an estimate of the reliability of the test instrument. The reliability coefficient was found to be .91.

The null hypotheses were:

1. There will be no difference in the mean score of the two conducting groups on the post-test of conducting ability.
2. There will be no difference in the mean score of the two conducting groups on the post-test of conducting ability as adjusted by the pre-test results.

The results of the experiment based upon the statistical analysis of the data indicated that the experimental treatment did produce a significant difference between the mean scores of the two groups. The null hypothesis of no difference between the unadjusted criterion score means was rejected beyond the .01 level. The null hypothesis of no difference between the adjusted criterion score means was rejected beyond the .025 level.

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Conclusions

The findings of this study indicate that video tape feedback used as in this experiment seems to have a significant positive effect on the achievement of students in a beginning conducting class. Furthermore, when taken together with the findings of previous research, there is some indication that such results depend upon the specific video tape techniques employed in the class.

The results of the present study provide evidence to suggest that the video tape recorder is most effective when used in a planned and structured program of recording and viewing. That is, there must be a certain specificity to the goals of such activity. A single, casual recording and viewing sequence would seem to be of small consequence in the training of students in conducting skills. This conclusion is implied from a consideration of the difference in approach-tendency observed by the writer between the Phase I students, when informal taping was undertaken, and the Phase II students, when a structure was used for the taping and viewing sequence.

A further conclusion intimated by the evidence produced herein is that the conditions under which the tapes are viewed by the student may have some effect on the consequent conducting ability of the student. That is, viewing tapes privately and removed from the classroom situation seems to enhance the positive modification of student conducting behavior.

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A final conclusion drawn from the events of the experiment and the findings thereof is that a beginning student needs a strong self-evaluation guide in order to draw his attention to the conducting technique under study and away from the cosmetic aspects of his television image. In the present study, it was noted that, as a student became more accustomed to viewing his conducting and more facile in the use of the self-evaluation instrument, his observations tended to become more objective.

Recommendations

Completed research tends to engender consequential or parallel problems, investigation of which would be beneficial. The presently completed research indicates a need for further study in at least six areas.

1. The present study appears to be the first to report the development of a successful technique for use of video tape recordings to increase conducting ability in a beginning conducting class. It is therefore recommended that, at least until replication of the experiment can provide verification of the present results, the video tape recorder be used as a supplement to regular classroom work in conducting, rather than as a replacement therefor.

2. In this connection, it is recommended that a study be devised and executed to determine the outcome of using only video tape feedback in conducting class, rather than a combination of video tape feedback and class feedback.

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3. It is noted that there is a need for a highly reliable, standardized instrument for measuring conducting effectiveness in the physical domain.

4. It is recommended that the experimental procedure reported herein be utilized to compare the effectiveness of the video tape techniques when used with first semester conducting students and second semester conducting students.

5. Further study is recommended to determine the relative effectiveness of specific video tape techniques when used with persons exhibiting various personality traits.

6. Finally, it is recommended that further refinements of the video tape equipment in terms of cost and mobility be undertaken so that a student may be able to purchase such equipment for use in self-improvement in skills considered to be important for music teachers.

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APPENDIX 1

LETTER TO SUBJECTS IN THE EXPERIMENTAL GROUP

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Letter to Subjects in the Experimental Group

UNIVERSITY OF MARYLAND

College Park, Maryland

Dear_____

As part of my graduate studies I have been given permission to work with a group of beginning conducting students during the present semester. You have been selected from the class as a participant in my work. I am most pleased to have you in the group.

It is my plan to supplement your regular classroom work in Music 160 by doing a video tape of your conducting at three week intervals. The day following the video taping you will have an opportunity to view your tape privately. Each observation session will be 15 minutes long, so that you may re-run your portion of the tape entirely or in sections.

A calendar of tapings and observations is attached. It is very important that you not miss any of the tapings or observations. If you have further questions, please call me at 780-8770.

Thank you for your help.

(signed) Bud King

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APPENDIX 2

INSTRUCTIONS FOR STUDENTS

STUDY TAPES 1 and 2

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Instructions for Students
Study Tapes 1 and 2

Your conducting will be recorded by video tape on 23 September in regular class time. Please select a composition which you have been working on in class and prepare to conduct the group. The procedures will be as follows:

1. Bring along materials which you are working on in class. If you elect to conduct a composition which is not part of the class material, please insure that you have sufficient copies for the members of the group.

2. Each person will have enough time on the tape to conduct his composition from beginning to end.

3. The tapes will be available for viewing from 3 p.m. to 8:30 p.m. on Thursday, 24 September, in Room 206, Fine Arts Building. Please sign up for a 15 minute segment of time.

4. When you come to view your tape you will be given a "Video Tape Self-Evaluation Sheet" to guide your viewing. At the end of your 15 minute viewing session, please turn in your evaluation sheet to the equipment operator.

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APPENDIX 3

INSTRUCTIONS FOR STUDENTS

STUDY TAPES 3 and 4

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Instructions for Students
Study Tapes 3 and 4

Your conducting will be recorded by video tape on November 4, 1970 in regular class time. Please select a composition which you have been working on in class and prepare to conduct the group. The procedures will be as follows:

1. Bring along materials which you are working on in class. If you elect to conduct a composition which is not part of the class material, please insure that you have sufficient copies for the members of the ensemble.

2. Each person will have three minutes on the tape. You may conduct your composition from beginning to end or you may select excerpts to work on in detail.

3. When your tape time is exhausted the equipment operator will signal for you to stop.

4. The tapes will be available for viewing from 11 a.m. to 8:30 p.m. on Thursday, November 5, 1970, in the same location as the previous time. Please sign up for a 15 minute segment of time.

5. When you come to view your tape, you will be given a "Video Tape Self-Evaluation Sheet" to guide your viewing. At the end of your 15 minute viewing session, please turn in your evaluation sheet to the equipment operator.

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APPENDIX 4

INSTRUCTIONS FOR STUDENTS STUDY TAPE 5

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Instructions for Students
Study Tape 5

The final study tape of your conducting will be recorded on video tape on December 16, 1970 during regular class time. Please select a composition which you have been working on in class and prepare to conduct the group. The procedures will be as follows:

1. Bring along materials which you are working on in class. If you elect to conduct a composition which is not part of the class material, please insure that you have sufficient copies for the members of the ensemble.

2. Each person will have enough time to conduct his/her composition through, without stops or rehearsal. Use only a minimum of verbalizing before starting the group.

3. The tapes will be available for viewing from 11 a.m. to 4:30 p.m. on Thursday, December 17, 1970. Please sign up for a 15 minute segment of time. Tapes will be viewed in Room 206, Fine Arts Building.

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APPENDIX 5

VIDEO TAPE SELF-EVALUATION SHEET

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Video Tape Self-Evaluation Sheet[1]

Name_____

Circle the number (5 is highest) which you think best indicates your evaluation of your performance.

543210 Were instructions prior to singing, if any, clear, brief and limited to necessary points?

543210 Did you appear poised and self-confident?

543210 Did you make a clear gesture specifically for the purpose of calling the group to singing readiness?

543210 Did you make a visual check of readiness before giving the preparatory beat?

543210 Did you hold the group in readiness for a reasonable amount of time before starting (or too long)?

543210 Did you have your eyes on the performers as you gave the preparatory beat and during the opening measures?

543210 Did the group start precisely together and in your tempo?

543210 Did you, through conducting gestures, effectively control the dynamic level of the opening measures?

543210 Was the group dynamically well-balanced (making allowance for sectional imbalance and microphone position) in the opening measures?

543210 Was the beat pattern of a size appropriate for the dynamic level on which you had decided?

543210 Was the character of your beat pattern appropriate for the character of the music (expressivo, legato, maestoso, etc.)?

543210 Were musical phrases clearly outlined in your conducting (or was there a tendency to clip or overlook phrase endings)?

543210 Was your conducting expressive of musical climaxes, dynamic changes, nuances, rise and fall of phrase line (or was there little apparent variation in the character of your beat)?

543210 Was the left hand used effectively to cue or control other performance aspects?

543210 Did you establish eye contact with the performers before cuing important entries?

---

[1]Adapted from Labuta, op. cit., p. 223.

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Self-Evaluation Sheet (continued)

543210 Did your cues enable the performers to enter with confidence?

543210 Were your cuing gestures executed with facility?

543210 Were your cues rendered in sufficient number considering the demands of the music?

543210 Did you maintain adequate eye contact with the performers?

543210 In general, did your conducting appear to indicate fairly thorough knowledge of the music in the score?

543210 If tempo and/or meter changes occurred in the score, were these clearly indicated in your conducting?

543210 If sections or individuals lost place in their parts, did you aid in their recovery?

543210 Were you attentive to intonation faults; did you call them to the attention of the singers by cautioning gestures, or other methods?

543210 Did the performance as a whole sound as though singers were responsive to your conducting? (Allow for sight-reading, imbalance of sections and other factors beyond your control.)

543210 Did your facial expression, posture, general demeanor tend to reinforce or represent the expressive character of the music?

543210 Did you obtain a reasonable fulfillment of your anticipated conception of the music represented in the score?

543210 Were you happy with your general appearance as a conductor?

543210 Were your basic beat patterns clear and well proportioned?

543210 Were verbal instructions clear, brief and audible?

543210 Were you effective as a leader?

543210 Were you free of any distracting habits or mannerisms?

543210 Were your rehearsal procedures, if any, effective, and were they focused on real performance needs?

543210 Did you shift your attention to correspond to shifting of important musical parts among the performers?

_____Total score

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APPENDIX 6

SELF-EVALUATION SHEET STUDY TAPE 5

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Self-Evaluation Sheet
Study Tape 5

Name_____

Listed below are ten identifiable physical dimensions of conducting. Please place a number before each item indicating the order in which you improved during the semester. For instance, if you improved most in cuing, rate it 1; if your attacks improved second most, rate attack 2, etc.

_____Preparatory beat

_____Attack

_____Basic beat movement

_____Dynamic indication

_____Cuing

_____Independence of hands

_____Release

_____Posture

_____Use of face and eyes

_____Attention to musical detail

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APPENDIX 7

INFORMATION SHEET

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Information Sheet

Music 160

Name_____Semester_____

Degree program_____Total semester hours_____

major_____ at U. Maryland_____

minor_____ elsewhere_____

Conducting experience:

Number of years choral_____; number of years instrumental____

Was this conducting in a church, camp, community or school? (circle)

Number of performances choral_____; instrumental_____

Private instruction (prior to college):

Number of years_____ instrument_____

Number of years_____ instrument_____

Number of years_____voice

Ensemble experience (prior to college):

Number of years choral_____; number of years instrumental_____

Did you have a piano in your home while growing up?_____

Number of semester hours completed:

_____music history

_____music theory

_____vocal ensemble

_____instrumental ensemble

_____teaching methods

_____student teaching

_____private instruction; instrument_____

_____private instruction; instrument_____

_____private instruction; voice

_____class piano

_____class voice

Have you taken the musicianship examination?_____

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APPENDIX 8

INSTRUCTIONS FOR STUDENTS

PRE-TAPE AND POST-TAPE

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Instructions for Students
Pre-Tape and Post-Tape

Your conducting will be recorded by video tape today. To insure that all students have an equal opportunity to conduct, the following procedures will apply:

1. Each student will be called to conduct by the person who is operating the video tape equipment.

2. When your name is called please proceed to the podium and conduct the composition assigned.

3. Each person will have a maximum of two minutes of tape time.

4. Do not let the time limit influence your selection of tempo. If your tempo does not permit taping of the entire composition, the equipment operator will signal for you to stop the group. The fact that you are not able to complete your composition will have no influence on what we are doing.

5. Please observe all of the conducting conventions of which you are aware. Do what you must to start the group, keep it going and stop it. If you are not sure of the conventional procedures, simply accomplish what you must in the most direct way.

6. After you have stopped the group take your seat and prepare to become a member of the ensemble for the next conductor.

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APPENDIX 9

BRIEF BIOGRAPHY OF JUDGES

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Brief Biography of Judges

Name: Michael D. Cordovana

Current Position: Associate Professor of Music
Catholic University of America

Educational Background: Degrees from Catholic University of America

Additional Conducting Experience: Preparation of choruses for performance with the National Symphony; Director of the Washington, D. C. Vocal Chamber Music Ensemble.

Name: Vito E. Mason

Current Position: Associate Professor of Music
The American University

Educational Background: Degrees from New York University and Ithaca College

Additional Conducting Experience: Choral Festivals in fourteen States; Graduate Choral Workshops in various Universities; Guest Conductor of St. Paul Philharmonic Orchestra.

Name: Evelyn D. White

Current Position: Professor of Music
Howard University

Educational Background: Degrees from Johnson C. Smith University; Howard University; Columbia University.

Additional Conducting Experience: Assistant Director of Washington Community Chorus; Adjudicator for Choral Festivals; Guest Conductor Maryland All-State Chorus.

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APPENDIX 10

VIDEO TAPE EVALUATION POINTS

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Video Tape Evaluation Points

Preparatory Beat

1. Did you have the attention of the group before giving the preparatory beat?

2. Did you hold eye contact with the group prior to and during the preparatory beat?

3. Was the size of the preparatory beat consistent with the size of the beats which followed?

4. Was the tempo of the preparatory beat consistent with the tempo of the beats which followed?

5. Was the dynamic level indicated by the preparatory beat consistent with the dynamic level of the music which followed?

6. Was the style of the preparatory beat consistent with the style of the music which followed?

7. Was the preparatory beat given in the correct direction for the beats which followed?

Attack

1. Was the attack precise?

2. Was the attack made by all performers?

3. Was the attack made in a style consistent with the style of the music which followed?

4. Was the attack made at a dynamic level consistent with the dynamic level of the music which followed?

5. Did you hold eye contact with the group during the attack?

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Video Tape Evaluation Points (continued)

Basic Beat Movement and Pattern

1. Was a standard beat pattern used?

2. Was the beat movement consistent?

3. Was the point of each beat clearly defined?

4. Was the tempo of the beats even?

5. Was the size of each beat related to its function in the measure/phrase?

6. Was the beat pattern free of idiosyncracies?

Dynamic Indication

1. Was the sound of the music related to the dynamic indication shown by the conductor?

2. Were dynamic indications clearly seen by all members of the ensemble?

3. Were dynamic changes prepared?

4. Was the dynamic level depicted by the conductor appropriate to the music?

Cuing

1. Was cuing timely?

2. Was cuing clear and forceful?

3. Was eye contact made with the group being cued?

4. Did the musicians respond to the cuing at the proper time?

5. Was the cue given in the correct tempo?

6. Was the cue given in the correct style?

7. Was the cue given at the proper dynamic level?

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Video Tape Evaluation Points (continued)

Independence of Hands

1. Was the left hand used to reinforce the beat pattern of the right hand at important points in the music?

2. Were some cues handled by the right hand alone?

3. Were some cues handled by the left hand alone?

4. Were dynamic change indications clear when made with the left hand?

5. When the left hand was used to depict the beat pattern, was it a mirror image of the right hand pattern?

Release

1. Was the release clearly shown?

2. Was the release made at the proper time in the music?

3. Was the release gesture related to the beat pattern being used?

4. Was the release gesture made in the tempo of the music?

5. Was the release gesture made in the style of the music?

6. Was the release gesture made at the dynamic level of the music?

7. Was the release gesture easily seen by the members of the ensemble?

Posture

1. Is the posture of the conductor firm and normal?

2. Is the back straight?

3. Are the shoulders back and down?

4. Are the feet firmly placed on the floor?

5. Is the chin held in a normal position?

6. Is the posture used to depict the character of the music?

7. Does the posture reflect an attitude of leadership?

8. Does the posture reflect an attitude of control?

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Video Tape Evaluation Points (continued)

Use of Face and Eyes

1. Can the face and eyes be seen by the members of the ensemble?

2. Are face and eyes mobile while conducting?

3. Are face and eyes used as an aid in portraying the sound of the music?

4. Are gestures by face and eyes distracting to the group?

Attention to Musical Detail

1. Were musical phrases clearly outlined in the conducting?

2. Did the conducting express the musical climaxes?

3. Did the conducting outline the rise and fall of the phrase line?

4. Did the conducting allow for the strengthening of important parts?

5. Were breath pauses clearly indicated?

6. Did the conducting effectively convey which voice part was to be dominant?

7. Was help given to particular voices when they encountered rhythmic complexities in the music?

8. Were fermatas handled effectively?

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APPENDIX 11

TALLY SHEET

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TALLY SHEET

Student_____

	PRE-TEST				POST-TEST				
	Judge 1	Judge 2	Judge 3	Score	Judge 1	Judge 2	Judge 3	Score	Diff.
X1									
X2									
X3									
X4									
X5									
X6									
X7									
X8									
X9									
X10									
									Total
			Total Score_____				Total Score_____		Diff.___

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VITA

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Secondary Education: Richard Township High School,
May 1948.

Collegiate institutions attended:	Dates	Degree	Date of Degree
Indiana University of Pennsylvania	1949-1953	B.S.	1953
University of Maryland	1962-1967	M.Ed.	1967
University of Maryland	1967-1971	Ed.D.	1971

Major: Music Education.

Minor: Music Literature.

Positions held: Choral Director in High Schools of Fairfax County, Virginia.

Instructor in Music, and Director of the University Singers, University of Maryland, Baltimore County, Maryland.

Assistant Professor of Music and Director of the College Choir, George Mason College of the University of Virginia.

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