A PILOT STUDY IN THE USE OF VIDEOTAPE FOR IMPROVEMENT OF THE PHYSICAL ASPECTS OF CONDUCTING SCHOOL MUSIC GROUPS

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CHAPTER I

INTRODUCTION

The student in music education at the secondary level must necessarily study in many subject areas while training for his future profession of music teacher and conductor. In addition to courses in the natural sciences, literature and social sciences, the future music educator studies the many areas of music in which he must be adequately prepared. These areas include music theory, music history, studies geared to performance ability on certain instruments, teaching procedures and conducting.

The area of conducting calls upon all of the other areas of music study and is, perhaps, the most complex of the musical skills to be developed. Through his conversations with music teachers and as a result of observations of the performances of many high school music groups, the writer has become aware of inadequacies in this area. With the hope that better teaching procedures might be explored, the following study was begun.

Significance of the Problem

Barring any informal experience gained outside of the college classroom, graduates in music education at the University of Alabama begin their teaching career with two courses in conducting and the conducting experience gained from student teaching. This, seemingly,

could be no more than adequate, and any means of refining and improving the process would aid the graduate when he assumes his professional role as teacher and conductor.

Conducting is only one facet of the music education program, and its formal study must necessarily be limited. Consequently, an increase in course hours for its study is unrealistic. New methods of teaching within the existing experiences must be found. With this in mind, an investigation into the student's conducting experience during student teaching and his early professional experiences would seem worthwhile.

Conducting experience in student teaching is limited due to several reasons. The student is subjected to a barrage of teaching tasks, to all of which he must apply himself. He discovers that conducting is only a part of the overall profession of teaching. Because he is a student teacher, he is not in front of the performing groups constantly, and is given only select times to perform as a conductor. He may find aspects of his initial teaching experience that seem more immediate than that of conducting.

The student teacher must encounter the sometimes uncomfortable, if not frightening, task of confronting a group of students for the first time. Self-expression and creativity, elements of the conductor's art, must assume their rightful place on the list of human needs, as Maslow indicated, below that of self-esteem, and, in this case, confidence as a teacher and conductor.[1]

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[1]Abraham H. Maslow, Motivation and Personality (2nd ed; New York: Harper & Row, 1970), pp. 45-46.

The student teacher must work within the limits of the music program with which he is studying. Concerts, programs, and consequently, teaching material, dictate his conducting experience. At certain times of the year, he may get only minimal conducting experience. For example, for one who is majoring in instrumental music and who is a student teacher in the fall semester, experience with concert literature may be lessened because the program is oriented toward the marching band. Even in the spring semester festivals, contests and programs of various types may limit his rehearsal experience. These limitations, along with others, hinder an extensive effort at improving conducting skills.

When the graduate assumes his job as a full-time teacher, improvement may be hindered for several reasons. First of all, the school director may find himself in a position in which, unlike the professional conductor who rehearses and performs constantly, he performs as a concert conductor only a few times each year. Also, many directors in their first few years of teaching, may assume that, because of the lower grade of difficulty of their music, a minimum of conducting skills is adequate.

The great amount of rehearsal time encountered in directing school music groups minimizes efforts also. Much of this rehearsal time is spent working out notes, rhythms, and directing other forms of drill, which generally does not develop good conducting skills.

Although there is little evidence to show that improvements in some aspects of conducting, such as score reading and musical interpretation, cannot normally be obtained by the aid of visual media,

there are indications that amelioration in the physical aspects of conducting can be realized with such means. Hunter made a related study with encouraging results.[2] Successful use of videotape recorders in athletics, especially those which require a high degree of physical form, indicate that motor skills can be improved by such aid. Wiesner stated that, "Personal evaluation of our student conducting traits . . . " through the use of videotape " . . . can be of almost inestimable value in correcting faults and building upon strength."[3]

The author feels that improved means of teaching conducting skills would better prepare the graduate for his profession. It is hoped that this study will provide some insight into the feasibility of using videotape recorders during the student teaching semester, to aid the music education student with the development of skills in this important area of teaching.

Statement of the Problem

The problem was to investigate the use of the videotape recorder in improving the physical aspects of conducting, in a teaching environment.

A sub-problem was to investigate the use of the videotape recorder for the improvement of each of eight areas of conducting. These areas are:

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[2]John Richard Hunter, "Instant Replay Television as a Method for Teaching Certain Physical Aspects of Choral Conducting," (unpublished Ed. D. dissertation, North Texas State University, 1968), p. 67.

[3]Glenn R. Wiesner, "Videotape In College Music Programs," The Illinois Music Educator, XXXI, No. 5 (1971), p. 14.

1. Execution of preparatory beats
2. Execution of cues
3. Indication of dynamics
4. Execution of basic beat patterns
5. Independent and correct use of hands
6. Execution of cut-offs and releases
7. Use of face and eyes
8. Use of good posture

Another sub-problem was to develop an evaluation instrument for use in the evaluation of the physical aspects of conducting.

Research Hypothesis

It was hypothesized that the student conductors would show improvement in the physical aspects of conducting when video experiences became a part of the planned process of their development.

Limitations

The study was limited to the eight areas of conducting cited in the statement of the problem.

The study was limited to three student teachers at Tuscaloosa High School. Their acceptance for student teaching by the University of Alabama provided the qualifications for admission into this study.

Because of school schedules and the availability of taping equipment, the study was limited to four taping sessions for each student during a seven week period.

Definitions

For the purpose of this study a videotape recorder can be defined as the camera, recorder, monitor and all the equipment needed to record and play back television picture and sound. Videotape refers to the reel of tape itself, which in most cases here, contains recorded content.

CHAPTER II

REVIEW OF THE LITERATURE

Instructional Television in Education

Introduction

Progress in education in recent years has been enhanced by the teaching innovations provided by television. Educators are finding, through instructional television, not only new methods of teaching, but also new approaches to conventional methods. In future years it will play an even greater role in education.[1]

This discussion of the literature will be concerned with instructional television, or ITV, as opposed to educational television which may be associated with informal viewing, i. e., viewing without specific educational goals. Instructional television is "generally a closed circuit institutional situation," and, "almost always involves learning connected with personal advancement leading to an occupation or improvement in a profession."[2]

Although ITV is used in many areas of education, some of

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[1]Howard E. Bosley and Harold E. Wigren, "Television and Related Media in Teacher Education," in Emerging Roles and Responsibilities, Vol. II of Teacher Education in Transition, ed. by Howard Bosley (Baltimore: Multi-State Teacher Education Project, 1969), p. 52.

[2]John Richard Hunter, "Instant Replay Television as a Method for Teaching Certain Physical Aspects of Choral Conducting" (unpublished Ed. D. dissertation, North Texas State University, 1968), p. 22.

which will be noted in this study, the primary emphasis here is its use in colleges of education. McLean stated:

> Television is contributing to the total educational process at many points today, but there can be few areas in which its potential, direct and indirect, is demonstrated more strikingly than in the colleges of education. Here, the camera offers completely new dimensions to the quality of training that students can be given in their own professional skills; here, too, familiarity with the electronic tools of their trade can gradually build up in a new generation of teachers the fresh attitudes that are necessary if television and radio are to be accepted as quite normal, indeed basic, means of instruction. In schools, in universities, and in adult education generally, one could reasonably say that what matters most is the nature of the teaching material conveyed by television; the end-product and its effect are the things that interest us.[3]

Teacher Training

Since its introduction into education several years ago as a practicable teaching tool, varied uses of this revolutionary aid have been realized. Basely and Franzen stated that videotapes can be used as

> . . . substitutes or supplements for classroom and child group observations; as a self-appraisal process for student teachers; as a means of providing instruction in the skills and techniques of teaching . . . ; simulation of practical teaching situations . . . ; telecourses and teleconferences for pre-service and in-service development of teachers; and other applications such as recording pupil reactions to teacher behavior for further analysis and study.[4]

One of the most useful means of using videotape recorders

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[3]Rodrick McLean, Television in Education (London: Methuen Educational, Ltd., 1968), p. 95.

[4]Howard E. Bosley and C. K. Franzen, "Uses of Television in Teacher Education," Audiovisual Instruction, II (December, 1967), p. 1050.

in teacher training is that of classroom observation. Cameras can be set up in the laboratory school and the tapes viewed in the college classroom by several students at once with the teacher adding his comments as the viewing progresses.[5]

The University of Missouri made considerable use of a mobile unit at the University Laboratory School. In a recent fall semester, 69 students were taped and the equipment was used by a total of 25 supervisors. "The professional staff of the laboratory school has been quite enthusiastic in working with instructional television as a teaching tool and are convinced of the positive results in teacher training."[6]

Closed circuit observation can, " . . . substantially reduce the burden on the schools and on the individual teacher . . . " and " . . . can eliminate a large amount of wasted traveling time between the school and college . . . ." McLean added that, "Whether recorded or not, remote observations of a class by television offers this fundamental advantage--that the whole group of students, and their lecturer, share the same experience."[7]

Taped segments as a substitute for live observation can be very useful also. At the University of Massachusetts students in elementary education encountered two phases of this type observation. Twelve hours of recorded observation were viewed by each student

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[5]McLean, op. cit., p. 98.

[6]D. A. Kohn and R. J. Turner, "Videotaping the Student Teacher," School and Community, LV (October, 1968), p. 14.

[7]McLean, op. cit., pp. 98-99.

during his freshman year, and fifteen hours during his sophmore year.[8] The use of videotapes in this way allows for considerable planning and selectivity of content.

The staff of the School of Education at the University of Massachusetts has pointed out other advantages of using videotaped observations.

> A more flexible sequence of observations is possible. Special school activities can be taped and stored for viewing at an opportune time. Likewise, the laboratory teacher can plan for taping in the classroom specific activities which she feels will make an important contribution to the observation classes. Finally, the videotapes make it possible to conduct effective observation in a large group setting, an important consideration with the increasing university enrollment. The tapes have enriched the observation progress and are an important supplement to the excellent observation corridor.[9]

McLean wrote that television can be especially advantageous with the observation of children.

> Here the intrusion of students in a group of any size can be especially distracting, and any less obtrusive form of surveillance is to be welcomed. The use of cameras for the study of infant-room behavior in unstructured groups is not without its technical problems, for it is a rapidly changing and unpredictable set of circumstances that one attempts to cover; but of the various alternative possibilities that are available, television observation seems to be clearly the most promising.[10]

At Jersey City State College, videotape sequences made at the laboratory school were used in a foundations course in education.

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[8] Robert C. Jones, "Using Videotapes in Directed Observation," in Emerging Roles and Responsibilities, Vol. II of Teacher Education in Transition, ed. by Howard E. Bosley (Baltimore: Multi-State Teacher Education Project, 1969), p. 56.

[9] Ibid., p. 57.

[10] McLean, op. cit., p. 99.

The students became so involved in the course that they produced their own instructional tape for future use by editing and dubbing interviews and comments over the taped observations.[11]

Research has demonstrated that programmed videotapes add a new dimension to observation. A study was made by Popham concerning the use of videotapes and programmed material. Three groups were given instructions--one with videotapes and audiotaped program material, one with only modest taped material, and one without viewing any videotapes or hearing any audiotapes. The results showed that the group which received instruction with videotapes and programmed material made significant gains over the others.[12]

Johnston made a study "to test the hypothesis that a program of prompt, practice and feedback would improve the beginning teacher's ability to observe pupil performance in the classroom." Eighty-four students were divided into four groups. Group one viewed videotapes with programmed booklets; group two used booklets without programmed tapes; group three was exposed only to the taped material; group four was not given any experimental treatment. The final tests showed that programmed videotapes enhanced the learning process.[13]

One of the most significant innovations in teacher training

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[11] J. Bower, "Using Videotape in a Foundations Course in Teacher Education," Audiovisual Instruction, XV (May, 1970), p. 44.

[12] W. James Popham, "Instructional Videotapes in Teacher Education," AV Communication Review, XIV (Fall, 1966), p. 371.

[13] Rita B. Johnson, "The Effect of Prompting, Practice, and Feedback in Programmed Videotape," American Educational Research Journal, V (January, 1968), pp. 73, 77.

in recent years is that of microteaching. Developed and used extensively at Stanford University, it

> . . . is essentially an opportunity for either pre-service or in-service teachers to develop and improve their pedagogical skills with a small group of pupils (3 to 7) by means of brief (3 to 7 minute) single concept lessons, which are recorded on videotape for reviewing, responding, refining and reteaching. An effort is made to analyze the many aspects of a teacher's performance, to ferret out those most amenable to change, and to concentrate on their perfection one at a time.[14]

Microteaching provides the opportunity to improve various aspects of teaching without the many peripheral problems and distractions that the teacher must contend with in a difficult classroom situation. As one of the interns in a microteaching program at the University of Wisconsin stated, "When you are teaching, it is very hard to focus on . . . specific points. You are too busy with overall things."[15] McCollum and LaDue expressed the opinion that "microteaching experience can bridge the gap between methodology theory and the real world of the classroom."[16]

Microteaching has been used at the University of Maryland in teacher training at three points in the student's college career: in the junior year, in the pre-student teaching semester in methods

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[14]John H. Meier, "Rationale for and Application of Microteaching to Improve Teaching," Journal of Teacher Education, XIX (Summer, 1968), p. 146.

[15]Judith M. Bloom, "Videotape and the Vitalization of Teaching," Journal of Teacher Education, XX (Fall, 1969), p. 311.

[16]Robert McCollum and Donald LaDue, "Microteaching in a Teacher Education Program," Social Education, XXXIV (March, 1970), p. 336.

courses, and simultaneously with student teaching.[17] Microteaching, too, has been successfully used in pre-practice teaching courses at the University of Missouri.[18]

Although microteaching may be accomplished without the use of videotape feedback, that is, with only a supervisor conference, there is evidence that the use of videotape feedback results in a significant difference. In a study made by Acheson and Olivero, it was found that feedback from videotape in microteaching was more effective in the modification of teaching behavior than with only a supervisor conference.[19]

Microteaching at Stanford University has been utilized in another situation. Music education students there have experienced microteaching in a fifth year or master's degree program as an intern. Evaluation was done with the Stanford Teacher Appraisal Guide which was developed at the University.[20]

At the University of the Pacific in Stockton, California, the microteaching concept has been used with student teachers in music for micro-rehearsals. Each student taught a fifteen minute single concept lesson to a nine-member musical group after which he reviewed the tape of his lesson and then re-taught the same concept.

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[17]David B. Young and Dorothy A. Young, "The Model in Use," Theory Into Practice, VII (December, 1968), p. 186.

[18]D. A. Kohn, "Videotaping Large Numbers of Prospective Student Teachers - Can It Be Effectively Accomplished," Audio-visual Instruction, XV (April, 1970), p. 105.

[19]Young and Young, op. cit., p. 188.

[20]Wolfgang Kuhn, "Holding a Monitor Up to Life," Music Educators Journal, LV (December, 1968), pp. 49-50.

The director of teacher training at the School of Education said that the first four interns to complete the course "made much more progress in the techniques of rehearsing in five weeks than any I have seen in a full semester of directed teaching."[21]

One unique aspect of microteaching, as practiced by many, is the self-evaluation process. Bedics did a thirteen week study in the Tuscaloosa, Alabama area elementary schools in which he investigated the differences between a group of student teachers receiving special training in self-evaluation techniques and two control groups which received no such training. The results showed that training in self-analysis techniques (the Reciprocal Category System and the Florida Taxonomy of Cognitive Behavior) "sensitizes student teachers to certain teaching acts." The study also indicated that the use of videotape recorders produced a climate of improvement in the student teachers and produced excitement and enthusiasm in the pupils.[22]

In-Service Teacher Training

Microteaching has emerged not only as an effective means of learning in student teaching, but also in teacher in-service training. The result of a study by Borg, Kallenbach, Morris, and Friebel indicated that increases in teaching skills of in-service teachers using

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[21] Lawrence H. McQuerry, "Holding a Monitor Up to Life-Microrehearsal," Music Educators Journal, LV (December, 1968), p. 53.

[22] Richard A. Bedics, "A Study of Self-evaluation of Student Teachers Through the Use of Video-Tape," (unpublished Ed. D. dissertation, University of Alabama, 1970), pp, 38-39, 147, 150-151.

microteaching techniques were higher than with pre-service teachers using the technique. The reason given was that the pre-service students had too much additional course work during the study and were unable to spend the time necessary for adequate preparation.[23]

An in-service microteaching course by correspondence has been offered by Colorado State College. The student, upon receiving the lesson, watched a model tape included with the lesson, read the accompanying literature, taped his lesson, and returned the tape. The tape was critiqued at the Child Study Institute and returned to the student. College credit was given with the course.[24]

At Stagecoach Intermediate School in Selden, New York, and at other schools across the country, an in-service program was carried out using mini-courses developed by Far West Laboratory for Educational Research and Development of Berkley, California. These courses were adaptations of the microteaching technique which focused on one area of teaching at a time. The teacher's performance was taped and then evaluated by a special check-list of teaching criteria on the particular area being studied. In addition to this, model tapes of master teachers covering a given area of teaching were used from which students may learn.[25]

As Rosenau described it, each mini-course contained,

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[23]Walter R. Borg, et al., "Videotape Feedback and Microteaching in a Teacher Training Model," Journal of Experimental Education, XXXVII (Summer, 1969), p. 16.

[24]Meier, op. cit., p. 146.

[25]J. Tanzman, "How Videotape Improves Teaching," School Management, XIII (August, 1969), p. 56.

> . . . an introductory film, instructional and model films, refresher films, handbooks, and evaluation forms. Ten percent of the time the teacher is "told" what to do, 20 percent of the time she's being "shown" what to do, and in the remaining 70 percent of the course she is actually "trying out" the new skills in a microteaching situation.[26]

The writer further added,

> But the key to the success of these new mini-courses seems to be the videotape recorder. Merely viewing films or reading handbooks would probably not change teacher behavior significantly. But practicing the new skill, seeing oneself immediately afterward on the videotape replay and then reteaching in light of that exposure does result in measurable change for the better, of course.[27]

At Wilmette, Illinois, beginning teachers were involved in an in-service program their first three years of teaching. Microteaching techniques were used along with help from master teachers from the school system the first year and college and university teachers the next two years.[28]

At Glennville, Illinois, the videotape recorder was also used in an in-service microteaching program in addition to classroom use.[29]

At an in-service workshop program by the Ohio Cooperative extension, as in other in-service programs, the videotape recorder

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[26]F. S. Rosenau, "From Classroom to Studio to Classroom: Minicourses for Pre-Service and In-Service Teacher Education," Audiovisual Instruction, XIV (February, 1969), p. 87.

[27]Ibid., p. 87.

[28]W. J. Attea, "VTR: In-Service Tool for Improving Instruction," Educational Leadership, XXVIII (November, 1970), p. 148.

[29]Ibid., p. 147.

served two functions. It was used to record teachers for self-evaluation and to bring pre-taped programs to the workshop.[30]

Moore wrote, "The videotaped performance is the most realistic account of how a teacher works and is thus being heavily promoted at all academic levels."[31] According to Sund and Tillery, teachers have been using videotape recorders without any prompting from supervisors or administrators.[32] More teachers are accepting the videotape recorder as a valid tool for learning not only in a formal class or course, but also in an individual professional effort toward pedagogical improvement. At the University of Texas, many faculty members have been taped for private evaluation.[33] Hess gives as an advantage of voluntary teacher taping that the tape may be erased and reused or it may be saved as designated by the teacher. He also stated that, "Experience has shown that it is not necessary to tape an entire class; a 15 or 20 minute segment done on several occasions has proven most informative."[34]

One problem with taping teachers for private use is that they might act differently on camera than in a normal teaching

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[30]C. J. Cunningham, "Videotape; a Teacher Education Tool for Adult Educators," Adult Leadership, XV (March, 1967), p. 332.

[31]Hank Moore, "Teacher on Camera," Texas Outlook, LIV, No. 5 (1970), p. 94.

[32]Robert B. Sund and Bill W. Tillery, "The Use of the Portable Tape Recorder in Science Education," Science Education, LIII (December, 1969), p. 417.

[33]Moore, op. cit., p. 45.

[34]Donald E. Hess, Jr., "To See Ourselves As Others See Us," New York State Education, LV, No. 3 (1967), pp. 8-9.

situation.[35]

Videotape Recorders in Music Education

Wiesner proposed the thesis that, "Videotapes may be used to great advantage in conjunction with existing music programs in higher education with only minor modifications of the existing format of the specific course or project in which it is to be used." He adds that, as opposed to the study of music theory, " . . . in the restricting sense of the term, the learning of which can be enhanced merely by auditory aids . . . in music education curricula, per se, we are faced with quite a different situation. Here we are often concerned with active, overt participation in the learning process."[36]

Videotape recorders have been used in many ways in college music programs. At one college it was used in a team teaching situation in a freshman music course. The value of its use was that, as in any lecture course, the same tapes could be played to all classes. Lectures of various instructors could be taped and played to all the class sections allowing for more preparation time on the part of each instructor. Another use was found when a lesson concerning a special instrument was taped on the only evening it was available to be viewed by all classes during their regular class period. It was reported that the quality of instruction was improved by the use of

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[35]Sund and Tillery, op. cit., p. 45.

[36]Glenn R. Wiesner, "Videotape in College Music Programs," The Illinois Music Educator, XXXI, No. 5 (1971), p. 14.

videotapes during the course.[37]

Videotape recorders have also been used in aiding students in the learning or improvement of instrumental techniques. At the Eastman School of Music it was used to show percussion students' stiff arm and wrist movements.[38] At the University of Oregon a series of instructional lesson tapes was made to use in teaching a basic piano class.[39]

A series of sequential lesson tapes for beginning string students was made at the campus school of State University of New York at Plattsburg. The program was structured so that each student could view each lesson as many times as needed and could progress faster than the rest of the class if able. The student could also begin with his own level of proficiency at the time of entrance to the program. The use of lesson tapes also allowed the instructor to be free during the class to give individual aid and instructions when needed.[40]

At the Eastman School of Music a unique use of videotape recorders was found in the Suzuki Project. Tapes were made of young string students and then mailed to Suzuki in Japan, after which

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[37]Jack B. Frank, "Teaching a Freshman Music Course on T. V.: A Case History," Audiovisual Instruction, XI, No. 2 (1966), p. 104.

[38]John H. Beck, "Audiovisual Aid in Percussion Instruction," Music Journal, XXVI, No. 3 (1968), p. 66.

[39]R. E. Sherriffs, "Old Ways to Solve New Problems: Videotaped Lesson Segments for Piano Classes," Audiovisual Instruction, XIII (September, 1968), p. 702.

[40]Vincent Consoli and Louis Pullano, "Teaching Strings Via TV," Instrumentalist, XXIII, No. 6 (1969), p. 22.

his comments and recommendations were returned, along with the tapes, for analysis and study.[41]

A brass instructor at North Texas State University and a radiologist produced a two hour videotape called "Videofluorographic Presentation of the Physiological Phenomena Influencing Trumpet Performance." The tape consisted of taped x-rays of brass players' mouth and throat areas made both during and after playing. According to Tetzlaff, "it gives musicians and music educators new understanding of the arch of the tongue, the thrust of the jaw, mouthpiece pressure, width of jaw opening, pivot (mouthpiece angle), and location of the tongue thrust on attack of notes."[42]

One of the problems with the use of x-ray is that too much exposure can be physically damaging to the subject, but " . . . radiation exposure for the subject in videotaping is only about one-eighth of that required for an x-ray movie.[43]

Videotape recorders have been of use in the training of conductors. Tietze said of Vaclav Nelhybel, after a week long directors' symposium, in which videotape recorders were used extensively, "He expressed great enthusiasm about the results and indicated that the use of video tapes is an invaluable help for the self-evaluation of the conductor."[44]

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[41] Charles Daellenbach, "Videotape Recorders at Eastman," Instrumentalist, XXI, No. 10 (1967), p. 28.

[42] Daniel Tetzlaff, "The Transparent Man," Instrumentalist, XXIII, No. 8 (1969), p. 81.

[43] Ibid., p. 82.

[44] William Tietze, "A Nelhybel Clinic With Focus on Musicianship," Instrumentalist, XXIV, No. 3 (1969), p. 72.

Hunter studied the use of videotape recorders in teaching certain physical conducting skills in a basic conducting class. The classes were divided into two groups--an experimental, which used videotape replay, and a control group, which was taught in a conventional manner. Although there were various weaknesses in the study, the results showed that "instant replay television as a method for teaching the physical aspects of conducting should be highly regarded."[45]

In addition to forthcoming research in the field of music education, Carpenter has suggested that video media research and theory of other areas of learning be applied, as far as possible, to music education. He stated that, by utilizing all available video media sources, "artistic literacy might be significantly advanced and extended to millions of people."[46]

Other Uses

At Troy, Alabama, videotape recorders have been used to tape classes for viewing by parents. Soloman reported that, "Videotape permits parents to view their child as a member of the class group. His reaction in that setting sometimes offers an insight into the child's behavior and attitude that make parent-teacher conferences a profitable experience."[47]

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[45]Hunter, op. cit., p. 67.

[46]C. P. Carpenter, "Potential Uses of Television and Films in Music Education," Music Educators Journal, LII (January, 1966), pp. 53, 56.

[47]Ellen Soloman, "New Approach to Parent Teacher Conferences," Alabama School Journal, LXXXVII (February, 1970), p. 6.

At Prairie View Agricultural and Mechanical College, videotapes have been used to expose the teacher corps program to the parents. The authors stated of this innovation,

> To most parents, this is a completely new experience, and the results have been surprising. Parents not only have become familiar with the work of the teacher corps in their school but also have demonstrated more interest in the work their children have been doing in the school.

Some of the tapes have been shown to PTA and other civic groups.[48]

Videotape recorders have been used also in the many areas of counseling. Meier gives one reason for its use:

> In counseling training, of course, the audiotape recorder has been a constant companion of the counselor-trainee for many years, and several well-designed and executed studies of the resultant tapescripts have been published. However, when only audio recording is used, the conspicuous absence of the many subtle nuances of body language in general, and of facial expressions in particular, makes it impossible to appreciate fully the communication between individuals.[49]

Thorenson conducted a study to see if counselors could help college instructors in improving certain areas of teaching behavior. After taping the instructor, the counselor reviewed the tape with the instructor and provided reinforcement. The results were positive.[50]

In Wisconsin, the Department of Public Instruction made several videotapes describing various jobs available in the state.

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[48]W. T. Dever, and Newton Moore, "Teacher Education Innovations," Texas Outlook, LII (November, 1968), p. 15.

[49]Meier, op. cit., p. 148.

[50]Carl E. Thorenson, "Video in the College Classroom: An Exploratory Study," Personnel and Guidance Journal," LV (October, 1966), pp. 144, 149.

The cameras were taken to the job site to show as realistically as possible exactly what the job entailed, and to show, "that working for a living is still respected."[51]

Kalick has proposed wide use of videotapes in teacher placement. Although there are disadvantages to its use, such as the fact that some teachers do not react well and do not exhibit their true ability on television, Kalick feels that the advantages outweigh the disadvantages. He stated,

> Indeed, it is hoped that in the not too distant future, television facilities will be such that it would be technically and economically feasible for a recruiting school system to observe on a local television monitor a lesson of a candidate who is student teaching many miles away or a lesson of another candidate who is teaching in a distant school system and wants to relocate.[52]

Sund and Tillery cite research as another use of the videotape recorder. Reasons given are that it is better and faster than such means of data gathering as questionnaires and test analyses.[53]

The videotape recorder has been used considerably as an instrument of relay from one classroom or lecture room to additional locations, thus allowing one instructor to address thousands of students at the same time. Through a team teaching effort various instructors may lecture on the area in which they have special train-

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[51] Carolyn Stewart and Jim Kissinger, "Schools Use Television to Focus on Job Opportunities," Audiovisual Instruction, XV, No. 4 (1970), p. 60.

[52] Perry M. Kalick, "Screen Testing Teacher Candidates," Audiovisual Instruction, XVI, No. 7 (1971), p. 77.

[53] Sund and Tillery, op. cit., p. 419.

ing or interest. They also are allowed less teaching time and more time for lesson preparation. At a small school in New York there was installed a network of one hundred receiver sets located all around the campus for lecture relays and many other uses. A transition to full color was planned in the near future.[54]

Notwithstanding these advantages there are disadvantages also, a main one being that there is a lack of communication between the student and teacher. In addition, there is also evidence of a lack of interaction among students.[55] Dotterweich wrote, "Remote teaching by videotape recording is a one-way street--the ultimate abuse of the lecture approach and the final interment of the Socratic method."[56]

At the University of Tennessee, efforts are being made to combat these problems. Here electrowriters have been used both at the transmission end and at the receiving end. The instrument is a small electronic writing surface which transfers markings to a receiving machine at the other end of the line and is then put on an overhead projector for all to see. Results of this type of limited interaction have been encouraging.[57] In a similar situation, the Uni-

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[54]Maurice G. Postley,and Verity L. Meacham, "Special Education Turns on with CCTV," Audiovisual Instruction, XVI (January, 1971), p. 27.

[55]G. S. Larimer and W. W. Sinclair, "Some Effects of Two-way Television and Social Interaction," AV Communication Review, XVII (Spring, 1969), pp. 53, 55.

[56]W. W. Dotterweich, "Enhancing the Effectiveness of Remote Teaching," Audiovisual Instruction, XVI, No. 2 (1971), p. 36.

[57]Ibid., pp. 40-42.

versity of Alabama Medical School in Birmingham uses a special telephone line so that viewers can call in questions.[58]

Portable videotape recordings do not present as beautiful a screen picture as many might wish. "The typical amateur quality of videotape recordings is not flattering, to say the least, and may be a severe blow to the narcissistic ego."[59] One must get accustomed to viewing one's self and being viewed by others on television. "Finding out how other people see us is a highly important and personal matter. It takes some getting used to."[60]

After resolving this initial ego problem, one finds acceptance of television very easy. In reporting on a program conducted at the University of Manitoba, called TIPS (Training Instructional Practice Sessions) which involved microteaching and videotape recorders, Wood and Hedly gave nine factors for its success. The two least significant factors were (1) the novelty of videotapes and (2) self-recognition via videotapes illustrating the passive acceptance of the equipment.[61]

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[58]Anita Smith, "Medical TV Making Impact," Birmingham News, April 2, 1972, Sec. A, p. 26.

[59]Meier, op. cit., p. 150.

[60]David S. Steward and Margaret S. Steward, "Teacher, Teach Yourself," Audiovisual Instruction, XV, No. 4 (April, 1970), p. 26.

[61]C. C. Wood and R. L. Hedley, "Training Instructional Practice Sessions (TIPS): Observations on Student Reaction to the Use of Videotape Recordings in Simulated Classroom Situations," Canadian Education and Research Digest, VIII (March, 1968), pp. 51-52.

The Physical Aspects of Conducting

There are many aspects of conducting that the successful conductor must master and to which the student of conducting must apply himself. The physical technique, with which this study is concerned, must be considered an important area, but only a portion of the whole art.[62] "The acquisition of a flawless technique is only the beginning of conducting."[63]

In addition to the physical technique of the art, Rudolf has given this particularization of the many other areas:

> It is very important that the conductor have a thorough knowledge of the composition and he should be familiar with various musical styles. He should also be aware of the problems of musical interpretation. A good working knowledge of instruments, both individual and in combination is indispensible. The ability to read an orchestral score, and, if necessary, play it on the piano is a vital part of the conductor's equipment. While absolute pitch is not a prerequisite the conductor's ear should be keen enough to recognize inaccuracy in pitch and to maintain proper balance. The mastery of all these elements will give him the authority to be a genuine leader.[64]

The importance of the physical technique to the art of conducting is well known. It can be compared to the technical training of an instrumentalist. Braithwaite has stated that,

> As instrumentalists learn their scales and arpeggios and their technique before venturing out as artists, the

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[62]Karl D. Van Hoesen, Handbook of Conducting (New York: F. S. Crofts and Company, 1960), p. 1.

[63]Warwick Braithwaite, The Conductor's Art (London: Williams and Norgate, Ltd., 1952), p. 11

[64]Max Rudolf, The Grammer of Conducting (New York: G. Schirmer, Inc., 1948), p. 1.

> conductor ought to learn the arm movements of his art before trying the patience of orchestral players or at least those of them who know their job.[65]

But with the conducting art there remains a unique disadvantage. The instrumentalist has the ability to seek out his improvements in solitude and to engage in many hours of practice undisturbed with his instrument. The conductor is denied this indulgence. He can never be alone with his instrument, that is, his orchestra, chorus, or whatever, and his most intense training must be done on the job.[66]

Conducting, as Malko stated, is the "result of a complicated psycho-physical activity," but the end result--the performance of the conductor--as for other musicians, is a "physical action."[67]

The following will be limited to eight general areas of physical technique. A review of the literature established no physical aspect that could not be placed into one of these eight categories.

Only one reference will be given for each ascription, although corroborative statements in many cases were encountered in the literature.

Preparatory Beat

The preparatory beat, which may be silent or played, depending upon the situation, should establish three things for the

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[65]Braithwaite, op. cit., p. vi.

[66]Bruno Walter, "The Conductor," in the Conductor's Art, ed. by Carl Bamberger (New York: McGraw-Hill, 1965), p. 158.

[67]Nicolai Malko, The Conductor and His Baton (Copenhagen: Wilhelm Hansen, 1950), p. 27.

performers: (1) tempo, (2) style and dynamic level, and (3) precision for a simultaneous attack.[68] It reflects the character of the music[69] and its direction should "approximate the direction of the movement preceding the beat upon which the music begins."[70] Kahn analogized this motion to " . . . taking a breath before singing, or, if a more vigorous start is required, to thrusting the arm back before throwing a ball."[71] Davidson has suggested the description of "warning beat."[72]

Malko classified preparatory beats as metrical and unmetrical, adding that for instances that do not require a metrical preparatory beat a double preparatory beat might be applicable. In such cases, for example, a fermata or very slow tempo, one preparatory beat essentially for wind player breathing is given, followed by another for the execution of the sound.[73]

Because of its musical importance as an initiatory motion, and the preciseness with which it must be executed, it is possibly the most difficult gesture that the conductor must master.[74]

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[68]Frank Noyes, Fundamentals of Conducting (Dubuque, Iowa: Wm. C. Brown Co., 1969), p. 3.

[69]Malko, op. cit., p. 66.

[70]Robert L. Garretson, Conducting Choral Music (Boston: Allyn and Bacon, Inc., 1961), p. 51.

[71]Emil Kahn, Conducting (New York: The Free Press, 1965), p. 8.

[72]Archibald Davidson, Choral Conducting (Cambridge: Harvard University Press, 1962), p. 2.

[73]Malko, op. cit., pp. 134, 138.

[74]Noyes, op. cit., p. 3.

Cueing

All cues are basically reminders, but in addition they also serve to help precision and unification in ensemble and section entrances.[75]

According to Malko, there are two classifications of cues. The first, overt in nature, but blending into the conductor's gestures, is given to show a main "theme, melody, phrase, period, counterpoint, fermata, change of dynamics, and tempo." The second, which is usually more discreet, is given "to show a player or a group of instruments the moment when to start playing."[76]

Cues can be given in several ways: with a finger,[77] by facial expressions,[78] by a nod of the head, by pointing with the left hand,[79] with the eyes alone,[80] or by combinations of the above.

The amount of cueing done by a conductor will vary. Some do not cue at all, feeling that it provides "technical guidance," rather than "spiritual," while others cue constantly.[81] Malko suggested that some conductors cue too much, and lose sight of musicality. "The giving of cues should be an organic link in the general process of conducting with the artistic performance as the final aim.[82]

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[75] Ibid., p. 43.

[76] Malko, op. cit., pp. 239-240.

[77] Ibid., p. 240.

[78] Garretson, op. cit., p. 63.

[79] Noyes, op. cit., p. 44.

[80] Van Hoesen, op. cit., p. 63.

[81] Kahn, op. cit., p. 74.

[82] Malko, op. cit., p. 247.

Dynamic Indication

The three means of expressing dynamics, according to Rudolf, are:

1. Changing the size of the beat pattern.[83] Malko suggested that this is not enough--the conductor must exhibit intensity (which he says is fundamental in dynamic expression) with the fingers, wrists, elbows, and shoulders.[84]

2. Utilization of the left hand--palm up, crescendo, palm down, decrescendo.

3. Moving right hand nearer to the body (piano) or further away from the body (forte).[85]

Rudolf warned that the conductor must guard against unwarranted tempo changes when changing dynamics.[86]

Kahn described the antics of some attempting to illicit a pianissimo response in this way:

> Some conductors place a finger--or even the whole hand--in front of their mouths; others hunch their shoulders as if about to crouch; some even bend their knees to make themselves smaller, thus trying to induce the orchestra to play softly . . . .[87]

Basic Beat Movement

Beat patterns generally indicate two things in addition to

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[83]Rudolf, op. cit., p. 52.

[84]Malko, op. cit., p. 205.

[85]Rudolf, op. cit., pp. 27, 53, 54.

[86]Ibid., p. 60.

[87]Kahn, op. cit., p. 70.

tempo and measures or bars--(1) style, and (2) dynamics. Green gave three things that are important in time-beating: "(1) a good sense of rhythm, (2) muscular relaxation that permits the free swinging of the baton arm, and (3) a readable pattern in shaping the beats."[88]

The beat patterns must be clear--"clearness . . . is the elementary principal of conducting,"[89]--and they should be located generally in the area in front of the conductor between the shoulder and waist.[90] The conductor should be consistent with their location.[91] "Too frequent change of the field of beating disrupts the continuity of gesture and confuses the players."[92]

The conductor must guard against becoming purely a time beater. Berlioz stated that conducting done with the mathematical regularity of a metronome, "would become of freezing stiffness."[93] The conductor does not need to continually beat uniformly in every bar. He should change his patterns accordingly to the character of the phrase, "and the whole set of conditions which builds artistic expressiveness thus combining the purpose of time-beating with

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[88]Elizabeth Green, The Modern Conductor (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1969), p. 19.

[89]Malko, op. cit., p. 72.

[90]Rudolf, op. cit., p. 241.

[91]Nilo Hovey, "Five Ways to a Better Band," (Printed Clinic Outline, Elkhart, Indiana: H. and A. Selmer, Inc.), p. 1.

[92]Rudolf, op. cit., p. 241.

[93]Hector Berlioz, The Orchestral Conductor - Theory of His Art (New York: Carl Fisher, 1902), p. 3.

conducting as such."[94]

Malko stressed the importance of the wrist in time-beating. The wrist must be very free--it must have "perfect subordination to the will."[95]

Time-beating, with its many "pecularities and details," is one of the most fundamental and technical aspects of conducting.[96] Although many books attempt to diagram beat patterns, none can represent all their various movements and directions.[97]

Each conductor's beat movements are unique in at least some small way to him alone. Kahn has made the analogy of learning to write to learning to conduct. When we learn to write the alphabet "we are taught to adhere very closely to the letter patterns of the alphabet," but later as our handwriting develops, we find it changed and uniquely our own. "It is much the same when it comes to the established beat patterns of conducting."[98]

Independence of Hands

One of the most neglected and difficult aspects of the conducting technique is correct use of each hand--independence of the hands. Braithwaite stated,

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[94]Malko, op. cit., p. 98.

[95]Ibid. p. 105.

[96]Ibid., p. 65.

[97]Davidson, op. cit., p. 23.

[98]Kahn, op. cit., p. 1.

> The right hand is the time master; the left is something more--it is the director of phrasing, nuance, very often intense dynamics, and there is in most conductors a subconscious technique of the left hand, subconscious to such a degree that if you told them they used it, they wouldn't believe you. Some conductors, of course, have neither technique nor use for the left hand; it is either a pale reflection of the right or hangs limply by the side. Some just flap the left arm in time with the right--a boring and ugly habit.[99]

The left hand, specifically, is used to:

(1) Cue[100]

(2) Convey

- a. expressiveness[101]
- b. dynamics
- c. articulation[102]

(3) Emphasize

- a. tempo change
- b. syncopation[103]

(4) Strengthen

- a. accents[104]
- b. releases[105]

The left hand should be in a position of neutrality when not in use[106] and should not mirror the right except on special occa-

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[99] Braithwaite, op. cit., p. 46.

[100] Noyes, op. cit., p. 92

[101] Malko, op. cit., p. 252.

[102] Noyes, op. cit., p. 93.

[103] Kahn, op. cit., p. 73.

[104] Ibid., p. 58.

[105] Garrettson, op. cit., p. 63.

[106] Rudolf, op. cit., p. 285.

ions.[107] As Rudolf stated, " . . . even the best conductors do it occasionally (mirror) but only at moments of great climax. To double continually is a sign of lack of control."[108] Hoesen wrote,

> The gaining of freedom and fluency in the use of the left hand is worthy of diligent study, for the manner in which a conductor uses his left hand is highly indicative not only of his experience but also of his very success as an interpreter.[109]

Aside from several basic rules that all good conductors follow, the use of the left hand, as with other facets of conducting, is an individual thing. Arturo Toscanni, one of history's greatest conductors, as Malko has observed, often rested his left hand on his hip. Most conductors who attempt to imitate him usually do so with very negative results.[110]

Cut-Offs or Releases

Generally, there are two types of releases--those which release in meter, and those which do not.[111] The release is, in most cases, done by a circular motion "to the right downward and to the left," and must be very precise for a clear release. Preceding the release is a preparatory motion which may either be to the right or left, whichever is appropriate.[112] This preparatory motion for

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[107] Malko, op. cit., p. 251.

[108] Rudolf, op. cit., p. 243.

[109] Van Hoesen, op. cit., p. 57.

[110] Malko, op. cit., p. 266.

[111] Ibid., p. 189.

[112] Noyes, op. cit., p. 14.

the release is as important as such a motion for an attack.[113]

Malko wrote,

> The problem of cutting off a sound is one of the most important and most difficult in the technic of the conductor. In solving it, as well as in other phases of technic, the individual qualities of the conductor have great significance. And certainly here, as in the whole activity of the conductor, the display of individuality implies two conditions--clear understanding of the technical problems and personal experience.[114]

Face and Eyes

Eye contact with the performing group is essential for good response. Rudolf stated, "The eyes are an invaluable means of establishing personal contact between the conductor and the players." They should be used as such often and eye contact with the score should be minimized.[115]

Posture

Posture, again, is an individual trait of the conductor. Malko advocates a firm, upright stance with the choice of placing one leg "sideways or forwards."[116] Many authors say nothing concerning posture, but leave the matter to discretion or common sense.

Summary

This chapter has attempted to show some of the varied uses of the videotape recorder in education with primary emphasis on its

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[113] Van Hoesen, op. cit., p. 69.

[114] Malko, op. cit., p. 204.

[115] Rudolf, op. cit., p. 242.

[116] Malko, op. cit., p. 39.

use in colleges of education. Some mention was made of the problems encountered in both practical and experimental use. In addition, some of its prospective diverse applications were cited.

The latter part of the chapter was concerned with a review of conducting literature in respect to the physical aspects of conducting.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this study was to investigate the use of the videotape recorder as an aid in improving the physical aspects of conducting and to develop an evaluation instrument for use in the study.

Research Hypothesis

It was hypothesized that the student conductors would show significant improvement in the physical aspects of conducting when video experiences became a part of the planned process of their development.

Procedure for the Study

Following is the procedure used in the study:

(1) Three subjects were selected for participation in the study. No choice was allowed, since there were only three student teachers available at Tuscaloosa High School during the semester.

(2) The subjects were taped for viewing and evaluation. Each student was taped four times with approximately a two week interval between each taping.

(3) Viewing conferences were held after each taping. The student conductors viewed the tapes together and discussed conducting problems which were observed in the tapes.

(4) A final evaluation was held after the fourth taping session. The first and fourth tapes of each subject were evaluated by two recognized University of Alabama conductors.

(5) The data obtained from the final evaluation were analyzed and the study evaluated.

These procedures will be discussed more extensively below.

Subjects

The study involved three student teachers from the University of Alabama who were majoring in music education and were engaged in student teaching at the secondary level. Two of the students were student teaching with the Tuscaloosa High School Chorus and one with the Tuscaloosa High School Band. All three of the subjects had completed the basic conducting course offered at the University. Two had had the advanced undergraduate course in conducting and some previous experience directing choral groups in churches. The remaining student was completing the advanced undergraduate conducting course simultaneously with this study and had had no previous experience directing any musical group.

Evaluation Criteria

The evaluation criteria[1] were developed as a result of research concerning the physical aspects of conducting reported in Chapter Two. The eight areas of the criteria are the same as eight of the nine areas found in the criteria of a study by Hunter concerning

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[1]See Appendix A.

the use of videotape replay in conducting classes. The ninth area of Hunter's criteria was not included in this study because it was not germaine to the study since it had no direct relation to the physical aspects of conducting.[2]

The review of the literature resulted in no additions to the eight areas.

Evaluation Instrument

The evaluation instrument was a checklist devised from the criteria in which the behavioral statements were changed into question form. During the course of the study there resulted, from modifications in the original instrument (Form A) two additional forms--Forms B and C.[3]

After viewing the first tape, it was felt that the objective responses obtained by rating scales, rather than the comparatively limited results obtained by the original instrument (Form A) might be more helpful to the student. This modification, the substitution of a rating scale in place of blanks, resulted in Form B (Figure 1).

Form A:

Are posture and stance appropriate? _____

Form B:

Are posture and stance appropriate? 1 2 3 4 5

Figure 1.--Modification of Form A

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

[3]See Appendix B.

Form C, which was used for the final evaluation, was only a slight modification of Form B. Each block on the rating scale was labeled with a description--poor, below average, average, good and excellent. This modification produced a more definitive view of the rating (Figure 2).

Form C:

	Poor	Below Av	Average	Good	Excellent
Are posture and stance appropriate?					

Figure 2. --Modification of Form B

Pre-Study Conferences

Prior to the study, the subjects met with the author and his advisor, Dr. Edward Cleino, during one of their regular student teacher seminar meetings to discuss the procedure for the study. The students were given tentative dates for the tapings and a list of the criteria to be used in the study.

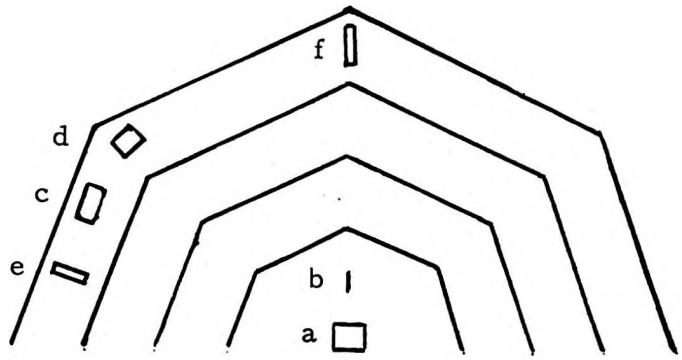
There was also a meeting of the cooperating teachers, Mrs. Joy Dendy, the choral director; Mr. William Benton, the band director; the author; and Dr. Cleino. The general outline of the study was discussed and a copy of the criteria along with a tentative list of taping dates were approved by all concerned.

Taping Procedure

The first and fourth tapings were made by University of Alabama Television Services in the band room at Tuscaloosa High School. A listing of the equipment used can be found in Appendix D. Both of these tapings were placed on the same reel of videotape so that they could be played without interruption for the final evaluation. Each student teacher was allowed approximately a ten-minute taped rehearsal after which a non-stop performance of the band or chorus was taped, with the student teacher conducting. For the last taping the student was allowed no rehearsal time on tape--only the non-stop performance.

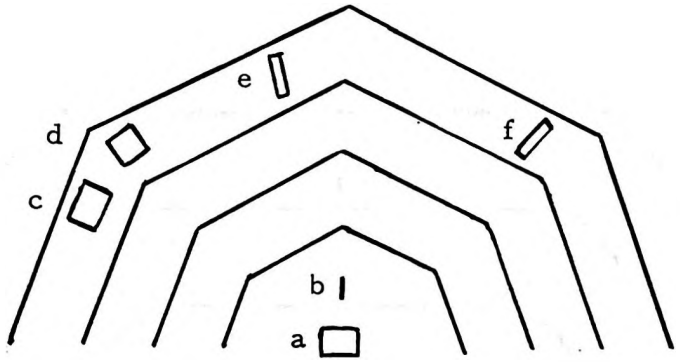
Two cameras were used for each taping. They were placed as shown in Figure 3 below and were moved during the first taping to the position as shown in Figure 4 for better views of the conductors. The last taping was done with camera locations similar to the latter.

Tapings two and three were done with a portable videotape recorder owned by Tuscaloosa High School and loaned to the author by its principal. A list of this equipment can be found in Appendix D. These tapings were done by the author both in the band room and in the choral room since it was feasible to move this portable equipment. A diagram of this equipment set-up is shown below in Figures 5 and 6. This set of equipment consisted of only one camera and the necessary recording equipment.



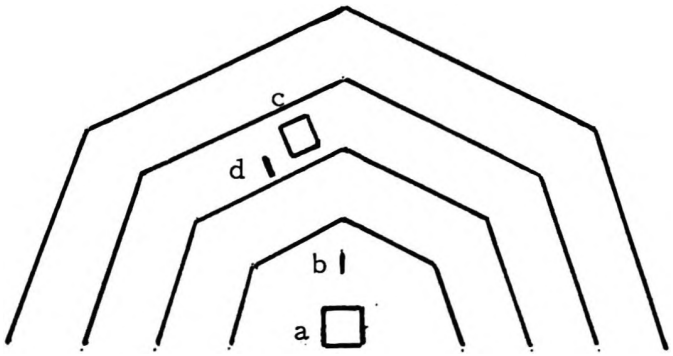
a. Subject
b. Microphone
c. Recorder
d. Monitor
e. Camera One
f. Camera Two

Figure 3. --Physical Arrangement of University Television Services Videotape Equipment (original)



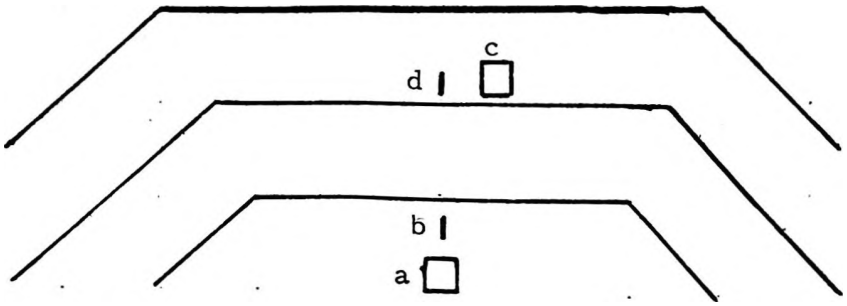
a. Subject
b. Microphone
c. Recorder
d. Monitor
e. Camera One
f. Camera Two

Figure 4. --Physical Arrangement of University Television Services Videotape Equipment (modified)



a. Subject
b. Microphone
c. Recorder & Monitor
d. Camera

Figure 5. --Physical Arrangement of Portable Videotape Equipment In Band Room



a. Subject
b. Microphone
c. Recorder & Monitor
d. Camera

Figure 6. --Physical Arrangement of Portable Videotape Equipment In Choral Room

Viewing Procedure

The viewing of the first tapes was conducted in the main studio of the University of Alabama television station. It was necessary that clarification of the criteria and the checklist be accomplished prior to the viewing. The subjects verified that they understood the criteria and the evaluation checklist was then explained and discussed briefly. The viewing began immediately afterward.

After each tape segment was viewed, the tape was stopped and that segment was discussed. After the last segment the entire tape was again viewed without stopping and was followed by a final brief discussion.

The scores of the music conducted were available for reference during the session. A chart of the seating arrangement for each performing group was placed adjacent to the television screen during the appropriate segment. This was done to aid in checking the direction of the cues given but was later discarded as it was felt to be unnecessary.

The checklist was available for the students to rate each other but was not used often. The completed checklists were given to the appropriate student conductor for study and reference. It should be noted that the students were not required to complete the evaluation sheet. It was decided later to modify the checklist for easier and faster evaluation.

In addition to each subject pointing out problems of their peers, all subjects asked for opinions concerning various personal aspects about which they were concerned after viewing themselves on

tape. One student, for example, was concerned about his posture, but after being assured by the other two that his posture was not unattractive, he seemed to be much more at ease. Reinforcement such as this occurred several times and seemed to be one of the greatest immediate results of the viewing session.

The second viewing session was held in the conference room adjoining the Tuscaloosa High School principal's office. This session was held in the afternoon and was not as productive as the first. The student teachers seemed to be tired after working all day, and much of the enthusiasm present in the first viewing session was absent. The procedure for this session was the same as the first. The checklist (which had been revised) was used even less than during the first session. It was used as a reference mostly to recall some of the criteria for discussion.

Viewing session number three was held in the same room as the second session in the afternoon following the taping and was carried out in a similar manner. The discussion covered a few points about which the students were concerned. Concentration was lacking as it was in the third session. It is ascertained by the writer that the reason was, as stated above, that the students were tired from working all day.

The fourth tape was not viewed by the students because of scheduling problems. Since this was the last taping, the results of the study would not be affected by this.

Music

The choice of music for the tapings was left to the student teacher. Their choice, to some degree, was governed by the music being prepared by the music groups which they were conducting and the actual conducting time allotted each student teacher.

Music Groups

Two of the student conductors conducted a mixed chorus for all the tapings. The Senior Mixed Chorus was used for the first two tapings and, for tapings three and four, the Junior Mixed Chorus was used because of a schedule conflict. Both groups were similar in capability and size.

The other student conductor conducted the Symphonic Band on tapings one, two and four. One of his experiences during student teaching was to direct the high school stage band, and at the time of the third taping, he was conducting the final rehearsal for a performance with this group. Since knowledge of and ability to conduct the stage band is part of the director's program in most high schools, this adaptation was deemed justifiable.

Final Evaluation

The final evaluation was held in the main studio of University Television Services. The two evaluators were recognized University of Alabama conductors, each holding a doctorate and each having had several years of teaching as well as conducting experience. One was a choral specialist and one was an instrumental specialist.

The evaluation proceded as follows:

1. The evaluators were given a copy of the instruction sheet (Appendix C), six copies of the evaluation sheet (Form C, Appendix B) and an evaluation questionnaire (Appendix C).

2. After the evaluators had read the instruction sheet, the tape was played. The entire tape consisted of six segments, the first and fourth tapes for each of three subjects. After each segment was viewed, the tape was stopped to allow the evaluator to complete their evaluation of that segment.

3. After all segments had been played and all the evaluation sheets had been checked, the evaluators were asked to complete the questionnaires.

The data obtained by the final evaluation will be presented in the following chapter.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this chapter is to present and analyze the data obtained by the final evaluation. These data later will serve as a basis for conclusions and recommendations.

Evaluation Procedure

The final evaluation was conducted in the main studio of the University of Alabama Television Services. The two evaluators were recognized conductors from the faculty of the Department of Music of the University of Alabama and each had several years experience as a conductor and teacher.

The tapes evaluated were the first and fourth tapes made in the study. Two tape segments of each of three subjects were evaluated--one segment from the first taping session and one from the last. This total of six segments was placed on one reel of videotape for more convenient viewing.

Before beginning the actual evaluation, the evaluators were given an instruction sheet explaining the entire evaluation procedure. Following this the first segment was played for evaluation.

The tape was stopped after each segment to allow the evaluators time to finish evaluating that segment. After all six segments had been played, the evaluators were asked to complete

a questionnaire concerning the evaluation instrument and procedure.

Null Hypothesis

It was hypothesized that the student teachers would show no improvement in the physical aspects of conducting when videotape experiences became a part of the planned process of their development.

Analysis

Following is the analysis of the results of the data obtained by the final evaluation. All computations were done by computer using the chi square method of statistical analysis.

The analysis was done in three phases: by question (32 questions), by area (8 areas consisting of the several questions within that area), and one computation on the overall total. Because of a minimum of subjects, only two evaluators, and consequently small degrees of freedom, most computations by question produced extremely high levels of probability. For this reason, chi square computations by questions will not be cited in the analysis, their reliability for valid inferences being somewhat dubious.

Table 1 shows the results of the analysis of the data by the eight areas and the overall or total of all eight areas. Also mentioned in the analysis are improvements made by individual subjects. It should be noted that these comments are visual observations made by the author from the data. They have no statistical basis and must be read as such.

1. Preparatory Beat. --The criteria for evaluating the

Table 1

CHI SQUARE RESULTS BY
AREA AND OVERALL

	Area	Degree of Freedom	Chi Square	Probability Level
1.	Preparatory Beat	3	2.611	0.542
2.	Cueing	2	5.294	0.069
3.	Dynamic Indication	2	9.722	0.008*
4.	Basic Beat Movement	3	6.751	0.080
5.	Independence of Hands	3	18.330	0.001*
6.	Cut-offs	2	2.533	0.281
7.	Face and Eyes	3	3.600	0.308
8.	Posture	3	3.238	0.357
	Overall	4	41.741	0.000*

*Indicates significant change (0.05 or below)

subject in this area included (1) clearness and correctness in execution of the preparatory beat, and (2) its use as an indicator of tempo, style, and dynamics. The only student who appeared to show improvement was Student C who showed only a slight change--one which might be described as from below average to average.

The chi square results indicated no significant change in this area when the ratings of the three subjects were combined. The probability level of 0.542 is considerably higher than the 0.05 required for significance indicating that the results could have occurred by chance in more than 50 per cent of such cases, therefore, the null hypothesis was accepted.

2. Cueing. --The criteria for evaluating the subject in this area included (1) the appropriateness of the cues, (2) the blending of the cues into the other gestures, and (3) the execution of eye contact preceding the cues. Students A and B appeared to show no significant improvement in this area, and Student C showed only slight improvement.

The chi square results indicated no significant change in this area when the ratings of all three students were combined. The probability level of 0.069 is slightly higher than the 0.05 required for significance, indicating that the results could have occurred by chance in six per cent of such circumstances, therefore, the null hypothesis was accepted.

3. Dynamic Indication. --The criteria for evaluating the subject in this area included (1) the size of the dynamic indication, (2) the placement of the right hand in relation to the body while

indicating dynamics, (3) the indication of dynamics by beat patterns, and (4) the appropriate execution of fermati. Only Student C made any identifiable improvement in this area. This change might be described as below average to average.

The chi square results indicated a significant change in this area when the ratings of the three subjects were combined. The probability level of 0.008 is considerably less than the 0.05 required for significance at the five per cent level and also less than the 0.01 required for significance at the one per cent level. This indicates that the results could have occurred by chance in less than one per cent of such circumstances, therefore, the research hypothesis was accepted.

4. Basic Beat Movement. --The criteria for evaluating the subject in this area included (1) the placement of beat patterns, (2) their indicativeness of style and dynamics, and (3) the use of a relaxed wrist in their execution. Student C made the only identifiable improvement in this area also. This improvement might be described as, below average-average, to average-good.

The chi square results indicated no significant change in this area when the ratings of all three subjects were combined. The probability level of 0.080 is slightly higher than the 0.05 required for significance indicating that the results could have occurred by chance in eight per cent of such circumstances, therefore, the null hypothesis was accepted.

5. Independence of Hands. --The criteria for evaluating the subjects in this area included (1) the use of the left hand for various

purposes such as cueing, conveying musical style, emphasis, and adding strength to attacks and releases, and (2) the independence of the hands. All three subjects appeared to have improved in this area.

The chi square results indicated a significant change in this area when the ratings of all three students were combined. The probability level of 0.001 is considerably less than the 0.05 required for significance at the five per cent level and also less than the 0.01 required for significance at the one per cent level. This indicates that the results could have occurred by chance in less than one per cent of such circumstances, therefore, the research hypothesis was accepted.

6. Cut-offs and Releases. --The criteria for evaluating the subject in this area included (1) execution of cut-offs which reflect the style of the music and (2) execution of a preparatory motion prior to a fermati. The data indicated that none of the subjects made any identifiable progress in this area.

The chi square results indicated no significant change when the ratings of all three subjects were combined. The probability level of 0.281 is considerably higher than the 0.05 required for significance indicating that the results could have occurred by chance in 28 per cent of such circumstances, therefore, the null hypothesis was accepted.

7. Face and Eyes. --The criteria for evaluating the subject in this area included (1) eye contact with the performers, (2) facial expressions as they relate to the music, and (3) frequency of eye contact with the score. Student C appeared to have made the only

identifiable improvement though not a significant improvement.

The chi square results indicated no significant change in this area when the ratings of all three subjects were totaled. The probability level of 0.308 was much higher than the 0.05 required for significance indicating that the results could have occurred by chance in more than 30 per cent of such circumstances, therefore, the null hypothesis was accepted.

8. Posture. --The criteria for evaluating the subject in this area included (1) the use of correct and appropriate stance, and (2) the use of correct and appropriate body movement. Student C appeared to have made the only significant improvement and can be described as, below average-average, to average-good.

The chi square results indicated no significant change in this area when the ratings of all three subjects were totaled. The probability level of 0.357 was higher than the 0.05 required for significance indicating that the results could have occurred by chance in more than 35 per cent of such circumstances, therefore, the null hypothesis was accepted.

Overall. --The chi square results showed a significant change when the ratings in all areas of all three subjects were totaled. The probability level of 0.000 was less than 0.05 required for significance at the five per cent level and less than the 0.01 required for significance at the one per cent level indicating that the results could have occurred by chance in less than one per cent of such circumstances, therefore, the research hypothesis was accepted with considerable certainty.

As noted, only two areas showed a significant change although there was a very significant change in the overall total. It would seem, when reviewing the overall results, that there should, by logic, be more significant increases in the areas. The reason for this paradox is that the computations by area (and especially by individual question, as has already been noted) were done with an inadequate number of observations which resulted in high probability levels. Had each computation had an adequate number of observations, as did the overall analysis, more significant results would have been obtained.

Questionnaire Results

The results of the evaluator questionnaires indicated complete concordance between the evaluators. The questionnaires consisted of eight objective questions--five concerning the evaluation instrument and three dealing with the adequacy of the tapes--and one question requesting suggestions for improvements in the evaluation procedure. The evaluators' objective answers were identical, all of which asserted the efficaciousness of the evaluation. In addition, they each indicated one identical recommendation for improvement--that a more careful selection of music be made, to assure adequate demonstration of all of the evaluation criteria, and thereby facilitating the evaluation procedure.

One evaluator expressed the opinion that the evaluation form should include a question concerning clear and appropriate beat patterns. Although the existing questions on the evaluation instrument approach this, they are not identical with it.

Summary

The analysis of the data produced the following results:

1. Two areas showed significant improvement: Area 3, Dynamic Indication, had a probability level of 0.008, and Area 5, Independence of Hands, had a probability level of 0.001. Each was significant at the 0.01 level, therefore, the research hypothesis was accepted for both of these areas.

2. The overall results indicated a significant improvement. The 0.000 is less than the 0.05 required, therefore, the research hypothesis was accepted.

3. The results of the questionnaire showed that, in the opinion of the evaluators, the evaluation checklist was correct in its content and adequate in scope for evaluating the physical aspects of conducting. The evaluators were in complete accord in their answers to the objective questions, and each indicated the identical recommendation that a more careful selection of music which adequately demonstrates all the conducting criteria should be considered.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate the use of the videotape recorder for the improvement of the physical aspects of conducting school music groups. The study was carried out at Tuscaloosa High School using three student teachers from the University of Alabama. Each student was taped four times with approximately a two week interval between each taping. Viewing sessions were held after each taping for evaluation and analysis. The first and fourth tapes of each of the three subjects were evaluated by two recognized conductors from the University of Alabama faculty. Following the evaluation a questionnaire concerning the evaluation procedure was completed by the two evaluators.

The results of the evaluation were tested by chi square method of statistical analysis for significant improvements. All computations were done by computer.

Conclusions

Before any conclusions will be mentioned, there should be noted here certain factors inherent in the study which had significant detrimental effects on the results.

(1) The number of subjects was too small. The use of three subjects, as previously noted, limited the statistical validity of the results.

(2) The number of evaluators was too small. Two evaluators were used for the final evaluation and, although they were entirely competent, a larger number would have enhanced the validity of the results.

(3) The study covered too short a time span to allow for the desired development. The study, for several reasons, was limited to seven weeks; had it lasted the entire semester, it would have extended the possibility of more predictable conclusions.

(4) The music generally was not conducive to an effective evaluation. The selection was left up to the student teacher, and in most cases did not allow him to demonstrate all the physical aspects of conducting listed on the criteria. This resulted in a lack of accord between the criteria and the conducting problems evidenced by the music being used in the evaluation.

Improvement of these factors would probably have resulted in more definitive results.

Since this study was undertaken as a pilot project of an exploratory nature, definitive conclusions cannot be drawn from the data. However, the data do allow certain inferences to be made.

The chi square value of 0.000 on the overall total of all the areas indicated that a significant change did occur during the study. Since the study was not of the experimental design, it cannot be said that the progress was made as the result of the use of the

videotape recorder in this study. It is a safe assumption, however, that the use of the videotape recorder should be considered as an aid in teaching the physical aspects of conducting.

Although there were only two areas which showed a significant change during the study--dynamic indication and independence of hands--it cannot be said that change in the other six areas would not have occurred had the design of the study been so as to exclude some of the limitations cited above, especially the first and second.[1]

Recommendations

It is recommended that a similar study be made, utilizing a population large enough to allow conclusive results. This could be accomplished by either doing the study during a semester when a large number of student teachers is available or over a period of several semesters. An experimental design might be considered in order to compare the videotape results with those of traditional methods. It is also recommended that the study be lengthened to cover the entire semester rather than a few weeks out of the whole.

The final evaluation should include at least three evaluators. This should aid in producing more valid statistical data.

There should be more selectivity involved in choosing the music. If possible, selection prior to the beginning of the study might be helpful. Music selected should present conducting problems corresponding with the evaluation criteria.

The viewing session conducted at night seemed to be more

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[1] Supra, p. 57.

effective than the ones immediately after school when the students had worked all day and were tired. Since viewing periods which are conducive to learning are essential, forethought should be given to their scheduling. A relaxed atmosphere, possibly at night when the students have rested some, might be advantageous.

Two of the tapings for this study were done by the University of Alabama Television Services using broadcast quality equipment which consisted of two cameras, a recorder which used one inch videotape, and a console monitor switchboard. The other two tapings were done with a small portable videotape recorder using one-half inch tape. The latter type machine is the most practical for a study such as this. There are a few minor problems encountered with its use which will be noted here.

First of all, the camera used with the portable set in this study did not have a zoom lens. This requires that the camera, to produce a picture of a given size must be an exact distance away from the subject. This puts the camera in an awkward position when taping the student who is conducting a large group. In such a case, the camera must be placed, to provide a preferred view of the conductor, within the physical limits of the group's seating arrangement. With the utilization of a zoom lens, this problem could be eliminated by placing the camera well behind the group.[2]

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[2]The reader will note in Figure 5, page 42, that the small camera in this study was placed on the second tier of the bandroom which was within the seating arrangement of the band.

The monitor provided with this small set had a 7" screen[3] which served very well for monitoring the taping. However, it did present a problem when the students were asked to view the tape on this small screen since there was no large screen set available. The small screen is inadequate for extended viewing and creates an even greater problem when several persons must view the tape together. Provisions should be made to play back the tape on a large screen.

It is possible to purchase recorders that utilize videotape cartridges as opposed to the reel-to-reel tape used in this study. The cartridge provides for faster and easier operation--an important factor when the machine is to be operated by inexperienced teachers or students.

Student teaching is only one situation in which the videotape recorder might be used for improvement of the physical conducting skills. Its use could be advantageous in many other situations where the conducting art is learned: in conducting courses; in private instructions; in workshops, conferences and symposiums; and through individual efforts in professional and amateur experience. Its use in any one of these situations could provide the basis for a worthwhile study.

Education is a viable profession in which change and improvement are normal--indeed essential--where experimentation effects conventionality. Indications are that the videotape recorder will be,

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[3]There is no monitor screen at the rear of this camera as there is on the larger and more expensive cameras.

in the future if not already, accepted as a conventional rather than experimental tool for learning.

APPENDIX A

EVALUATION CRITERIA

1. Preparatory Beat

   a. The preparatory beat indicates

      1. tempo (unless music following is unrhythmical)
      2. style
      3. dynamics

   b. The preparatory beat is clear enough to ensure a precise and simultaneous attack from the performers. Both hands may be used.

   c. The direction of the preparatory beat approximates that of the beat preceding the beat to be executed (exp.: for conconducting a note to be played on the 4th beat of a four beat measure, the preparatory beat should approximate that of the third beat of that four beat pattern).

2. Cueing

   a. Cues are made in a variety of ways. By:

      1. the pointing of a finger
      2. simply looking at the individual or groups
      3. a nod of the head
      4. discreetly pointing with the left or right hand
      5. variations or combinations of these

   b. Cues (as far as possible) are blended into the conductor's gestures.

   c. When cueing only one performer, the cue is made in a manner not distracting to the rest of the performers.

3. Dynamic Indication

   a. Dynamics are indicated by the palm facing up and moving upward for crescendo and down for decrescendo.

   b. On fermati, both hands may be used.

   c. Dynamics are indicated by the size of the beat pattern.

d. Dynamics are also indicated by moving the right hand nearer (piano) or farther away (forte) from the body.

4. Basic Beat Movement

a. Beat patterns indicate:

1. style
2. dynamics

b. Beat patterns are generally executed on a plane between shoulders and waist.

c. Generally the wrist is relaxed to allow a flowing motion in beat movement.

5. Independence of Hands

a. Left hand is used very sparingly as a time beater--is useful to add strength.

b. Left hand is used to:

1. cue
2. convey:
   a. phrasing
   b. dynamics
   c. articulation
3. emphasize
   a. tempo change
   b. syncopation (when right hand is occupied with other duties)
4. strengthen:
   a. attacks
   b. releases

c. The left hand does not mirror the right hand except on rare occasions.

6. Cut-offs

a. For holds or fermati, a preparatory motion is used. It may be to the right, left or upward (whichever is appropriate).

b. Style determines the manner of execution.

7. Face and Eyes

a. Eye contact with performers is kept as much as possible.

b. Facial expressions reflect the mood and character of the music.

c. Good eye contact is not possible when conductor keeps his eyes in the score. Attention is divided between reference to select and strategic points in the score and the organization being conducted.

8. Posture

a. The conductor generally assumes a comfortable posture with feet placed about shoulder width apart or one foot slightly behind the other. These positions may be altered to convey musical expression.

b. Excessive and distractive bodily movement is avoided.

APPENDIX B

CHECK-LIST

Form A (Sample page)

1. PREPARATORY BEAT

   A. Do they indicate -

      tempo? _____

      style? _____

      dynamics? _____

   B. Are they clear enough? _____

   C. Are the directions of movements correct? _____

GENERAL COMMENTS

_____

_____

_____

2. CUEING

   A. Are they appropriate to the music and the situation?

   B. Do they blend into the beat patterns and the other gestures?

   C. Are they distracting to performers for whom they are not intended?

GENERAL COMMENTS

_____

_____

_____

_____

CHECK-LIST

Form B (Sample page)

1. PREPARATORY BEAT

A. Do preparatory beats indicate

1 2 3 4 5

1. Tempo? ☐☐☐☐☐

2. Style? ☐☐☐☐☐

3. Dynamics? ☐☐☐☐☐

B. Are the preparatory beats clear enough to elicit intended response? ☐☐☐☐☐

C. Do preparatory beats move in correct direction? ☐☐☐☐☐

COMMENTS

_____

_____

_____

2. CUEING

A. Are cues appropriate to the music and the situation? ☐☐☐☐☐

B. Do cues blend into the beat patterns and other gestures? ☐☐☐☐☐

C. Are cues distracting to performers for whom they are not intended? ☐☐☐☐☐

D. Are cues preceded by eye to eye contact? ☐☐☐☐☐

CHECK-LIST

FORM C

Videotape Segment No. ____

	Poor	Below Av	Average	Good	Excellant
1. PREPARATORY BEAT					
A. Do preparatory beats indicate					
1. Tempo?	☐	☐	☐	☐	☐
2. Style?	☐	☐	☐	☐	☐
3. Dynamics?	☐	☐	☐	☐	☐
B. Are the preparatory beats clear enough to elicit intended response?	☐	☐	☐	☐	☐
C. Do preparatory beats move in correct direction?	☐	☐	☐	☐	☐

COMMENTS

_____

_____

_____

2. CUEING

A. Are cues appropriate to the music and the situation? ☐ ☐ ☐ ☐ ☐

B. Do cues blend into the beat patterns and other gestures? ☐ ☐ ☐ ☐ ☐

D. Are cues preceded by eye to eye contact?

COMMENTS

_____

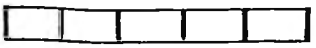
_____

_____

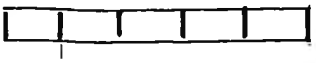
3. DYNAMIC INDICATION

A. Are the crescendo and diminuendo gestures of appropriate size and duration?

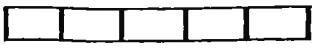
B. Are the fermati executed properly?



C. Do the beat patterns indicate dynamics?



D. Is the placement of the right hand in relation to the body indicative of dynamics?



COMMENTS

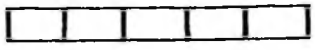
_____

_____

_____

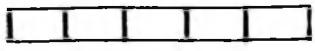
4. BASIC BEAT MOVEMENT

A. Do the beat patterns indicate style and dynamics?



B. Are the beat patterns placed in an appropriate plane?

C. Is the wrist relaxed?



COMMENTS

_____

_____

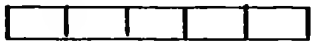
_____

5. INDEPENDENCE OF HANDS

A. Is the left hand used mainly as a time beating element?

B. When needed to perform these duties, does the left hand

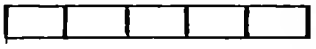
1. Cue?



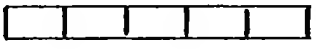
2. Convey

a. phrasing?

b. dynamics?

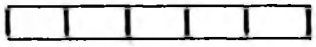


c. articulation?

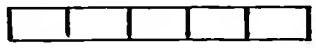


3. Emphasize

a. tempo change?

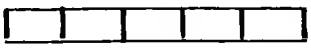


b. syncopation?



4. Strengthen

a. attacks?



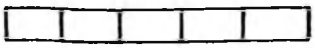
b. releases?

C. Does the left hand mirror the right hand?

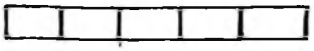
COMMENTS

6. CUT-OFFS

A. Are all fermati prefaced by a clear preparatory motion?



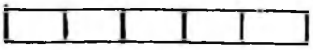
B. Does the cut-off execution reflect the style of music?



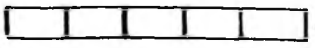
COMMENTS

7. FACE AND EYES

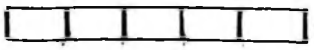
A. Are the eyes in good contact with the performers?



B. Are the facial expressions a reflection of the music?



C. Is the head buried in the score?



COMMENTS

8. POSTURE

A. Are posture and stance appropriate?

B. Does the body move excessively and distractively?

COMMENTS

_____

_____

_____

APPENDIX C

INSTRUCTION SHEET

(For instructing evaluators in
final evaluation procedure)

There will be six segments of videotape--two on each of three student conductors. You will be provided with six evaluation forms--one for each segment of the tape. Each student will be evaluated twice.

Each question on the evaluation sheet is followed by a check scale of five blank boxes. The student conductor's performance on each item should be rated as: poor, below average, average, good, or excellent. For example, a check in the first box would mean that the conductor did poorly on the point in question. A check in the second box would mean a performance of below average, and so on.

A place is provided after each area of evaluation for comments concerning the conductor's performance. These comments are in addition to the ratings, and are optional.

You may feel that, for certain questions, you have not seen enough to make a fair rating. If so, you may choose not to rate the conductor on that item. In such a case merely draw a line through that series of blocks.

EVALUATOR QUESTIONNAIRE

(To be used following the completion
of the check list evaluation)

1. Does the check list generally cover the physical aspects of conducting?

   Yes - No

2. What other criteria would you suggest that might be appropriately added?

   _____

   _____

   _____

3. Is the check list too detailed to be practical in evaluating these tapes?

   Yes - No

   3a. If your answer is yes, what would you suggest deleting?

   _____

   _____

   _____

4. Do you feel that the questions are too broad?

   Yes - No

5. Are any of the items on the check list unimportant or inappropriate to this evaluation?

   Yes - No

   5a. Which ones? _____

   _____

   _____

6. Are any of the questions based on wrong or erroneous principals of conducting?

Yes - No

6a. If your answer is yes, please give the number of the question and explain.

_____

_____

_____

7. Do you feel that the first videotape segments (the longer segments) of the student conductors were

a. too short? _____

b. adequate? (check one) _____

c. too long? _____

7a. Do you feel that the second tapes (shorter segments) were

a. too short? _____

b. adequate? (check one) _____

c. too long? _____

8. Were the cameras placed well enough to provide adequate views of the conductors?

Yes - No

9. Other suggestions for improvement of the process will be appreciated (use reverse of this sheet if needed).

APPENDIX D

VIDEOTAPE EQUIPMENT USED IN STUDY

University Television Services Videotape Equipment

Quantity	Item	Brand-Description	Model
2	Cameras	General Electric - Studio Vidicon	4PC14A2
2	Recorders	Ampex-Helical (1st taping)	7000
		Ampex-Helical (4th taping)	5000
2	Microphones	Electrovoice - 200 ohm omni-directional, low impedence	666
		Electrovoice - Lavaliere microphone	642
1	Audio Board (Switchboard)	Gates - Solid State, two channel	Courier 70
	Tape	Scotch Videotape (one inch)	

Portable Videotape Equipment

1	Camera	GBC - Transister	VX-922
1	Tripod	Slick Tripod Co., Ltd.	Slick Master
1	Videotape Recorder	Sony Corp. for General Electric Co.	4TD182
1	Monitor	Sony Video Monitor (7" screen)	CVM-51UWP

1	Microphone	Shure - High Impedence, Spher-O-Dyne	533SA
1	Videotape	Scotch Videotape (one-half inch)	

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