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Jeremy S. Lane

*Louisiana State University and Agricultural and Mechanical College*

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A BASIC INTERPRETATIVE ANALYSIS OF UNDERGRADUATE  
INSTRUMENTAL MUSIC EDUCATION MAJORS' APPROACHES  
TO SCORE STUDY IN VARYING MUSICAL CONTEXTS

A Dissertation  
Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy  
in  
The School of Music

by  
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August, 2004

## ACKNOWLEDGEMENTS

Thanks to the members of my committee, Dr. Evelyn Orman, Dr. Robert Mathews, and Dr. Teresa Buchanan, for valuable professional advice and insight in all stages of this project.

A very special thanks to Dr. James Byo and Dr. Jane Cassidy, whose professionalism, collegiality, and mentorship have provided the ideal standard for me to strive for in my own career.

Thanks to Dan & Deborah Todd, without whose help this project could not have been completed, and a special debt of gratitude to Chad Nielsen and Eric Ford (and to their respective families) for life-long friendship and support. Thanks to Dr. Greg Fant for mentoring and friendship in all stages of my career, from the time of my undergraduate studies to the completion of the terminal degree.

Finally, much love, thanks, and appreciation to Dad, Mom, Marty, Tune, Sam and Barbara, for their unflagging enthusiasm, support, and sacrifice throughout not only this degree, but in all of my life's endeavors.

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## ABSTRACT

The purposes of this qualitative study were to 1) provide a holistic description of procedures used by undergraduate instrumental music education majors ( $N = 21$ ) in music score study tasks; 2) examine relationships among these procedures and their use in varying musical contexts; 3) examine relationships among score study tendencies, education level, and overall musical ability; and 4) provide general comparisons of undergraduate music education majors' score study procedures and those implied by expert conductors' major disciplinary ways of thinking.

Each subject participated in two one-on-one interview sessions with the investigator. During each session, subjects "thought out loud" as they studied one solo score and one full score with intentions of performing the former and rehearsing the latter. Each task was followed by an interview done to assess knowledge of the composer, style, and genre of the music being studied. An introductory interview was conducted to assess subjects' perceptions, opinions, and beliefs about score study.

The most salient issue suggested by the results of this study was an overall lack of transfer of knowledge demonstrated by subjects in several key areas. Responses given during score study interviews indicated that, overall, subjects recognized the importance of score study as a means towards development of an internal sound image (in agreement with expert conductors). Procedures demonstrated by subjects, however, demonstrated little evidence of internal sound image development. Responses given during composer interviews suggested that subjects possess knowledge of composers, musical style, and genre, and that this knowledge tended to increase with education and experience. Subjects did not use this knowledge to contextualize the score or to facilitate decision

making during the score study process. In general, subjects tended to focus on expressive elements in the study of solo scores, but in study of full scores tended to favor an approach that focused on technical elements. Results also suggested positive effects of undergraduate course work and teaching experience as evidenced by increased frequency and accuracy of descriptions of music elements in score study tasks and of responses given during composer interviews.

## CHAPTER 1: INTRODUCTION

*One day I was in my piano class and I was asked to go into the office of the director... he said to me, 'Have you ever thought to be a conductor?' And I said, 'No.' He said, 'Would you like to try?' I said, 'Why?' ... Tomorrow was a rehearsal with the orchestra and in the programme were two works by Bach. So... I had the scores, very simple scores because these were Bach concertos... The next day in the afternoon at four o'clock I was in front of the student orchestra and after a half an hour of trying, the teacher of the class went up to the office of the Conservatorio and said 'A new conductor is born.' And that was the beginning (quoted in Chesterman, 1989, p. 133).*

For most novices, learning how to conduct an ensemble in musical performance is a process considerably more challenging than the one described above by noted conductor Riccardo Muti. The complex nature of conducting makes it a difficult subject to learn, and equally as difficult to teach. In fact, many professional conductors doubt that it can be taught at all, subscribing to Leopold Stokowski's view that, "Conductors are born, not made. No amount of academic education can make a real conductor out of someone who is not born with the necessary qualities" (quoted in Bamberger, 1965, p. 202).

Though it may be difficult, training novices in the art of conducting is well within the abilities of proactive, capable teachers. Educational scholar and philosopher Jerome Bruner wrote, "Any subject can be taught effectively in some intellectually honest form to any [student] at any stage of development" (Bruner, 1960, p. 33). Even Stokowski admitted that certain aspects of conducting can be taught, such as "how to beat time, how to read orchestral scores, and the nature of orchestral instruments" (quoted in Bamberger, 1965, p. 202-203).

Findings of research in music education show that many conducting skills can be taught effectively to novices, including gesture (Johnson & Fredrickson, 1995; Orzolek, 2002; Price, 1985; Yarbrough, 1987; Yarbrough, Wapnick & Kelley, 1979), aural perception skills (Hayslett, 1996), and error detection (Boyer, 1974; Collings, 1973;

Costanza, 1971; Decarbo, 1982; Grunow, 1980; Liles, 1978; Ramsey, 1979; Sidnell, 1971). Computer-assisted methods have been effective in analyzing gesture (Kraus, et al., 2002; Marrin, 2002), score study (Hudson, 1996), and error discrimination (Gruner, 1993; Jones, 1990). Videotaped behavioral-self assessment has generally produced positive effects on attainment and improvement of basic conducting skills (Grashel, 1991; Karpicke, 1987; Leppla, 1990; McWilliams, 1996; Price, 1985; Yarbrough, 1987; Yarbrough, Wapnick & Kelley, 1979).

Although many aspects of conducting can be taught effectively, time constraints force the issue of choice with regards to which of these aspects should be taught. It would be nearly impossible for sufficient coverage to be devoted to every aspect of conducting within the allotted time frame of most conducting courses at the collegiate level. Frank Battisti, former teacher and conductor of the New England Conservatory Wind Ensemble, explains the problem, stating, “In most conducting programs... [master’s degree students] have two years total.... With the starts and stops between semesters... you end up with forty-eight weeks to prepare somebody to conduct. That’s not a hell of a lot of time” (quoted in Harris, 2001, p. 81). For this reason, instructors must choose from the multitude of related skills only those most essential to effective conducting and address these as deeply as possible.

Leading educational scholars have proposed a strategy for selection and development of curricular content based on the idea of planning backward (Duke, 2001; Gardner, 2000; Wiggins & McTighe, 1998). Planning backward begins with the identification of the ideal results and outcomes of instruction prior to development of any other aspect of the curriculum. Identification of the exemplary student, or *accomplished*

*learner* (Duke, 2001), can guide and facilitate all other aspects of the teaching process, including organization of time, individual lesson content, instructional activities, and assessment.

The selection of knowledge and skills to be demonstrated by the accomplished learner should be based on major disciplinary ways of thinking (Gardner, 2000, p. 117), or expertise, as demonstrated by master practitioners. Training students towards mastery of the skills chosen for study should prepare them to think about (and do) the subject matter in ways similar to experts in the given field. In this sense, experts become the model of the accomplished learner, towards which students are guided through systematic instruction.

The backward approach seems well suited to teaching conducting at the undergraduate level. The instructional setting of higher education implies the overall purpose of the curriculum - training students to perform, conduct, compose, teach, write, and think about music in the same way as professionals. Therefore, it seems logical to conclude that instruction designed to cultivate expertise in conducting should 1) consist of objectives based on what expert conductors do — the “habits and concepts that reflect the best contemporary thinking of the domain” (Gardner, 2000, p. 116) — and 2) correct student misconceptions and eliminate “habits and concepts... inimical to the skilled practice of a discipline....” (Gardner, 2000, p. 116).

Fortunately, the thoughts, ideas, and opinions of expert conductors have been the focus of a large body of published literature. Experts have provided their insight through numerous interviews and informal discussions, (Bamberger, 1965; Barton, 2001; Casey, 1993; Chesterman, 1976, 1989; Ellis, 1994, 1997; Harris, 2001; Hart, 1979; Knight,

2001; Moss, 2002; Wagar, 1991; Williams, 1998). Conductors themselves have written and contributed journal articles (Battisti, 1997; Corporon, 1997), books about the art of conducting (Boult, 1924; Schuller, 1997), and instructional material (Battisti & Garafolo, 1990; Boult, 1924; Green & Malko, 1975; Hunsberger & Ernst, 1992; Prausnitz, 1983; Rudolf, 1993). Expert conductors also have been subjects of experimental research (Yarbrough, 1988, 2002) and qualitative case studies (Buell, 1990; Toney, 2000).

Identifying consistent disciplinary ways of thinking as demonstrated by expert conductors can be difficult. Not surprisingly, experts display a wide variety of contrasting opinions and beliefs on many topics related to their craft. However, one issue on which all conductors seem to be in unanimous agreement is the importance and necessity of consistent, thorough, systematic score study. Most experts assert that intensive score study is the first step in preparation of any piece of music, and is a step that must occur well prior to commencement of rehearsals. Knowledge gained through score study provides the basis for musical interpretation, gesture, rehearsal planning, assessment, and evaluation.

Unique approaches to score study are evident when comparing experts' descriptions of their own personal practices. When asked to describe her score study method, Catherine Comet answered, "I analyze every chord, of course. Who doesn't? You analyze a score... horizontally for the lines that are working together and vertically so that you can feel the tension. Both are very important" (quoted in Wagar, 1991, p. 30). Asked the same question, Leonard Slatkin responded, "I don't do any analysis.... As I get a little older I find I just have less time for analysis. I would just rather get to the music. I don't want to deal with all this other stuff" (quoted in Wagar, 1991, pp. 264-265).

Interviews with five expert wind ensemble directors (Ellis, 1994) revealed similarly individualized approaches to score study. Descriptions of order in which musical elements were analyzed, the amounts of time spent in study, and opinions on working with recordings or at the piano were reflective of a variety of different viewpoints. The findings reported in this study, as well as those reported in case study research with expert conductors (Buell, 1990; Oertel, 1998; Toney, 2000) seem to confirm the notion that score study methods are unique to each individual and not based on standard procedures or specific models.

When viewed from a broader perspective, however, one removed from attention to specific steps within a given person's method, a distinct structure organizing the processes used by expert conductors can be identified, thus revealing a major disciplinary way of thinking about score study. Daniel Barenboim, conductor of the Chicago Symphony Orchestra, relates this structure as "... analogous to... a tailor copying a jacket: before he can make a new one, he must unstitch the old one to be copied" (quoted in Hart, 1979, p. 32-33). Barenboim elaborates:

A composer starts out with some idea, maybe a motif or a melodic idea... it's like an atom. Then he develops that and builds on that.... Now, when we as interpreters get the piece, we are in the opposite situation... we don't have all these little cells, these little atoms, that have really been the genesis of his creation. We have the complete picture, as it were, and we have to 'de-compose' it – in other words, to go backward and try and find what the cells or these little atoms were, in order to understand how it was put together. (quoted in Hart, 1979, p. 33)

The overall structure of score study processes used by expert conductors can be described in three progressive stages. First, the conductor obtains a general overview of the work and establishes a context within which musical decisions can be made. Development of context includes assimilation and synthesis of information about the composer, genre, form, and expected elements of musical style, but may also include elements of historical eras, social environments, cultural elements, and relationships with other art forms. Expert conductors also use their established knowledge to facilitate learning a piece of music that is new or unfamiliar to them. For example, Charles Dutoit, conductor of the Montreal Symphony Orchestra, described in considerable detail how, when conducting a Mozart piano concerto he had not heard before, he drew on his knowledge of the several other piano concertos by Mozart he had previously conducted and performed (Wagar, 1991). The use of prior knowledge allowed Dutoit to assimilate the new work more quickly and arrive at an interpretation that was stylistically correct and consistent within the genre.

The second stage consists of a cyclical process of identification and decision-making. Musical elements of the score are identified; decisions with regard to treatment and interpretation of these elements are made. The order and sequence in which experts address musical elements tend to vary among individuals, as does the depth and detail of their analysis of elements. The end result of this process, however, seems to be similar among all expert conductors: a general understanding of the sequence of events, and a hierarchy of importance of these events within the context of the piece.

Third and finally, these elements are reconstructed into a complete internal auditory image representative of the conductor's interpretation of the score. For most



experts, the development of the internal sound image is the primary goal of score study, the desired end result. According to expert opinion, the internal sound image provides the basis for evaluation of ensemble performance, dictates the appropriateness of conducting gestures, and is directly related to rehearsal behaviors such as eye contact and pacing.

The three-stage process identified in the preceding paragraphs has been described by one noted wind ensemble director as a macro-micro macro approach to score study (Ellis, 1994, p. 182). Expert conductors have contributed writings on score study methods reflecting the macro-micro-macro approach (Battisti & Garafolo, 1990; Corporon, 1997); several proposed models of score study also incorporate a macro-micro-macro process (Covington, 1993; Lentczner, 1977; Markoch, 1995; Stalter, 1996).

Experts' descriptions of procedures reveal major disciplinary ways of thinking concerning score study that can serve as curricular foundations of beginning and intermediate conducting classes. However, textbooks written for use in these classes focus primarily on acquisition of physical skills necessary for beat patterns, cueing, tempo, and style; aspects of score study are given little attention (Covington, 1993; Harris, 2001; Hudson, 1996; Lane, 2002a; Stalter, 1996). In most cases, score study is primarily addressed in relation to aspects similar to those identified by Stokowski (Bamberger, 1965, p. 202-203): how to beat time, how to read orchestral scores, the nature of orchestral instruments. An analysis of content coverage in terms of book pages related to the topic of score study in four well known conducting texts (Greene, 1981; Hunsberger & Ernst, 1997; Labuta, 1992; Rudolf, 1993) revealed small percentages of total book pages in each devoted to score study (Lane, 2002a).

When considered in relation to the depth of coverage given to aspects of gesture and technique, score study methods proposed in many conducting texts can seem somewhat superficial. The following is a step-by-step model presented in a common textbook used in undergraduate conducting courses (derived from Greene, 1981, pp. 129-130):

1. Check on what voices or instruments are needed to perform the score...
2. Take a general overview of the work. Follow the melody line.... Note general musical form... key changes, tempo changes, dynamics, and the emotional character of the music....
3. Make a phrasal analysis
4. Use a systematic approach to encompass the whole page, measure by measure....
5. Read through each part individually... to understand what the players will experience....
6. Harmonic analysis is helpful but time-consuming. Discordant passages should be analyzed... .
7. Mark only to help learn the score, not as aids to conducting....
8. Check cymbal crashes... mark in red... conduct them.

The absence of thorough coverage of score study skills in conducting texts is curious when one considers three points. First, though beliefs, opinions and practices of expert conductors are highly unique and idiosyncratic, one of the only issues in which they are in near unanimous agreement is that of score study as the most essential element for effective conducting. Second, most experts do not concern themselves with the

gestures necessary for a specific piece of music until they have first assimilated a deep and thorough knowledge of the score. Finally, score study skills are generally described by experts as considerably more difficult to learn than those of conducting technique. Noted conductor Edo de Waart recalls that during his first years as a professional, trying to learn scores was a source of great frustration. “I still remember [asking conductor George] Szell... ‘How do I learn it? How do you learn a score?’ And I really have never gotten an answer from anybody, because nobody really ever knows” (quoted in Hart, 1979, p. 209).

## CHAPTER 2: REVIEW OF RELATED LITERATURE

In his book *Score Reading: A Key to Musical Experience*, Dickreiter (2000) describes three functional stages of knowledge gained through score study. These three stages will serve as the framework for reviews of research findings relevant to score study and its relation to other skills and behaviors associated with effective conducting.

### **Dickreiter's Stage I: Insight**

The first stage "... provides insight into the musical structure of a work – both the overall design and the details – that are difficult to gain by mere listening" (Dickreiter, 2000, p. 8). This process involves the study of notational elements printed in the score such as pitch, rhythm, harmony, phrasing, articulation, dynamics, instrumentation and transposition. Along with the printed elements, the conductor will also examine the history of the piece, its place in the composer's overall body of work, and the societal, cultural, and artistic influences that shaped the work. This information provides a context in which the conductor can make musical decisions regarding style, performance practice, and expressive elements contained within the score, facilitating the development of an internal sound image.

Score study procedures have been virtually unexplored through systematic investigation. A search of relevant indexes and databases provided no evidence of studies that examine the use of a score study model in actual practice and the ensuing effects on conducting or rehearsing.

Several investigators have developed theoretical models for score study. The "Conductors' Process Model," a procedure for score preparation involving five steps, was developed by Stalter (1996). The first step, Score Study, is the analysis of the

composition in order to develop an internal sound image. The Preparation stage requires the conductor to identify rehearsal priorities (or potential problem spots) and plan strategies for use during rehearsal. The third step, Rehearsal, is the actual implementation of the director's plan over the course of allotted rehearsal time. The first three steps of the model culminate in Performance – a presentation of the music in public setting such as a concert or festival. The final stage of Evaluation is the assessment of the performance, as well as the effectiveness of methods used during the first four steps.

A secondary aspect of the study was an examination of textbooks used in beginning conducting courses. The purpose of the examination was to identify the amount of coverage given to the Conductors' Process Model, either as a whole or through descriptions of the individual steps. Results indicated that the model was not presented as a complete unit in any of the texts examined, and that individual aspects of the model were not addressed deeply. The primary focus of most texts was the attainment of beat patterns and technical gestures required for ensemble precision, tempo, and cueing.

A model developed by Markoch (1995) combined analytical methods of expert theorists (LaRue, 1992; White, 1984, 1994) and expert wind band conductors (Battisti & Garafolo, 1990). The model is based on a three-stage process of score study:

Familiarization, Exploration, and Conclusion. Familiarization is the initial stage of analysis, during which the conductor addresses aspects of programming, appropriateness of the music for the ensemble, and establishes the piece in contexts of style, genre, and history. Also during this stage, the conductor poses questions or identifies topics to be pursued in the second stage of analysis.

The second phase, Exploration, consists of analysis in four subcategories: form (the chronology of musical events), musical elements (rhythm, melody, and harmony), motivic (identification of significant melodic and rhythmic patterns), and reduction (identification of primary pitch relationships). Analysis procedure can address the four topics in any order, the overall goal being a complete understanding the mechanics of the score and the composer's intention revealed through the manipulation of musical elements.

The Conclusion stage is a summary of the "most significant information gleaned from each mode of analysis" (Markoch, 1995, p. 43). This summary can be transferred into planning through identification of specific rehearsal goals, problem spots, or development of warm-up or pedagogical exercises that may aid in teaching the piece to students. Markoch applies his method to two well-known works for wind band, and demonstrates that a combination of theoretical approaches with methodology proposed by leading conducting experts can be an effective procedure for score study.

Borrowing terminology from the fields of science and medicine, Covington (1993) developed a score study method that focuses on musical morphology. Morphology is defined as "...the branch of biology that studies the form and its structures; it comprises the rules and generalizations governing the way living organisms are put together. This includes the way they develop and function" (Blecher in Covington, 1993, p. 6).

Covington's review of literature suggested numerous methods used by expert conductors and pedagogues, which were then analyzed and categorized. The result was four classes of score study techniques: Basal Methods (fundamental techniques of score

marking and initial preparation); Designated Systems (methods of score study based on specific, systematic procedure); Invasive Techniques (in-depth examinations of relationships of musical elements); and Synthesis of Analysis (subtitled Perspectives on Stylistic Interpretation and Musical Expression). Covington's method consists of four basic procedures derived from the classified modes of score study, 'A Clinical Approach to Score Preparation;' 'A Diagnostic Examination of the Score;' 'Prescribed Analytical Techniques and Procedures;' and 'The Synthesis of Analysis: Musical Morphology.'

In the medical field, a clinical physician obtains working knowledge of the physiology of living patients before attempting to dissect and study individual elements of anatomy. Transferred into the context of this project, 'A Clinical Approach to Score Preparation' is the examination of a piece in its 'living' state (aural sound) before analysis of the printed music begins. The initial aural examination facilitates a concept of the work as a complete unit, provides clues to overall musical structure, and identifies potential problems or questions the conductor will address as score study progresses.

'A Diagnostic Examination of the Score' continues the analysis of the piece through aural experience, this time with the aid of the score. This process allows the conductor to confirm, adjust, or dispel conceptions of the work developed during the first stages. Score marking procedures begin during this stage, as well as implementations of Basal Methods of score study. The goal of this second stage is to "... lead the conductor to a provisional diagnosis concerning the morphology of the music. The provisional diagnosis resulting from the collected data and analysis will either confirm or reject the preliminary diagnosis of the initial clinical observation and will provide the basis for

prescribing further analytical procedures for morphological clarification” (Covington, 1996, p. 63)

The third step, ‘Prescribed Analytical Techniques and Procedures,’ begins with formal and harmonic analyses, and provides confirmation of conceptions developed in the first two steps. This is followed by more detailed study of phrasal and textual elements. The goal of this step is the clarification of musical elements that comprise a work’s morphology. The final process, ‘The Synthesis of Analysis: Musical Morphology,’ is a cumulative assessment of all information gained through the score study process, and the synthesis of this information into the conductor’s interpretation of the composer’s intent.

Strouse (1987) took a view that emotional effect is the ultimate goal of any musical performance, and that score study should be undertaken with that goal in mind. The function of the conductor is to learn the emotional effect intended by the composer (through score study), and then to translate that emotion to the players through gesture. To demonstrate this process, Strouse developed a method of score study — the Comprehensive Approach to Score Preparation (CASP).

The CASP can be described in three stages. The first, Basal Structural Analysis, is repeated exploration of the score from beginning to end, the end result being the selection and choreographing of gestures to be used. Next, a Review of Supplementary Information provides the conductor personal information about the composer, historical era, genre, performance practice, or other information that places the work in broader contexts. The third and final stage is a Detailed Structural Analysis, an examination of the minute details of a work with the intention of discovering the composer’s “...rationale for the



sequence of musical events” (Strouse, 1987, p. 36). The model is then demonstrated through application to two well-known works for wind ensemble.

To provide a model of score study inclusive of 20<sup>th</sup>-century compositional techniques, Lentzner (1977) developed a procedure appropriate for atonal band works. He sums up expert opinion towards the necessity of a preconceived aural image by stating, “...in order to present a musical work, the conductor must have a broad view of the work so as to understand the logic of its progression, from beginning to end” (p. ii). With this view in mind, Lentzner proposes a score study method based on *macro-view* (or broad conception). The conductor first obtains general knowledge about the score, such as large formal sections, overall duration and number of measures, and other elements that give insight to the composition as a whole. This is followed by a systematic breakdown of larger sections into smaller elements, which are then reconstructed into a completed conception of the entire piece.

One recent project has focused on the physiological aspects of score study. Hoffman (2002) used an electroencephalograph (EEG) to investigate the effects of score study on auditory imaging of six experienced collegiate-level conductors. As subjects read through three separate scores, they attempted to develop auditory images of each piece (EEG data were collected during each reading). Comparisons of frequencies of brain waves as measured by the EEG indicated differences in degrees of auditory imagery resulting from familiarity with the score. Results indicated that the process of score study facilitated communication between more remote regions of the brain and revealed differences in functions of temporal lobes during score study. Music reading

seemed to be a function of the left lobe, whereas processing and memory were related to the right lobe.

Few studies have examined aspects of training novice conductors in score study methods. Hudson (1996) developed a computer assisted music instruction program as a supplemental training method for score study skills. Forty-four undergraduate conducting students were given a pretest that measured knowledge of Gustav Holst's First Suite in E-flat, a standard work of the wind band literature. Following the pretest, all subjects participated in three weeks of regular classroom instruction in conducting. An experimental group underwent six additional sessions using the computer program, during which they were trained how to study the Holst score. Posttest results showed that the experimental group made significantly greater gains from pretest to posttest measure than did the control group.

Survey data were used by Wine (1995a) to assess the effectiveness of score marking training on student perception of effective instruction. Twenty-eight undergraduate choral conducting students were provided self-instructional material in the form of handouts that demonstrated a method of score miniaturization in three different musical styles. In the contexts of this study, score miniaturization referred to a process of synthesizing a four-part choral score into a format of one or two lines consisting of only elements of rhythm, meter, tempo and markings for cueing important musical events. Results found overall positive responses from subjects towards the use of score miniaturization as a study tool. Most subjects indicated that they used the method less in later stages of the project than they did during initial stages.

In a related study, (Wine, 1995b) used survey measures to assess differences in score marking procedures among sixty first-year undergraduate, second-year undergraduate, and graduate conducting students. Responses indicated that subjects' score marking focused predominantly on elements of meter, tempo, dynamics, and cueing. Additional findings suggested that graduate students mark scores less and spend less time engaged in score study than do undergraduates. Forty-one subjects indicated that they used a specific method when studying scores; sixteen of these subjects stated the first step in their procedure was a play through (or sing through) of the entire piece.

### **Dickreiter's Stage II: Performance Accuracy**

The second stage in Dickreiter's score knowledge model allows one to "... determine whether the performance is accurate" (Dickreiter, 2000, p. 8) Expert conductors describe performance accuracy within two contexts. One context describes accuracy in terms of the ensemble's performance matching the conductor's preconceived idea of a piece, or internal sound image, developed through score study; the other context, generally referred to under the broad label error detection, describes performance accuracy in terms of the printed notes, rhythms, and expressive markings being played correctly by the ensemble. Most experts, who usually conduct ensembles of the highest caliber professional musicians, rarely consider performance accuracy in terms of the latter.

As part of the development of a score study training program, Grunow (1980) examined the effects of score study method on error detection of novice conductors. Subjects participating in a conducting clinic were assigned to one of four score study

conditions: study of the score only; study of the score with recorded examples; study of recorded examples only; and no score study.

Grunow found that each of the three methods of score study was an effective tool for development of error detection. Comparisons of scores on error detection tests indicated no significant differences between score study conditions (including the no score study control group). Procedures from this study were further developed into an error detection training method published under the title MLR Score Reading Program (Grunow & Froseth, 1981).

Other researchers have used Grunow's MLR to further investigate the effects of score study method on error detection. Hopkins (1991) compared groups of pianists to non-pianists under four different score study conditions: score study at the piano; study with a recording; study using sightsinging; and silent score study. Results suggested that study with a recording was significantly more effective than was study at the piano; no other significant differences were found among score study conditions. Other findings suggest that subjects were more likely to indicate rhythm errors than pitch errors, and that subjects were more successful detecting errors than they were identifying and notating error location and type. No significant differences between pianists and non-pianists were found. A majority of subjects 'imagined' performance errors, indicating that errors were occurring in locations where there were none.

Hochkeppel (1993) studied forty-seven undergraduate music majors under the same four conditions as Hopkins. A test developed from Grunow's MLR and from programmed materials by Ramsey (1979) was used to measure error detection accuracy. Relationships between error detection accuracy, main instrument, and scores on Gordon's

Advanced Measures of Music Audiation (AMMA) were also examined. All subjects completed a pretest, followed by three training sessions in one of the four score study conditions. A posttest measure was given once training was completed. Results suggested that silent score study was significantly more effective than either study at the piano or study using sightsinging. The only subjects with significant gains from pretest to posttest measures were those in the silent study and sightsinging study groups. No significant relationships between error detection accuracy and main instrument or error detection skill and AMMA scores were reported.

Crowe (1996) examined error detection among beginning conductors. Twenty-one subjects participated in four individual sessions, during which each completed a computer-aided error detection test using one of the following score study methods: no score study; study with score alone; study with score and correct aural example; and score study at the keyboard. Test measures were based on programmed materials developed by Ramsey (1979) for error detection training, and consisted of examples varying from four to six measures in length and from one to eight parts in texture. Results indicated that study with a correct aural example was significantly more effective than study with score alone; no other significant differences between score study conditions were found. Subjects in the no score study group spent significantly less mean time on each example than did subjects in either the correct aural example group or the score study at the keyboard group. Significant effects of texture on error detection accuracy were reported; as texture increased in number of parts, error detection effectiveness decreased.

Byo and Sheldon (2000) examined the effects of singing while learning and conducting one-, two-, and three-part scores. Learning scores by process of singing through individual parts resulted in significant gains in pitch error detection; however, singing individual parts while conducting resulted in a decrease in error detection accuracy. A related study by Forsythe and Woods (1983) found that physical gestures of conducting significantly decreased error detection accuracy of undergraduate and graduate conducting students.

Error detection also can be influenced by factors related to various contexts of musical elements. Complex textures have been found to hinder ability of novice conductors to detect performance errors in aural examples, (Byo, 1993, 1997); similarly, error detection is more difficult when reading from scores with multiple parts (Byo, 1997; Byo & Sheldon, 2000; Crowe, 1996; DeCarbo, 1982; Sheldon, 1998). The effects of timbre on error detection have been studied by Byo (1993), Swinehart (1994), and Locy (1996). Increased complexity of timbres were found to have a detrimental effect on error detection accuracy (Byo, 1993). Swinehart (1994) reported that acoustic timbres were more effective in development of error detection skill than synthesized sounds. Locy (1996) reported neither significant effects of instrumental timbres nor evidence of significant relationships between subjects' timbral preference and error detection.

There are data to suggest that error type can affect detection accuracy. Results of studies have reported rhythm errors as easier to detect than pitch errors (Byo, 1993, 1997; Hopkins, 1991; Sheldon, 1998), and articulation errors as most difficult to detect (Boyer, 1974). A study by Byo and Sheldon (2000) found conflicting results when comparing

scores of an error detection test. Although rhythm errors were more easily identified than pitch errors in pretest measures, posttest results suggested the opposite.

Research efforts have identified several possible predictor variables, though none of these variables have been found to be consistent predictors of error detection accuracy. Gonzo (1971) found a significant correlation between error detection and teaching (conducting) experience. Brand and Burnsed (1981) found no significant correlations between error detection and such variables as ability in music theory, sightsinging and ear training, as well as ensemble experience and private instruction. Vincent (1990) studied similar variables using regression analysis and found differences in predictor variables between pitch and rhythm error detection.

Research has shown that error detection accuracy can be improved through systematic training. Ramsey (1979) utilized full band scores to develop and test an error detection training method. Results indicated significant, positive effects of the programmed materials, and that error detection accuracy increased in relation to amount of time spent using these materials. Effective training materials have also been developed by Costanza (1971), Sidnell (1971), Collings (1973), Boyer (1974), and Liles (1978). Results of a study on training methods (DeCarbo, 1982) indicated error detection accuracy was developed more effectively through instruction in live, podium-based conducting activities than through instruction using programmed materials. Results of a study by Sheldon (1998) suggest that error detection accuracy can be improved through training in aural skills and sight singing using exercises derived from full band scores. Subjects using these exercises as part of their error detection training scored significantly

higher on an error detection test than students who received traditional aural skills training.

Band literature has also been used in computer-aided instruction (CAI) in error-detection. These methods have been developed and tested with varying outcomes of effectiveness. Deal (1985) reported no significant differences between a method using CAI and a method using programmed materials. An in-depth study of eleven undergraduate students using CAI in error detection training (Jones, 1990) revealed a significant increase in pre to posttest gain scores, and that continued training increased error detection success rate and decreased amount of time necessary for responses.

In a comparison of groups receiving CAI training or normal classroom instruction, Gruner (1993) used a synthesizer to arrange 2-part, 3-part, 4-part, and 5-part audio excerpts taken from middle school band pieces. Subjects in the experimental group completed an 8-week sequence of drill-and-practice routines using the computer program; subjects in the control group received normal classroom instruction with no work on the computer. Results indicated significant positive differences between the CAI group and the non-CAI group on a posttest measure. The CAI group also showed a significant increase in pre to posttest gain scores whereas the non-CAI showed no significant increase. Results suggested that computer-generated sounds were effective for error-detection training, even when audio examples on test measures were recordings of acoustic sounds.

Comparisons of findings of studies in error detection suggest the possibility that error detection may be more dependent on the context of its application rather than being dependent on a specific attribute or skill. The two most salient findings that support this



notion are those that show 1) little or no evidence of cause and effect relationships between specific score study methods and error detection ability (Crowe, 1996; Grunow, 1980; Hochkeppel, 1993; Hopkins, 1991), and 2) error detection training, though effective in controlled settings of instruction (Boyer, 1974; Costanza, 1971; Collings, 1973; Grunow, 1980; Liles, 1978; Sidnell, 1971), does not seem to transfer to authentic conducting-related activities and behaviors (Byo & Sheldon, 2000; DeCarbo, 1982; Forsythe & Woods, 1983). The context dependent nature of error detection is further supported by findings suggesting that error detection accuracy can be hindered by the complexity of musical elements such as texture (Byo, 1993, 1997; Byo & Sheldon, 2000; Crowe, 1996; DeCarbo, 1982; Sheldon, 1998), timbre (Byo 1993), and error type (Byo 1993, 1997; Boyer, 1974, Hopkins, 1991).

Another trend that emerges when comparing studies on error detection training is the use of simple musical contexts before progressing to contexts that are more complex. DeCarbo (1982) noted "...the tasks of score reading, score study, and error detection are made easier by providing all the lines of the musical score in concert pitch" (p. 198). This principle can be transferred to score study training, as exemplified in the following quotation from Byo and Sheldon (2000):

"If one line of music... is approached as the musically rich, comprehensive entity it can be... it can present a formidable challenge to the intellect and 'ear' of the novice conductor. The ability to 'hear' the score completely and precisely, it would seem, begins with the ability to 'hear' one line completely and precisely" (p. 38).

### **Dickreiter's Stage III: Rehearsal**

Dickreiter's third stage "... makes it possible to identify special places in [the work], which is important in a rehearsal" (Dickreiter, 2000, p. 8) The process of rehearsal is critical, for that is where an ensemble's performance is shaped to conform to the conductor's internal sound image. In most cases, time is of primary concern; therefore it is essential that conductors facilitate efficient, productive rehearsals. A large body of research has been devoted to analysis of rehearsal behaviors relating to time use, reinforcement, pacing, feedback, and other verbal behaviors (see reviews by Duke, 1999; Grant & Drafall, 1991; Price & Byo, 2002).

Efficiency within the rehearsal can be greatly enhanced through effective use of expressive conducting gestures and eye contact. A conductor translates their internal sound image, or interpretation, of a work to their ensemble primarily through these nonverbal means. A majority of experts assert that while the use of words during a rehearsal is sometimes inevitable and indeed necessary, they prefer to use their gestures to convey musical message. Score study is essential to this process. Gunther Schuller (1997) wrote:

A simple definition of the art of conducting could be that it involves eliciting from the orchestra with the most appropriate minimum of conductorial (if you will, choreographic) gestures a maximum of accurate acoustical results. But in order to know what those 'most appropriate' gestures and 'accurate acoustical results' might be, one must have a precise and deep knowledge of the score.... [We develop] our physical, manual, gestural skills... to their highest

potential, so that we may accurately reflect and transmit to the orchestra (and thence to the audience) that which the music requires us to express.

But that physical expression is but the exterior manifestation of what we know and feel about the music (the score). All the physical, choreographic skills in the world will amount to nothing if they represent an insufficient (intellectual) knowledge of the score... in other words, the knowledge of what to represent, of what to realize. (pp. 9-10)

Research in other fields outside of music such as psychology and physiology suggest that nonverbal communication can operate in a similar fashion as a verbal language in terms of syntax, structure, and ‘rules’ that govern use and interpretation (Julian, 1989; Ostling, 1977). Several studies in music education research have examined the function of conducting as a nonverbal language and its effectiveness in communicating musical message.

Sousa (1989) defined gestures as *conducting emblems*, and found that of a total of fifty-three gestures studied, seventeen were consistently recognized and interpreted by middle school, high school, and collegiate-level musicians. Though only two of these gestures were recognized consistently by all age groups, there was little variation in interpretation of gestures when they were recognized. Findings of this study suggest that specific conducting gestures result in a small, limited number of interpretations, and that recognition of these gestures improved in relation to age and experience. Cofer (1998) found that conducting emblems could be successfully taught to and interpreted through performance by young instrumentalists.

In a study of the gestural repertoire of expert conductors, Bengtson (1996) found that although each conductor displayed gestures that were unique to their conducting style, each gesture was open to a limited number of interpretations, and that most players interpreted a specific gesture in similar fashion. In a comparison of gestures between expert and novice conductors, Byo and Austin (1994) reported similar gestural differences among experts, but noted that each expert was effective in communicating musical meaning through their gestures. Experts displayed a broader repertoire of gestures and were significantly more expressive with their left hand gestures than were novice conductors.

Similar variances of gestures among expert conductors have been reported in qualitative case studies (Buell, 1990; Oertel, 1998; Toney, 2000). These studies also suggest that expert conductors usually do not pre-plan gestures, but rely on their knowledge of the score to guide gestures necessitated in the music-making process. Experts tend to place less emphasis on rules of conducting technique (or reject the entire concept of technique altogether), and assert that appropriateness of gesture is dictated solely by its effectiveness in communicating musical meaning.

Expressive conducting gestures have been shown to have significant positive effects on individual and ensemble performance quality. Grechesky (1985) reported that bands conducted expressively received higher evaluations of performance quality than did bands playing the same piece of music conducted with nonexpressive gestures. Similar findings by Laib (1994) indicated that the same ensemble performing a piece conducted expressively was rated higher than when performing the piece under nonexpressive conducting.

There is evidence that supports the value of expressive conducting as a pedagogical tool (see review by Kelly, 1999). Sidoti (1990) studied the effect of conducting on performance ability of high school-level instrumentalists and found that printed expression marks in the music were performed more successfully when conducted with appropriate gestures. Instruction in basic conducting technique (beat patterns, tempo, and cueing) was found to have a significant positive effect on development of rhythm reading and performance skills of beginning instrumentalists (Kelly, 1997).

Though overall facial expression does not seem to influence the effectiveness of nonverbal gestures (Mayne, 1993), eye contact has been identified as an essential component of overall conductor behavior and effectiveness (Byo, 1990; Yarbrough, 1975; see also reviews by Fredrickson, 1992; Kelly, 1999; Price & Byo, 2002). Significant positive effects of conductor eye contact have been reported on variables related to performer attitude (Price, 1983, 1985), attention and on-task behavior (Price, 1983, 1985; Price & Winter, 1991; Yarbrough & Price, 1981), and achievement (Fredrickson, 1994). Fredrickson found that for a performer in an ensemble, the combination of visual stimulus (seeing the conductor) and aural stimulus (music heard while performing) were significant factors affecting performance quality.

Apart from activities and behaviors that are part of live teaching situations, rehearsal effectiveness also involves activities in contexts outside of the rehearsal setting, such as content planning and rehearsal organization. It is within these contexts that the conductor will identify special places in the piece they will address during rehearsal. Planning is an aspect of teacher behavior that has been well documented in general

education literature (see reviews by Brophy, 1986 and Brophy & Good, 1984), but has received less attention in music education research.

A study by Maclin (1993) examined the effect of planning strategies based on task analysis (specific, predetermined sequences of teacher and student activities, educational objectives, and methods of assessment) on teachers' use of sequential patterns (defined as a three-part sequence of teacher presentation of a task, student response, and correct teacher feedback). Results indicated that subject groups who used task analysis in the development of lesson plans displayed more complete, accurate sequential patterns while teaching and engaged students in more performance time than did subjects who did not use task analysis. Training in planning elementary classroom music lessons was found to have a significant positive effect on teacher attitude towards a multicultural approach to teaching music (Teicher, 1997).

Schlueter (1991) conducted three case studies of elementary music student teachers and found that these novices exhibited random patterns of lesson planning, lacked a substantial repertoire of conceptual teaching methods, gave individual students little consideration in planning, and had difficulty sequencing lesson activities and establishing educational goals. These issues were addressed in a qualitative study of elementary music student teachers by Snow (1998), who found that group brainstorming activities resulting in creative and unique lesson activities helped novice teachers plan more effective lessons. Conway (1999) reported the successful use of a qualitative research method labeled *teaching cases* in the study of numerous aspects of teacher behavior, including lesson planning.

In the only study found that addresses planning in the instrumental ensemble setting, Britten (2003) examined lesson planning procedures of preservice and experienced teachers. Preservice subjects included undergraduate and graduate music education students; teachers had prior experience ranging from one to fourteen years. Subjects studied a given page of a standard beginning band method book and developed a lesson plan they might use to teach the content on the page to a group of beginning instrumentalists. Then, subjects were given a similar lesson plan developed by the investigator for comparison.

Results indicated that preservice teachers used more words and narratives to describe lesson activities. Warm-up activities were the most common types of activities used by subjects of all groups, and 95% of all subjects used a teaching strategy involving the breakdown of content into its smaller component parts and isolation of specific elements out of context.

## **Summary**

Few research studies have examined score study procedures and processes. Several authors have proposed theoretical models of score study that are based on analytical methods of expert musical theorists. Most of these models reflect a macro-micro-macro approach to building score study knowledge; this same approach can be identified in score study methods described by expert conductors.

A common assumption implies that score study is necessary as an aid for identification and correction of performance errors in pitch and rhythm; however, research suggests that error detection ability is independent of score study method. Factors influencing error detection ability include musical elements such as timbre,

texture, and number of parts, as well as on-podium conducting behaviors. Experience has been shown to be the only consistent predictor of error detection skill, though many studies suggest that error detection can be improved through systematic training. Programmed materials, on-podium conducting activities, and computer-aided instruction have all been shown to be effective methods of error detection training. Findings of studies on error detection training suggest that students should begin with music in simple contexts of musical elements (such as single-part scores) before progressing to more complex, multi-part scores.

Conductors communicate musical message through nonverbal means of eye contact and gesture. Research suggests that conducting gestures can function similar to language in terms of syntax, rules of use, and interpretation. Though expert conductors display a wide variety of gestures unique to their own repertoire, these gestures are recognizable, limited to a small number of interpretations, and result in effective communication of musical meaning. Expressive gestures have been shown to have positive effects on student attention, achievement, and attitude, and can be used effectively as a pedagogical tool. Eye contact is a critical aspect of conductor nonverbal behavior, and has been shown to have a strong correlation with student on-task behavior. Few research studies have analyzed out of rehearsal behaviors such as planning and rehearsal organization.

### **Rationale and Purpose of the Study**

Leading educational scholars assert the importance of teaching for transfer, or in other words, equipping students with the ability to transfer skills and knowledge learned in one context into new and varying contexts (Duke, 2001; Gardner, 2000; Jellison,



2000). In conducting pedagogy, there is a need for research that examines 1) musical skills learned and practiced by undergraduate music majors in the familiar settings of instrumental performance and applied lesson instruction and 2) the effectiveness of transfer of these skills into unfamiliar contexts related to conducting.

MENC: The National Association for Music Education (MENC) has identified several areas that should be addressed in music education research efforts (MENC, 1998). Among these are issues related to the balance among subject matter expertise, methods classes, and practicum experience within music teacher education programs. It is hoped that the results of the current study will provide insight towards this effort for curricular balance by identifying and describing score study tendencies of novice conductors, the transfer of musical skills learned from various contexts into applications directly related to conducting, and comparing score study tendencies of novices with major disciplinary ways of thinking reflected by expert conductors.

The purposes of this qualitative study were to 1) provide a holistic description of procedures used by undergraduate instrumental music education majors ( $N = 21$ ) in music score study tasks; 2) examine relationships among these procedures and their use in varying musical contexts; 3) examine relationships among score study tendencies, education level, and overall musical ability; and 4) provide general comparisons of undergraduate music education majors' score study procedures and those implied by expert conductors' major disciplinary ways of thinking.

## CHAPTER 3: METHOD

### **Subjects**

Common in many qualitative research methodologies is the use of a process labeled *purposeful sampling* to select subjects (Creswell, 1998; Merriam, 2002). Purposeful sampling consists of the selection of a small number of subjects from a particular population or culture with regards to specific criteria determined by the nature of the research question. For this project, the process of purposeful sampling was conducted among students in the population of undergraduate instrumental music education majors enrolled at Louisiana State University. The overall process yielded a pool of subjects ( $N = 21$ ) that were categorized into one of three groups: Lower-level Undergraduates, ( $n=6$ ), Upper-level Undergraduates, ( $n=9$ ), or Student Teachers ( $n=6$ ).

Prior to selection of subjects, permission to complete the project was secured from the Louisiana State University Institutional Review Board (IRB). All subjects, including those used in pilot studies, completed two written consent forms. The first indicated each subject's voluntary consent to participate in the project; the second allowed the investigator to consult with the chair of the music education department and obtain grade point averages for courses taken. The IRB Permission form and examples of both consent forms are provided in Appendix A.

### **Subject Groups**

Two primary variables were used to establish subject groups: education level and musical achievement level. The use of education level and achievement level as criterion variables facilitated comparisons in two areas. First, grouping by education level allowed examination of the development of score study procedures through the course of an

undergraduate curriculum. Second, classification of each subject's musical achievement level provided the basis to investigate relationships between musical achievement and score study ability. Relationships between these two variables were suggested by results of a pilot investigation (Lane, 2002a).

Education level criteria were based on degree requirements outlined in a recent undergraduate course catalog (Louisiana State University, 2002), and were designed to create three groups representative of specific stages of progression through an undergraduate music education curriculum. In addition to courses listed below, subjects were fulfilling university credit requirements in courses such as mathematics, English, history, and science. The specific numbers and types of non-music courses required of each individual is based on such factors as university catalog, academic background, and placement testing; therefore, criteria for groups did not include course work completed in fulfillment of general university requirements.

The first group, Lower-level Undergraduates, consisted of sophomore-level students enrolled in the fourth semester of the degree program. Students in this group had completed the following content and professional courses: One two-semester course sequence of fundamentals of music history, theory, and ear training (titled Introduction to Music), one upper level music theory/ear training course, three semesters of required recital attendance, three semesters of functional piano, three semesters of applied lessons, three semesters of large ensemble performance experience, and one music education course (Foundations of Music Education).

The second group, Upper-level Undergraduate, consisted of junior-level students enrolled in the sixth semester of the degree program. Content and professional course

work completed by these subjects included the following: The Introduction to Music course sequence, one upper level music history courses, three upper level music theory/ear training courses, five semesters of required recital attendance, four semesters of functional piano, five semesters of applied lessons, five semesters of large ensemble performance experience, two music education courses (Foundations of Music Education and Behavioral Techniques in Music Teaching), one elementary music methods course, and three courses in vocal or instrumental techniques. All subjects in this group had completed a beginning-level conducting course, six subjects were enrolled in an advanced conducting course, and three subjects had completed the advanced conducting course. Subjects in this group were enrolled in or had completed a secondary instrumental music methods course during the time span in which interviews sessions were conducted.

The third group, Student Teachers, consisted of students who had completed all required course work and the required 180 clock hours of the student teaching experience. Course work in music and professional knowledge completed by these subjects included the following: The Introduction to Music course sequence, two upper level music history courses, four upper level music theory/ear training courses, six semesters of required recital attendance, four semesters of functional piano, six semesters of applied lessons, seven semesters of large ensemble performance experience, two music education courses (Foundations of Music Education and Behavioral Techniques in Music Teaching), one elementary music methods course, one secondary music methods course, one course in vocal techniques, four courses in instrumental techniques (brass, woodwinds, percussion, strings), and two conducting courses. Subjects also had completed two required courses in a professional knowledge sequence - one course in

curriculum and instruction (Reading in the Content Areas), and one course in child, adolescent or developmental psychology.

Primary differences among groups established through education-level criteria can be summarized as follows. Lower-level Undergraduates had completed course work in fundamentals of musicianship, but had not yet begun course work specific to conducting, score study, or rehearsal techniques. Upper-level Undergraduates had completed or were enrolled in all required courses within the music education core curriculum, including those in which score study issues are most likely to be addressed (beginning conducting, intermediate conducting, and secondary instrumental methods), but had not yet experienced substantial opportunities to apply score study knowledge in actual day-to-day teaching/rehearsing experiences. Student Teachers had completed all degree requirements and were eligible to begin their professional careers as practicing music educators. Over the course of the semester-long student teaching experience, these subjects had ample opportunity to transfer knowledge obtained during undergraduate course work into authentic contexts involving the teaching of young instrumentalists. Table 1 presents the criteria in columnar format for comparison.

Individual musical achievement level was established through the following process. Members of the LSU band department faculty and wind/percussion applied faculty were sent via e-mail a letter describing the rationale and purpose of the present study, and were requested to provide music achievement ratings for students being considered for participation in the study (Appendix B). The letter informed faculty that musical achievement referred to each student's achievement level compared with other students of similar age and academic background. Achievement in this context could

Table 1

Number of semesters of completed required course work for each education level group.

	Lower-level	Upper-level	Student
Course	Undergraduate	Undergraduate	Teacher
Introduction to Music	2 <sup>1</sup>	2	2
Upper-level Music History	--- <sup>2</sup>	1	2
Upper-level Music Theory/ Ear Training	1	3	4
Recital Attendance	3	5	6
Functional Piano	3	4	4
Applied Lessons	3	5	6
Large Ensemble	3	5	7
Foundations of Music Education	---	1	1
Behavioral Techniques In Music	---	1	1
Vocal/Instrumental Techniques	---	3	5
Conducting	---	1*	2
Elementary Methods		1	1
Secondary Methods	---	---**	1
Reading in the Content Areas	---	---	1
Psychology <sup>3</sup>	---	---	1

<sup>1</sup> Number of semesters of course work in given topic.

<sup>2</sup> Indicates subjects have not yet taken given course.

<sup>3</sup> One course of child, adolescent, or developmental psychology.

\* In this group, all subjects had completed a beginning-level conducting course, six student were enrolled in an advanced conducting course, and three had completed the advanced course prior to participation in the project.

\*\* In this group, two subjects had complete the secondary methods course prior to participation in this project; seven were enrolled in the secondary methods course while participating in the project.

include a number of measures, such as performances in regional or national competitions, seating placement within primary ensembles, solo recital or chamber music performances, rate of progress through material covered during applied lessons, or any other factor the instructor considered representative of achievement on the primary instrument.

Faculty members were asked to rate each subject's music achievement level as high, Medium, or low. Applied faculty rated only those students enrolled in their studio. One member of the band faculty who was familiar with all students in the four primary performing ensembles for undergraduate wind and percussion instrumentalists (wind ensemble, symphonic band, concert band, marching band) rated all potential subjects.

The investigator secured written permission from each potential subject to obtain overall grade point averages for all completed course work. The chair of the music education department provided and verified grade point averages, and each subject's average was labeled either High, Medium, or Low using the following criteria: High = 3.50 (on a 4.0 scale) and higher; Medium, 3.00 - 3.49; Low = 2.99 and below.

Ratings for each subject from the three sources (ensemble director, applied instructor, grade point average) were gathered, and each was assigned a numerical value (High = 3 points; Medium = 2 points; Low = 1 point). The three numerical ratings for each subject were summed, and this composite number was used as an overall music achievement rating. Overall ratings were assigned based on the following point totals: High = 8-9 points; Medium = 6-7 points; Low = five points or lower. Table 2 lists the number of High, Medium, and Low achievers per group.

Table 2

Frequencies of music achievement ratings by education level group.

Education	High	Medium	Low
Lower-level Undergraduate ( $n = 6$ )	2	2	2
Upper-level Undergraduate ( $n = 9$ )	4	5	0
Student Teacher ( $n = 6$ )	2	3	1
Total ( $N = 21$ )	8	10	3

Accurate comparisons among three achievement level groups would have been hindered by the infrequency of Low achievers overall and the absence of Low achievers in the Upper-level Undergraduate group. Therefore, subjects initially rated as Low achievers were re-categorized as Medium. This adjustment created two achievement level groups, High ( $n = 8$ ) and Medium ( $n = 13$ ). A complete table of all ratings from all sources for subjects used in the final project is provided in Appendix B.

Purposeful sampling yielded an initial pool of forty-four prospective subjects. Of these, sixteen participated in pilot projects, and five chose not to participate. Two subjects had taken courses out of sequence and did not fit into either the Lower-level or Upper-level Undergraduate groups; these two were removed from consideration by the investigator. The remaining subjects ( $N = 21$ ) were divided into three groups for the final project: Lower-level Undergraduates, ( $n=6$ ), Upper-level Undergraduates, ( $n=9$ ), and Student Teachers ( $n=6$ ).

Once selection of subjects was complete, the investigator approached each on an individual basis. The nature of the project was explained, and each person was asked to



participate in two separate individual activity sessions. They were told the location for the interviews, and were asked to bring their primary instrument to each session. Lower-level and Upper-level Undergraduate subjects were scheduled over the course of the spring semester. Student Teacher subjects were contacted once they had successfully logged all of the required 180 hours of in-class teaching experience. This was done to accommodate as much as possible the effect of teaching experience on score study ability, as well as the influence of the cooperating teacher.

### **Procedure**

Each subject participated in two individual sessions done on two separate occasions on different days. The investigator videotaped all sessions for subsequent data collection and analysis. The two sessions were similar in format, the only differences being the sets of music used for score study activities and the omission of an introductory interview from the second session. Each session was approximately sixty to ninety minutes in duration.

Due to considerations of scheduling and room availability, two different rooms were used for interview sessions. The rooms in which the interviews were conducted were arranged in the same fashion for each session (Figure 1). The subject sat in a chair with a folding desktop facing the investigator. The subject's chair was placed next to a piano in such a manner that the subject could reach the keyboard without having to move the chair. The investigator placed a music stand in front of the subject's chair, and on this stand was an 8"x11" pad of lined paper and a pencil. The investigator gave sheets of printed music and evaluation forms to the subject one by one as they were needed during each session. Equipment for audio recording and playback was placed approximately six

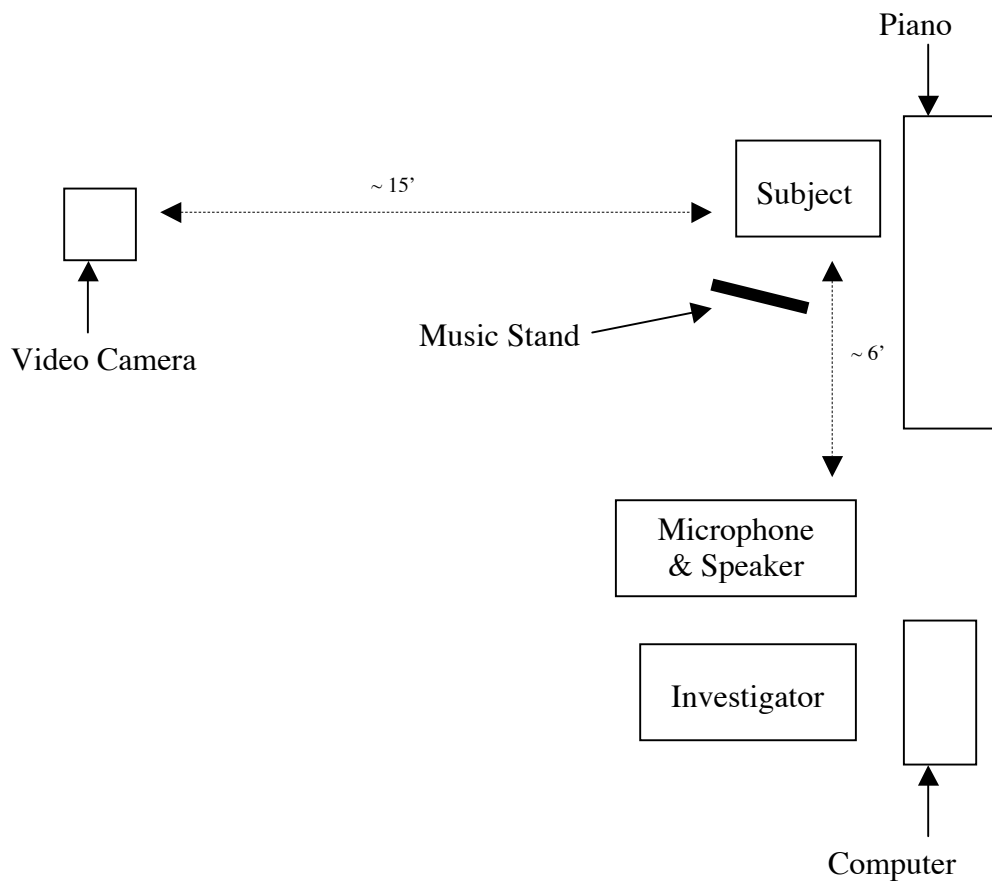


Figure 1: Diagram of interview room.

feet away, directly in front of the subject. A video camera was placed approximately fifteen feet away and focused on a side view of the subject.

The investigator used a predetermined checklist (Appendix C) to guide the sessions, a technique commonly used in qualitative interview settings (Merriam, 2001). Interview checklists can assist in establishing and maintaining consistency of content from session to session, which in turn supports the reliability and validity of the research design. Topics and sequences of activities included on the checklists were identified during pilot study research (Lane, 2002a; Lane, 2002b).

The first session began with an introductory interview designed to gain insight into subjects' preconceived ideas about the value of score study in relation to the art of conducting. Following the initial interview, subjects were given a short solo melodic excerpt arranged for their instrument by the investigator. In order to make the setting as authentic as possible, subjects were instructed to study and prepare as if they were going to perform the excerpt in public. During preparation of the music, subjects were allowed as much time as they required, and were allowed to practice the excerpt as often as they wished using any method they chose (singing, playing the piano, practicing on the primary instrument, etc.). Once preparation was complete, subjects recorded a performance of the excerpt on their primary instrument. Subjects were given the opportunity to hear a playback of the performance, and were allowed to re-record their performance until they were satisfied with the end product.

During preparation of the solo performances, the investigator instructed subjects to 'think out loud' in order to provide insight to thought processes and musical decision-making. Thinking out loud has proven to be a successful method of data collection in

music research (Rosenthal & Durairaj, 2003) and in pilot studies for this project (Lane, 2002a; Lane, 2002b). Subjects were allowed to talk uninterrupted until score study was complete. As they talked, the investigator took notes of the musical topics being discussed. Once the preparation task was complete, the investigator posed any questions necessary for clarification of issues discussed by the subjects.

Next, subjects recorded their performance of the score, which was then played back to the subjects for evaluation. Subjects evaluated their final recorded performance using a published solo instrument evaluation form (University Interscholastic League, n.d.). Subjects were allowed to listen to the performance as often as they wished while they completed the evaluation. While evaluating, subjects were asked to express their thoughts in writing only; they did not think out loud during this activity.

Upon completion of the solo evaluation task, the investigator gave subjects a short excerpt of a full score for concert band. Subjects were instructed to study the score as if they were going to rehearse the work with an ensemble of young musicians. No additional contextual information was given. If during the procedure they were to ask contextual questions (such as age level of the group, time allotment, instrumentation), the investigator provided them with a specific answer.

The investigator informed subjects that the end product of the study time would be a list of rehearsal priorities or issues they would want to accomplish during the first rehearsal of the work. Subjects were allowed as much time as necessary to complete the list of targets, and were allowed to practice the music by singing, working at the keyboard, playing through parts on their primary instrument, conducting, or any other

method they chose. As in the solo score preparation task, subjects were encouraged to think out loud during this activity.

Following the completion of the target list, subjects listened to a recording of a flawed performance of the score excerpt. Using a standard band adjudication form (University Interscholastic League, n.d.), subjects completed a written evaluation of the recorded ensemble performance. They were allowed to listen to the recording as often as necessary, and were encouraged to revise the list of rehearsal targets if they so chose.

Following each score preparation activity, a brief interview was conducted in order to assess subjects' breadth of musical knowledge pertaining to the composer of music studied during the task. This knowledge may have been gained through participation in ensemble performance, undergraduate course work, applied lesson experiences, or other music-making activities involving the composers and/or pieces used for the project. Topics addressed during this interview included factual knowledge of the composers and pieces as well as general concepts related to musical style, genre, and historical era.

Table 3 lists the order and type of activities within each of the two sessions, and the end product of each.

### **Selection of Music**

Music selected for use during activities consisted of two sets of excerpts, with one solo and one band excerpt in each set (Appendix D). The first set contained a solo chorale melody by J.S. Bach (Lake, 1938) and a full band score excerpt of an arrangement of a Bach chorale by Alfred Reed (Reed, 1978). The second set consisted of a short melodic

Table 3

Interview session activities.

Session I	Activity
Score Study Interview:	Interview to assess beliefs and opinions on score study.
Solo Score Study I:	Subject prepares solo score; recorded performance of excerpt by subject.
Evaluation I:	Self-evaluation of recorded performance of music from Solo Score Study I.
Composer Interview I:	Interview to assess knowledge of composer of music from Solo Score Study I.
Full Score Study I:	Subject prepares full score; list of priorities to address in first rehearsal.
Evaluation II:	Evaluation of recorded performance of music studied in Full Score Study I.
Composer Interview II:	Interview to assess knowledge of composer of music from Full Score Study I.
Session II	
Solo Score Study II:	Subject prepares solo score; recorded performance of excerpt by subject.
Evaluation III:	Self-evaluation of recorded performance of music from Solo Score Study II.
Composer Interview III:	Interview to assess knowledge of composer of music from Solo Score Study II.
Full Score Study II:	Subject prepares full score; list of priorities to address in first rehearsal.
Evaluation III:	Evaluation of recorded performance of music studied in Full Score Study II.
Composer Interview IV:	Interview to assess knowledge of composer of music from Full Score Study II.

excerpt from Aaron Copland's suite *Appalachian Spring* (Copland, 1945) and a score excerpt from Malcolm Arnold's *English Dances for Band, Set I* (Arnold, 1965). Each activity session used music from one set, and subjects completed tasks in the same order: the solo preparation/self-evaluation task, then the score study/performance evaluation task. The order of sets was varied from subject to subject. To ensure consistency in format and appearance, all music was formatted and printed using a computer software notation application (Finale, 1999). Permission to use the music was obtained from the publishers of each example (Appendices E and F) with the exception of the Bach melody, which is in the public domain.

The criteria for pairing excerpts into sets were based on similarities of certain musical style characteristics. The Bach melody and Reed excerpts shared the following common characteristics: music based on the Baroque-era chorale, minor key, legato style, and slow tempo. The second set was chosen to contrast with the Bach and Reed excerpts, and shared the following characteristics: folk-like melody, major key, marcato style, and brisk tempo. All music was in duple meter.

The two sets differed with regard to the use of musical expression markings. No markings (except for the initial tempo and dynamic) were provided in the Bach/Reed set; the Copland/Arnold set contained all expression markings as indicated by the composers. This allowed comparisons in two contexts, one when subjects are left to their own devices with regard to expressive interpretation, the other when guidelines for interpretation are provided in the score. For purposes of data analysis and discussion, the pairing of the Bach and Reed scores was labeled the Legato score set; the Copland and Arnold pairing was labeled the Marcato score set.

The title and composer were provided for the Reed, Copland, and Arnold excerpts as references for use during composer interviews. The type of music used in the Bach excerpt was a chorale, which can generally be distinguished by its markings indicating slow tempi, legato style, symmetrical phrases and extensive use of fermatas to delineate phrase lengths. In order to assess subjects' effectiveness at identifying form and genre from these types of musical elements alone, the title of the Bach excerpt was omitted.

The use of one solo and one full band excerpt per set provided comparisons between score study processes in different textural contexts. The Reed excerpt was scored in primarily homophonic-style block chords, which provided a within-set contrast between the most basic musical texture (monophonic solo melody) and a texture slightly more complex, yet still fairly simple. The texture of the Arnold excerpt was polyphonic, creating a within-set contrast between monophonic texture and one significantly more complex.

For use in this project, minor changes in the printed music were necessary. The original version of the Bach chorale contained six fermatas; there were no fermatas printed in the Reed score. Therefore, the investigator adjusted the Reed score to include four fermatas in appropriate locations. This was done to facilitate comparisons in fermata treatment that would not have been possible otherwise. In Copland's original score, the excerpt is written in the key of B Major, which is problematic for many wind instruments. To prevent subjects from spending an inordinate amount time on technical aspects, the excerpt was transposed down one half step to B-flat Major, a more common key for wind instruments.



## **Evaluation Forms**

The evaluation forms used during activity sessions (Appendix G) were based on solo and large ensemble adjudication forms published by the Texas University Interscholastic League (U.I.L.), the state governing body for scholastic competitions, for use in all U.I.L.-sponsored solo and band events. The published forms consisted of a single free-response area in which judges are given the opportunity to provide written comments in five categories: Tone, Technique, Interpretation, Selection, and General Effect. Listed with each primary category are several related secondary terms (for example, secondary terms listed in the Tone category include Control, Intonation, Quality, and Naturalness).

The U.I.L. forms were slightly modified for use in this project. The spaces provided for judge's overall numerical rating and signature were removed, as were the spaces for entry information (name, school, etc.) of the contest participant(s). Certain secondary terms that were unrelated to the purposes of this study were omitted. For example, on the solo form under the category Technique, the term Diction was removed, as was the term Accompaniment under the topic Interpretation. The forms were reproduced by the investigator using word processing software, and resembled as closely as possible the format of the originals.

## **Video and Audio Recording/Playback Equipment**

All interview sessions were recorded on a standard videocassette using a Panasonic video recorder. The video recordings were then transferred to audiocassette tapes, which were used for scripting purposes. The videotapes also served as back-up data sources in case of unforeseen technical difficulties or other such problems.

Selection of audio recording equipment was conducted with three primary considerations in mind. First, it was necessary that the equipment be portable, entail minimal set-up time, and be dismantled and stored quickly. Second, the recordings produced needed to be of acceptable audio quality. Finally, the equipment had to allow easy access to recorded data for efficient data analysis. The option that best suited these needs was the use of a laptop computer, digital audio recording software, and a single powered speaker containing an internal amplifier.

Performances recorded during sessions were captured by the digital audio software (via an external microphone), converted to a digital audio file, and stored on the hard drive of the computer. The software allowed for immediate playback of the recording through the powered speaker, which yielded higher quality playback than the internal speakers of the computer. Each subject's completed solo performances were transferred and stored onto compact discs, which facilitated efficient data access and management. The computer, microphone, and speaker were all easily transportable, and could be set up in working order in less than five minutes.

### **Recorded Full Band Performances**

Recordings of band performances used in activity sessions were live recordings of two public school ensembles. For use in the activity sessions, each recording was transferred from cassette tape to a digital audio file, stored on compact disc, and played back in the same fashion as the solo recordings.

In order to provide subjects with substantial material to discuss during ensemble evaluation tasks, the recordings of the full band performances needed to be imperfect and flawed to some degree. A high school band from a rural area recorded the Reed excerpt

during a single rehearsal session. Since the investigator had made changes in the score, a new score and set of parts were produced using music notation software, which were sent to the band director for use in making the recording. The band sight-read the excerpt one time (not recorded), and then recorded the second play-through. At no time during the recording session did the director of the ensemble rehearse the band or give instructions addressing the quality of performance. In this recording, numerous errors are immediately observable and continuous throughout, such as inaccuracies in pitch and rhythm, significant intonation problems and errors in ensemble precision (such as early entrances or missed releases).

The recording of the Arnold excerpt was a junior high school band from a large urban area performing at a district concert festival. In this recording, errors were less obvious than those in the Reed recording. There were few errors in pitch or rhythm accuracy; tone, ensemble precision, and intonation were also of good quality. A discussion with the director (who had reviewed judges' comment sheets from the performance) suggested issues of balance/blend, dynamic control, and consistency of tempo were of primary concern.

In order to verify suitability for use in this project, three professionals with significant experience training young conductors at the collegiate level evaluated the excerpts. The investigator met with the professionals in a single session, played the two excerpts, then asked them to evaluate each. Evaluations were done verbally, with the investigator recording written notes of the professionals' comments. Following the evaluations, the investigator explained the overall nature of the project, the role of the recordings in the interview sessions, and asked the professionals if they believed a novice

conductor could identify similar categories and successfully evaluate the overall quality of the performance. All three professionals agreed that the excerpts were appropriate for use for this type of project and for use with subjects in all three groups.

### **Data Collection & Analysis**

Each individual interview session was videotaped, transferred from videotape to audiocassette, and scripted verbatim from the audiocassette using a stenographer's transcribing machine and a computer word processing program. Primary data were gathered from the transcripts of the interview sessions, and for purposes of data analysis, were divided into three sections: Score Study Interviews, Score Study Procedures, and Composer Interviews.

The primary mode of inquiry for this project was a *basic interpretive qualitative study* (Merriam, 2002). This mode has been identified as the most common form of qualitative research currently found in the field of education (Merriam, 2002, p. 38), and is useful for analysis of processes and identification of variables within the context of those processes. In certain stages of data analysis, quantitative measures such as mean frequencies and percentages were used; however, analysis of quantitative data did not entail use of statistical procedures. All data were analyzed from the basic interpretive qualitative perspective.

### **Data Coding and Analysis: Score Study Interviews**

Data gathered from the brief Score Study Interviews were entirely qualitative in nature. No numerical data were used to describe results or facilitate comparisons among subject groups. Analysis of these data sources was done through repeated review and comparison of responses in an effort to achieve *data saturation*, or the point when "...

data and emerging findings ... feel saturated; that is, you begin to see and hear the same things over and over again” (Merriam, 2002, p. 26).

Primary themes and trends identified during analysis were compared within the following contexts. First, overall themes that seemed to permeate responses from all subjects, regardless of education level or achievement level, were identified. Next, salient themes were compared among education level groups, followed by comparisons among achievement level groups. Finally, themes were compared among achievement level within each education level group. Themes and/or differences that appeared to be most consistent throughout comparisons in each of these contexts were reviewed, summarized, and presented for discussion.

#### **Data Coding and Analysis: Score Study Procedures**

Word processing files of completed transcripts were imported into a computer application program designed to assist in the coding, evaluation and analysis of qualitative data (ATLAS.ti, 2002). Transcripts were formatted in an effort to identify *statements* made by each subject during interview sessions. In the context of this study, statements were considered to be similar to sentences; due to the verbal nature of the response, however, statements did not always entail complete, grammatically correct sentences as they might appear in written form. Extra words, such as “like,” “well,” and verbal tics such as “um” and “uh” were common occurrences in responses from all subjects. Also, during the transcription process, it was not uncommon for subjects to pause between responses that were linked to the same train of thought. For example, a subject might be talking about phrasing, then pause for ten seconds before resuming that same discussion. The investigator relied on repeated playback of audio recordings of

interview sessions during the transcribing process (which was easily facilitated through use of the stenography machine), and transcribed each statement to best represent the verbal data in written form.

The sequence of analysis of score study procedures and subsequent comparisons involved three stages. The first stage of analysis consisted of an examination of the overall amount of data within score study procedures apart from considerations of topical content. The primary units of data were the individual statements from the interview transcripts. Total numbers of statements made by all subjects were counted, and mean frequencies of total statements calculated for each education and ability level group within the following contexts: combined solo scores, combined full scores, combined music sets, and each of the four individual scores. Comparisons of mean frequencies of statements were made among all possible combinations of education and achievement level groups.

The second stage of analysis involved a thorough statement-by-statement examination of topical content addressed during score study. Each transcript was reviewed, and each statement coded according to the topics listed on the evaluation sheets. These topics provided a starting point from which coding categories might be refined and delineated. During two subsequent rounds of coding, related topics were merged into one category or renamed to ensure consistency of coding between full and solo score contexts. For example, the topics of Articulation, Attack and Release on the band evaluation form were merged into the single topic category of Articulation. In the context of solo score preparation, the code Artistry was renamed Musicianship.

Analysis of transcripts indicated the necessity of additional coding categories. Four categories were created for topics of Meter, Range, Tempo, and Evaluation, which were used in coding both solo and full score contexts. The Evaluation category described statements in which a subject commented on the difficulty or quality of the piece being studied (i.e. “This looks to be about a grade 5 piece for high school band.”). Three codes were created for use in full score contexts only. Rehearsal Method was used to categorize statements in which subjects described specific techniques, procedures, or methods that they might use in a rehearsal to address a given issue or problem. Score Study Method categorized statements in which subjects identified methods of score study they would use under normal circumstances, but could not within the setting of the interview (i.e. “Normally, I would mark this section with a yellow highlighter, but I don’t have one here, so I’ll mark it with a pencil.”). Conducting/Gesture described statements in which subjects described a specific aspect related to physical gestures, baton technique, or cueing (i.e. “I would cut that note off with my left hand, then cue the cymbals with the baton in my right hand.”). A complete list of categories used in the final rounds of coding is given in Table 4.

To ensure consistency of coding among all transcripts the investigator developed a standard procedure, which is described in the following examples:

- 1) “I am looking at the rhythm at the beginning of the piece.”

If a subject addressed a single topic once in a single statement with no additional topics identified, this was coded as one topic statement. The example above would be coded as one statement in the Rhythm category.

Table 4

Coding categories for data analysis.

Context	Categories
Solo ( <i>16 categories</i> )	Accidentals, Articulation, Context, Dynamics, Evaluation, Fermatas, Key, Meter, Other, Phrasing, Pitch Accuracy, Range, Rhythm, Style, Tempo, Tone.
Full Score ( <i>26 categories</i> )	Accidentals, Articulation, Balance/Blend, Conducting, Context, Dynamics, Ensemble Precision, Evaluation, Fermatas, Instrumentation, Intonation, Key, Melody, Meter, Musicianship, Other, Phrasing, Pitch Accuracy, Range, Rehearsal Method, Rhythm, Score Study Method, Style, Tempo, Texture, Tone.



2) “I am looking at the rhythm in the flute part.”

If a subject addressed more than one topic in a single statement, with only one occurrence of each topic, the statement was coded once in each category identified. Since the subject identified both rhythm and a specific instrumental part, this example would be coded with one Rhythm statement and one Instrumentation statement.

3) “I am looking at the rhythm at the beginning, and now I am looking at the rhythm in the last measure”.

If a single topic was addressed more than one time, with no additional topics identified within the statement, this was categorized as one topic statement. In this case, the subject addressed rhythm twice, but identified no other topic within the statement. Therefore, this example would be categorized as one Rhythm statement.

4) “I am noticing the rhythm in the flute part, and the rhythm at the end of the piece”.

If the subject addressed a topic more than once within a statement, but addressed additional topics in between subsequent occurrences, the statement was coded once for each individual occurrence of the topic. In the example above, the subject addressed rhythm, then identified a specific instrumental part, then returned their attention to rhythm. Coding for this example would have resulted in two statements in the Rhythm category, and one statement in the Instrumentation category.

5) “I am noticing the rhythm at the beginning, now I see the rhythm in the last measure, but the rhythm in the flute part is different than the rhythm at the beginning or the rhythm in measure five.”

In this example, the subject addressed rhythm three consecutive times, identified a specific instrument part once, then addressed rhythm twice more. In this type of statement, the investigator first applied the principle that multiple, consecutive occurrences of a topic were always coded as one single topic statement (following the procedure given in step 3). Once all consecutive statements of a topic were grouped and coded, the remainder of the statement would be coded according to procedures outlined in step 4. In the example above, the three consecutive rhythm comments would be coded as one single statement in the Rhythm category; the two consecutive rhythm comments at the end of the response would also be coded as one Rhythm statement. The identification of the flute part would be coded as one Instrumentation statement. In total, coding of this example would result in two Rhythm statements and one Instrumentation statement.

The primary units of data for analysis and comparisons in the second stage were the coded statements from interview transcripts. Occurrences of statements in each topic were counted and totaled, and frequencies of statements converted to percentages of total statements made by each education and achievement level group. Percentages were calculated in order to facilitate comparisons among all possible combinations of education and achievement level groups among all score contexts.

In the contexts of this study, comparisons of each individual topic among all education and achievement level groups seemed impractical. For this reason, related topics were combined to better facilitate meaningful data analysis. Three topic groups were created: Technical, Expressive, and Full Score. The Technical group included topics related to technical aspects of performance, such as pitch accuracy, rhythm accuracy, and range. The Expressive group included topics related to the expressive elements of

performance such as phrasing, tempo, and style. Full Score topics were those that were used only in coding of transcripts in which the subject was engaged in studying a full score, such as ensemble precision, balance, and rehearsal method. Three topic categories, Context, Evaluation, and Other, were not included within topic groups, but were included in all data analysis and comparisons. A complete list of all topic groups is provided in Table 5.

Table 5

Topic groups used during data analysis and comparisons of score study procedures.

Topic Group	Topics Included
Technical	Accidentals; Articulation; Key; Meter; Pitch Accuracy; Range; Rhythm Accuracy; Tone; Balance/Blend; Ensemble Precision; Instrumentation; Intonation; Rehearsal Method; Score Study; Texture
Expressive	Dynamics; Fermatas; Phrasing; Style; Tempo; Conducting; Melody; Musicianship;
Context	Context
Evaluation	Evaluation
Other	Other

In the final stage of analysis, a broader approach was used in an effort to gain a more holistic perspective of score study procedures. Interview transcripts were reviewed and analyzed in an effort to gain insight into the following three areas: sequence of events within score study procedures; degree of specificity within verbal descriptions of score

study activities; elements of decision-making while engaged in score study. The investigator reviewed all transcripts in an effort to identify salient trends and themes in relation to these three areas. Comparisons of findings were made among all possible combinations of education and achievement level groups.

The three areas investigated during this stage highlight potential indicators of subjects' depth of knowledge and understanding of score study procedures. Educational scholars suggest that a student's ability to identify specific components of a topic or process, prioritize and sequence components in a logical manner, and make contextually, domain-appropriate decisions regarding treatment or validity of components is indicative of deeper levels of cognitive knowledge and understanding (Anderson, Krathwohl, Airsan, Cruikshank, Mayer, Pintrich, et al; Gardner, 2000; 2001 Wiggins & McTighe, 1998). Given that the subjects in this study were all music education majors, implications of these three areas of analysis extend towards issues of teacher training as well. Extant literature has identified elements of verbal specificity, logical sequencing of instructional materials, and contextually appropriate, proactive decision-making as important characteristics of effective teaching (Bergee, 1992; Duke, 2001; Price & Byo, 2002; Teachout, 1997).

In addition to the three primary areas of analysis, the investigator also explored two additional subtopics that deal directly with issues derived from descriptions of personal score study habits of expert conductors. In the first subtopic, the investigator sought to determine if audible sound was used by subjects during score study procedures, identify trends with regard to use of audible sound in varying score contexts, and identify salient themes evident across education and achievement level groups. Review of extant

literature suggests that many experts work with audible sound during score preparation; though the topic of whether or not a conductor should use recordings of works as a score study aid is one of considerable debate. Most experts, however, indicate that work at the keyboard is beneficial to development of a conductor's internal sound image, especially for novices with less experience and training. In the contexts of this study, activities described as 'working with sound' involved the subject creating audible sound, then responding to that sound in some fashion – evaluation, repetition for refinement of performance or assimilation of technical skills, or as an aid to musical decision-making.

In the second subtopic, the investigator also sought to determine if subjects worked towards the development of an internal sound image when engaged in score preparation. As noted in Chapter 1, the general consensus of the opinions and beliefs of expert conductors indicated that development of an internal sound image through score study is essential. It is the first step in the preparation process, and subsequently, can guide a majority of decisions regarding conducting gesture, musical interpretation, and rehearsal planning. Therefore, it seemed necessary to determine if undergraduate, novice conductors demonstrated aspects of internal sound image development within the scope of their score study procedures. Studying a score with the intent of developing an internal sound image was primarily indicated by the subject's effort to memorize all or parts of the music, attempts to assimilate musical expression through physical gesture related to conducting, or other activities that may have resulted in the ability to, as one more than one expert conductor has described, 'hear the piece inside their head.'

## **Data Coding and Analysis: Composer Interviews**

Responses given during Composer Interviews were coded according to the following categories: Accurate, Inaccurate, Suspect, I Don't Know. Accurate responses were those that were clearly and inarguably correct (such as the dates of a composer's life being given accurately). Inaccurate responses were those that were clearly and inarguably incorrect (such as association of a composer with an incorrect style period). Responses categorized as Suspect lacked sufficient information to be classified as either Accurate or Inaccurate. For example, many subjects stated, "I have played a lot of stuff by this composer, but I can't recall any titles." It is possible that they were recalling the correct composer; however, it is just as possible that they were recalling a similar piece by a different composer. Therefore, this type of statement was coded as Suspect due to lack of specificity. I Don't Know responses were those in which subjects specifically stated that they did not know an answer to a certain question.

The primary units of data for Composer Interviews were the individually coded responses. Responses in each category were counted and totaled, and means for each education and achievement level group were calculated. Means of occurrences of response types were calculated in order to facilitate the following contexts for data analysis: 1) comparisons among education level groups, 2) comparisons among achievement level groups, and 3) comparisons among achievement levels within education level groups.

The order of comparisons of means was structured to progress from broad perspectives to those more narrow and focused in detail. First, overall means of each response category were compared within each of the three perspectives, followed by

comparisons of means of response categories for each of the four separate composer interviews. The investigator identified salient trends in each comparison context, and those that seemed to permeate all levels and contexts of data analysis were recorded, summarized, and presented for discussion.

### **Reliability and Triangulation**

Of primary concern in any study is the validity and reliability of the research design. Merriam (2002) recommends several strategies to help ensure validity and reliability in qualitative research. Strategies identified by Merriam that were used in this study include purposeful sampling, data saturation, triangulation, and peer-review.

The use of purposeful sampling and its role in the subject selection process has been described, as has the role of data saturation in the analysis of Score Study Interviews. Triangulation was achieved primarily through comparisons of data sources within multiple contexts (education and achievement level groups), and by analyzing data from multiple perspectives, in this case, progression from broad views of data to those more narrow and focused in detail.

The strategy of peer-review, consultations with a colleague to discuss data results and possible interpretations, was employed through the use of an outside reliability observer. An expert researcher who was familiar with the project served as the observer. The investigator met with the observer on two occasions; the first meeting served to orient the observer with the coding procedures, during the second session the observer watched as the investigator coded portions of two separate transcripts. The investigator then provided the observer with printouts of completed transcripts (including all codes) for two subjects from each group (approximately 30% of the total number of transcripts).

The observer reviewed each transcript, making notes where conflicts or uncertainties might have arisen. The investigator met with the observer again once the review was complete. Each of the conflicts and uncertainties was discussed and resolved; on several points resolution necessitated recoding of all transcripts. The result of this procedure created 100% agreement between the investigator and the peer observer for the six sets of transcripts reviewed.



## CHAPTER 4: RESULTS

Primary data sources for analysis were the transcripts from the videotapes of the sessions between subjects and the investigator. A total of 42 interview sessions yielded approximately 90 hours of videotaped data that, when transcribed, produced approximately 210 pages of written material. The results of data analysis are presented in the following order: Score Study Interviews, Score Study Procedures, and Composer Interviews. A summary of all results concludes the chapter.

The recording of performances following solo score study and the lists of rehearsal targets completed during full score study tasks were done primarily in the interests of constructing logical ends towards which subjects' score study procedures could be directed. A logical end goal of preparing a piece of solo music on a primary instrument is the performance of the piece in public. Similarly, a logical end result of studying a score in preparation for a rehearsal is a list of objectives to be achieved. Therefore, the recordings of solo performances and lists of rehearsal targets were not used as data sources. The investigator intended that the evaluation sheets completed by subjects following score study tasks be used as secondary data sources. Evaluation sheets yielded no meaningful data, possibly due in part to the lack of structure inherent in the free-response format. Therefore, the evaluation sheets were not used during data analysis.

### **Score Study Interviews**

The purpose of the interview conducted at the beginning of the first session was to gain insight to subjects' preconceived ideas concerning the process of score study, its function, and its relationships with other behaviors relevant to ensemble rehearsal and performance. A secondary purpose was to identify perceptions of where knowledge of

score study was learned (for example, mentorship from an experienced teacher, university course work, personal experience, etc.).

The first question of the interview directed subjects to provide their own definition of score study in as much detail as possible. A Lower-level Undergraduate subject responded with the following:

The way I see it now is looking over a score, finding out just the tiny little details about dynamics and tempos, and reading through it to see what you can do better to help your band or orchestra play the piece. Anything you can do to make it sound better. Getting familiar with it so you know it, so you don't get up there and look like a fool.

Two key elements of this response, representative of a majority of responses to this question in the Lower-level Undergraduate group, are worth noting. First, score study is viewed solely in relation to effective rehearsing, and not as a fundamental component of creative music making. For subjects in this group, the function of score study is to "...help your band or orchestra play the piece." Second, a lack of specificity within the definition can be noted with such phrases as "Getting familiar with it...", "...reading through it to see what you can do better...", and "...looking over a score, finding out just the tiny little details..."

The following example is representative of the responses from the Upper-level Undergraduate group:

[Score study is] learning the score, and knowing how to sing through the entire melody all the way through, knowing what instrument has the melody where, where the important countermelodies are, knowing the dynamics, knowing the

map of the score, knowing dynamics, where dynamics, tempos, meter, knowing like the whole basis, and then being able to study it well enough so that you can get into a rehearsal and you know what to rehearse before you hear a problem.

Within this example there are numerous instances of vague description, (i.e. “knowing like the whole basis...,” “knowing the map of the score...”); however, there are also suggestions that certain aspects of the subject’s perceptions of score study reflect a higher degree of specificity than the example from the Lower-level Undergraduate subject. For example, the subject says the conductor should know how to sing the melody through the entire piece. Seven of the nine subjects in the Upper-level Undergraduate group provided definitions containing descriptions of specific areas of knowledge such as theoretical analysis, historical background of the composer and piece, and issues related to instrument transposition and score-reading. As with the Lower-level Undergraduates, subjects in the Upper Level Undergraduate group tended to view score study solely in relation to rehearsal preparation.

Student Teachers were similar to Upper-level Undergraduates in that a majority of subjects in this group (five of six) gave a definition of score study that included descriptions of specific areas of knowledge. Some responses from the Student Teacher group, however, included aspects of artistic functions of score study, as evidenced in the following example:

Score study involves taking a composer’s written piece of music, going over the ins and outs [*sic*] of every aspect of what the composer has written, and defining what interpretation you want from what he wrote. Because you can’t get inside that composer’s mind, especially if he’s passed away, so your job when you are

score studying [*sic*] trying to figure out what was this person's intent, why did he write it like this, and how it is supposed to sound.

Although a certain amount of vagueness is present in this definition, the idea of score study as an element of musical expression is evident. Two subjects in this group responded with definitions of score study that included references to artistic functions of score study. The notion of score study being related to rehearsal effectiveness was still predominant, however, with responses from five of six subjects reflecting this particular view.

A related follow-up question directed subjects to describe how or from where their definition of score study was learned or developed. Not surprisingly, the content in these responses seemed to be directly related to training and experience. Lower-level Undergraduates described their definition of score study as developing from personal observations of more experienced teachers or from their own opinions, Upper-level Undergraduates tended to describe their definition in relation to knowledge gained from conducting and music education courses, and Student Teachers described a synthesis of knowledge learned in undergraduate course work with personal experience gained during student teaching.

The next question in the interview directed subjects to describe their perceptions of relationships between score study and other aspects of performing, rehearsing and conducting. All subjects, regardless of education or achievement level, could identify and describe at least one aspect of performing, rehearsing, or conducting that might be directly related to or affected by score study. For example, a subject in the Lower-level

Undergraduate group identified a relationship between score study and knowledge of potential problem areas in teaching a specific instrument:

By studying the score and knowing where the students are going to have problems in their pieces, you can give them ways that they can fix their problems while they rehearse, tell them how to rehearse it. You can know where the trouble spots are before they actually get to them, kind of have beforehand knowledge of, you know [*sic*], this clarinet part is crossing the break, they are going to have trouble with that or this part is hard to hear the partials or whatever. So you can know before you get to that part in rehearsal [*sic*], you already know and have a plan about that and how you are going to approach it, then you fix it.

A Student Teacher subject reflected a similar view, and related the identification of problems and rehearsal effectiveness to overall goals of the rehearsal process:

Score study is going to make your rehearsing more efficient, because you know where the problems are, you know what you want to hear, and you can attack it whereas if you don't study a score and you just get up there and start conducting, you are sort of in a read and react kind of thing. And with practicing, you have to look at each individual part in the score, just as your first chair clarinet player has to look at his or her individual part and know the ins and outs [*sic*] of it. And, obviously, I think if you do all of those things, and your kids do all those things, then the musical performance aspect of it is going to be absolutely wonderful because you are going to make real music.

A follow-up question directed subjects to described their perceptions on where they learned or became aware of the relationships between score study and other aspects

of performing, rehearsing, and conducting. As was the case with the definitions of score study, Lower-level Undergraduates relied on personal observations of experienced teachers, Upper-level Undergraduates referred to knowledge gained from conducting and music education courses, and Student Teachers described a synthesis of knowledge learned in undergraduate course work with personal experience gained during student teaching.

Next, subjects were asked to describe the end goal, or desired result, of score study. Lower-level Undergraduates responded most frequently with vague concepts such as “You know a piece really well,” or “You get a broader concept of the piece.” Two subjects responded initially with one-word answers of “Satisfaction” and “Knowledge,” which were then elaborated on slightly in the latter part of the response.

Upper-level Undergraduates tended to describe the end product in one of two ways. Responses from five of nine subjects in this group were very similar to those given by Lower-level Undergraduates. These responses tended to be vague, such as, “You know the score inside and out.” Four subjects, however, responded with an approach reflective of major disciplinary ways of thinking by experts in the field of conducting. One example of this type of response is as follows:

[The result of score study is] ...an idea of just the music that is on the page, like [*sic*], you have an idea, you’ve taken a tangible thing and made it abstract by being able to put it inside of you and inside your head. Instead of keeping it on the page, you’ve internalized the score.

Expert conductors very often describe the end product of score study in terms of an internalized sound image; the ability to “hear the piece” inside one’s head as a result of intensive and thorough score study.

Student Teachers’ responses to this question reflected similar trends as those from the Upper-level Undergraduates. Responses from three subjects contained vague descriptions of “knowing the score;” responses from the three other subjects described the end product as an internalized sound image. For example, one subject identified the product of score study as follows:

[A] sound clip in your head and how it’s supposed to sound. If you see you have all of these notes or whatever on a page and markings [*sic*], you take that through score study and you figure out in your head how it is supposed to sound before you play it or before you rehearse it...

Finally, subjects were asked to describe their experience with score study. All six Lower-level Undergraduates indicated little or no experience. Eight of nine Upper-level Undergraduates indicated that their experience was limited to work done in music education and conducting courses (one subject described some prior experience gained while assisting in a local private school band program). In addition to experience gained in undergraduate course work, all six Student Teacher subjects could name at least one specific piece (title and composer) that they had studied thoroughly during the course of their student teaching experience.

Comparisons of responses in score study interviews among High and Medium musical achievers across all education level groups suggested no apparent trends. One element of note did emerge among achievement level comparisons within the Upper-

level Undergraduate and Student Teacher groups. In responses to the question concerning the end product of score study, one might expect that High achievers would be more apt to respond with the approach reflective of expert ways of thinking. Comparisons among High and Medium achievers within these two groups, however, suggested no such trend. Of the five Upper-level Undergraduates who responded with vague concepts, three were High achievers; of the four describing internalized sound, one was a High achiever. Three Student Teacher subjects (one High achiever and two Medium) responded with vague concepts; the remaining three subjects (also one High achiever and two Medium) responded by describing internalized sound images.

### **Score Study Procedures**

Analysis of score study procedures was done in three stages. The first stage was an examination of the overall volume of data apart from topical content. The second stage consisted of the categorization of each individual statement according to topical content. The third stage involved review and analysis of complete procedures within each score context in an effort to describe score study in a more holistic manner. In the context of this study, use of fractions of numbers representing mean frequencies (i.e. ‘Student Teachers responded with 63.43 statements.’) was deemed impractical. Therefore, all calculated means and percentages were rounded to the nearest whole number, and were used solely to lend perspective to the data rather than indicate exact magnitude of differences or statistical validity among comparisons.

In the first stage of analysis (examination of the overall volume of data), statements made by all subjects in each score study context were counted. Mean frequencies of statements were compared across score contexts (individual composers,



solo scores, full scores, and legato/marcato score sets) and all possible combinations of education and achievement level groups.

Table 6 lists the mean frequencies of statements in each individual composer score context, as well as mean frequencies of statements in combined solo score and combined full score contexts. Results indicated that, overall, subjects tended to respond more frequently in full score contexts than in solo score contexts. The only exception to this trend is evident within the Student Teacher group responding to the Bach solo score; data indicated that Medium achievers in this group responded on average with 50 statements, three statements more than when studying the Reed full score. It should be noted, however, that one of the four Medium-achieving Student Teacher subjects responded considerably more frequently than any other subject in that same group. Therefore, the mean frequency reported in the table may be slightly inflated and somewhat misrepresentative of the overall group trend.

In general, as education level increased, the mean frequencies of statements tended to increase. Stated another way, subjects at more advanced education levels tended to respond more frequently than did subjects at lower education levels. The rate of increase in mean frequencies of statements across education level groups was greater within full score contexts than in solo score contexts. For example, a difference of 21 statements can be observed when comparing the mean number of statements made by Lower-level Undergraduates in combined solo scores (14) to the number of statements made by Student Teachers in the same context (35). Comparisons of statements in the

Table 6

Mean frequencies of statements in solo and full score contexts.

Solo Scores					
Achievement	Context	LL UG <sup>1</sup>	UL UG <sup>2</sup>	ST <sup>3</sup>	Total <sup>4</sup>
High	Bach	8	23	19	18
	Copland	13	10	33	16
	Combined	11	17	26	17
Medium	Bach	13	18	50	26
	Copland	20	28	29	27
	Combined	17	23	40	26
Total	Bach	11	20	40	
	Copland	17	20	30	
	Combined	14	20	35	
Full Scores					
Achievement	Context	LL UG	UL UG	ST	Total
High	Reed	25	72	107	69
	Arnold	30	51	140	68
	Combined	28	62	124	68
Medium	Reed	51	54	47	51
	Arnold	31	79	104	72
	Combined	41	67	75	61
Total	Reed	42	62	67	
	Arnold	30	67	117	
	Combined	36	65	91	

<sup>1</sup>LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>2</sup>UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).<sup>3</sup>ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>4</sup>High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

combined full score context show a larger difference of 55 statements (36 made by Lower-level Undergraduates compared to 91 from Student Teachers).

Within solo score contexts, subjects in the Lower-level Undergraduate group, Medium achievers tended to respond more frequently than High achievers. Among Upper-level Undergraduate subjects, High achievers tended to respond more frequently than Medium achievers in the Bach score context, whereas Medium achievers responded more frequently in the Copland score context. In the Student Teacher group, Medium achievers responded more frequently than High achievers in the Bach score context; within the Copland score context, High achievers responded more frequently.

In full score contexts, Medium achievers in the Lower-level Undergraduate group tended to respond more frequently than High achievers in the Reed score context; comparisons in the Arnold score context suggested minimal differences. Among Upper-level Undergraduate subjects, High achievers tended to respond more frequently than Medium achievers in the Reed score context, whereas Medium achievers responded more frequently in the Arnold score context. In the Student Teacher group, High achievers consistently responded more frequently within both full score contexts.

Among achievement level groups, the rates of increase of mean statements in solo score contexts across education level groups were similar between High and Medium achievers. Within full score contexts, the rates of increase across education level were much more substantial for High achievers than for Medium achievers. For example, comparisons between High achievers in the Lower-level Undergraduate and Student Teacher groups revealed a difference of 96 statements in the combined full score context (28 for Lower-level undergraduates, 124 for student teachers). Comparisons of Medium

achievers in the same education level groups within the same context revealed a much narrower difference of 34 statements (41 from Lower-level Undergraduates compared to 75 for Student Teachers).

Table 7 lists the mean frequencies of statements made by each education and achievement level group in each score set. The Marcato score set (Copland solo score and Arnold full score) included all expressive markings as originally indicated by the composer, including dynamics, articulation, and tempo. Apart from an indication of initial tempo, the scores in the Legato set (Bach solo score and Reed full score) did not contain any of these markings.

Table 7

Mean frequencies of statements in score sets.

Legato Score Set				
<i>(Bach Solo Score and Reed Full Score)</i>				
Achievement	LL UG <sup>1</sup>	UL UG <sup>2</sup>	ST <sup>3</sup>	Total <sup>4</sup>
High	17	48	63	44
Medium	32	36	49	39
Total	27	41	54	
Marcato Score Set				
<i>(Copland Solo Score and Arnold Full Score)</i>				
Achievement	LL UG	UL UG	ST	Total
High	21	31	87	42
Medium	25	53	67	49
Total	24	43	74	

<sup>1</sup>LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).

<sup>2</sup>UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).

<sup>3</sup>ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).

<sup>4</sup>High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

Results indicated that the overall rate of increase in mean frequencies of statements (comparing Lower-level Undergraduates to Student Teachers) was greater in the Marcato score set than in the Legato score set. A difference of 27 statements between Lower-level Undergraduates and Student Teachers can be observed in the Legato score set, compared with a difference of 50 statements in the Marcato set. This trend was also observed in comparisons among High and Medium achievers across education level groups.

Within both Legato and Marcato score sets, the rate of increase in mean frequencies of statements across education level groups (when comparing Lower-level Undergraduates to Student Teachers) was greater for High achievers than for Medium achievers. In the Legato score set, a difference of 46 statements (17 statements from Lower-level Undergraduates compared to 63 from Student Teachers) can be observed for the High achievers, whereas a difference of only 17 statements can be observed for Medium achievers. In the Marcato score set, a difference of 66 statements was observed for High achievers compared to a difference of 42 statements for Medium achievers.

The second stage of analysis focused on the topical content of statements made during score study activities. Each statement was coded according to the individual topics derived from the evaluation sheets (see Table 5, p. 57) and counted, and percentages of topic statements in relation to total statements made by groups were calculated (tables listing these data are presented in Appendix H). Statements were then sorted into topic groups (Table 5, pg. 57), frequencies of statements in topic groups were counted and totaled, and percentages of statements calculated in relation to total statements in each

score context. Percentages of statements in topic groups were compared among subjects in all possible combinations of education and achievement level.

Table 8 lists the percentages of statements in topic groups for solo and full score contexts. Results indicate that within solo score contexts, total percentages of technical statements decreased as education level increased, and statements in the Expressive category increased as education increased. Total strategies statements in solo contexts remained fairly consistent across education level groups, and Other statements tended to increase slightly as education level increased. Within full score contexts, percentages of Technical statements were consistently in the 52%-62% range for all subject groups. Percentages of Expressive statements remained fairly consistent (10% - 24%) across education level groups; percentages of statements in the Strategies category increased slightly as education level increased. Results suggested a minimal use of Other statements across all education level groups.

Results indicated a greater balance of percentages of statements among Technical, Expressive and Strategies topic categories within solo score contexts. In most cases, percentages in each of these three topic categories fell with the 20%-40% range. By contrast, statements in full score contexts were decisively focused on the Technical area, with percentages in this topic group consistently in the 50%-60% range. In most cases, percentages of Strategies statements in full score contexts accounted for approximately 20%-30%; percentages of Expressive statements exceeding 20% in only one subject group (Lower-level Undergraduate High achievers). Percentages of Other statements in full score contexts were 4% or lower for all subject groups.

Table 8

Percentages of statements in topic groups within solo and full score contexts.

Achievement	Topic	Solo Scores		ST <sup>3</sup>	Total <sup>4</sup>
		LL UG <sup>1</sup>	UL UG <sup>2</sup>		
High	Technical	44	22	31	32
	Expressive	22	52	41	38
	Strategies	15	22	22	20
	Other	19	4	6	10
Medium	Technical	30	34	15	26
	Expressive	30	28	43	34
	Strategies	28	21	21	23
	Other	12	17	21	17
Total	Technical	34	30	19	
	Expressive	28	37	42	
	Strategies	25	21	21	
	Other	13	12	18	

Achievement	Topic	Full Scores		ST	Total
		LL UG	UL UG		
High	Technical	58	56	52	55
	Expressive	24	10	18	17
	Strategies	15	32	27	25
	Other	3	2	3	3
Medium	Technical	62	52	58	57
	Expressive	15	15	16	15
	Strategies	21	30	27	25
	Other	2	3	3	3
Total	Technical	60	54	55	
	Expressive	17	13	17	
	Strategies	20	31	24	
	Other	3	2	4	

<sup>1</sup> LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>2</sup> UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).<sup>3</sup> ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>4</sup> High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

Table 9 lists the percentages of statements among topic groups in Bach and Copland solo score contexts. Results indicated that in the Bach solo score context, percentages of statements in the Expressive topic group tended to reflect approximately half of the total number of statements (one exception occurred among High achievers in the Lower-level Undergraduate group). In general, percentages of Expressive statements tended to increase as education level increased, and percentages of Technical statements tended to decrease as education level increased. Percentages of statements in the Strategies topic group were consistently between 20%-25%. Comparisons among High achievers suggested that percentages of statements in the Other topic group tended to decrease as education level increased; comparisons among Medium achievers suggested the opposite. Comparisons among subject groups in the Copland score context indicated a greater focus on Technical elements than was observed in comparisons in the Bach score context. Similar to the Bach score context, within the Copland score context percentages of statements in the Technical topic group tended to decrease, and statements in the Expressive topic group tended to increase. In most cases, percentages of Strategies statements reflected approximately 19%-29% of total statements. As was observed in the Bach score context, percentages of Other statements tended to decrease among High achievers as education level increased, whereas the opposite was observed among Medium achievers.

Table 10 lists percentages of statements in topic groups within the Reed and Arnold full score contexts. Results indicated a high degree of similarity among percentages when compared between the two scores. In general, percentages of



Table 9

Percentages of statements in topic groups within Bach and Copland solo score contexts.

Achievement	Topic	Bach Score		ST <sup>3</sup>	Total <sup>4</sup>
		LL UG <sup>1</sup>	UL UG <sup>2</sup>		
High	Technical	31	13	24	23
	Expressive	25	60	53	46
	Strategies	25	23	21	23
	Other	19	4	2	8
Medium	Technical	22	20	11	18
	Expressive	48	46	50	48
	Strategies	26	20	19	22
	Other	4	14	20	12
Total	Technical	24	16	13	
	Expressive	42	53	50	
	Strategies	26	22	19	
	Other	8	9	18	

Achievement	Topic	Copland Score		ST	Total
		LL UG	UL UG		
High	Technical	52	45	35	44
	Expressive	20	35	34	30
	Strategies	8	17	23	16
	Other	20	3	8	10
Medium	Technical	36	43	23	34
	Expressive	18	16	32	22
	Strategies	29	22	25	25
	Other	17	19	20	19
Total	Technical	40	44	27	
	Expressive	18	20	32	
	Strategies	24	21	24	
	Other	18	15	17	

<sup>1</sup>LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>2</sup>UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).<sup>3</sup>ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>4</sup>High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

Table 10

Percentages of statements in topic groups within Reed and Arnold full score contexts.

Achievement	Topic	Reed Score		ST <sup>3</sup>	Total <sup>4</sup>
		LL UG <sup>1</sup>	UL UG <sup>2</sup>		
High	Technical	50	56	52	53
	Expressive	24	14	21	20
	Strategies	26	26	25	25
	Other	0	4	2	2
Medium	Technical	61	53	65	60
	Expressive	17	18	19	18
	Strategies	20	26	12	19
	Other	2	3	4	3
Total	Technical	59	55	58	
	Expressive	18	16	20	
	Strategies	21	26	19	
	Other	2	3	3	

Achievement	Topic	Arnold Score		ST	Total
		LL UG	UL UG		
High	Technical	64	56	52	57
	Expressive	24	3	16	14
	Strategies	7	40	28	25
	Other	5	1	4	4
Medium	Technical	63	52	55	57
	Expressive	11	14	14	12
	Strategies	23	32	28	28
	Other	3	2	3	3
Total	Technical	64	53	54	
	Expressive	15	10	15	
	Strategies	18	35	27	
	Other	3	2	4	

<sup>1</sup> LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>2</sup> UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).<sup>3</sup> ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>4</sup> High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

statements in the Technical topic group represented more than half of total statements in each context. Subjects tended to focus a large majority of their attention on Technical aspects and Strategies, as statements in these two subject groups consistently accounted for 75% or more of total statements for all education and achievement level groups. Percentages of statements in the Expressive topic group were generally 20% or less, and in one context (High achieving Upper-level Undergraduates studying the Arnold score), represented only 3% of total statements. Percentages of Other statements were 5% or lower for each education and achievement level group in both score contexts. The consistency of percentages among all topic categories across subject level groups seems to indicate minimal effects of training on subjects' selection of elements to address during score study procedures.

Table 11 lists percentages of statements in topic groups among combined score sets. The Marcato score set (Copland solo score and Arnold full score) included all expressive markings as originally indicated by the composer, including dynamics, articulation, and tempo. Apart from an indication of initial tempo, the scores in the Legato set (Bach solo score and Reed full score) did not contain any of these markings.

In general, within the Legato score set, statements were fairly evenly distributed between Expressive, Strategies, and Technical categories. With the Marcato score set, percentages of statements in the Technical and Strategies categories were noticeably higher than percentages of statements in the Expressive category. Percentages of statements in the Strategies topic group tended to represent approximately 20%-25% of all statements; comparisons among subject groups suggested that in the Marcato score

Table 11

Percentages of statements in topic groups within combined score sets.

Achievement	Topic	Legato Score Set ( <i>Bach Solo Score and Reed Full Score</i> )		ST <sup>3</sup>	Total <sup>4</sup>
		LL UG <sup>1</sup>	UL UG <sup>2</sup>		
High	Technical	45	46	48	46
	Expressive	24	25	26	25
	Strategies	26	25	25	26
	Other	5	4	1	3
Medium	Technical	53	45	37	45
	Expressive	23	25	35	28
	Strategies	21	24	16	20
	Other	3	6	12	7
Total	Technical	52	45	41	
	Expressive	23	25	31	
	Strategies	22	25	19	
	Other	3	5	8	

Achievement	Topic	Marcato Score Set ( <i>Copland Solo Score and Arnold Full Score</i> )		ST	Total
		LL UG	UL UG		
High	Technical	61	53	49	54
	Expressive	23	9	20	17
	Strategies	7	37	27	24
	Other	9	1	4	5
Medium	Technical	53	49	48	50
	Expressive	14	14	18	15
	Strategies	25	30	27	27
	Other	8	7	7	8
Total	Technical	55	51	48	
	Expressive	17	12	19	
	Strategies	20	32	27	
	Other	8	5	6	

<sup>1</sup> LL UG = Lower-level Undergraduates ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>2</sup> UL UG = Upper-Level Undergraduates ( $n = 9$ ; High Achievers = 4, Medium Achievers = 5).<sup>3</sup> ST = Student Teachers ( $n = 6$ ; High Achievers = 2, Medium Achievers = 4).<sup>4</sup> High Achievers,  $n = 8$ ; Medium Achievers,  $n = 13$ .

set, Upper-level Undergraduates tended to focus more on Strategies than did Lower-level Undergraduates or Student Teachers.

In the third stage of analysis, the investigator approached the description of score study procedures in a more holistic manner. Analysis in this stage was guided by the topics identified in Chapter 3 (Table 5, p. 57).

In solo contexts, subjects generally initiated their score study procedures with a look through of the music, establishing contexts of basic elements such as key, meter, and tempo, followed by a cursory assessment of the overall technical difficulty of the piece and identification of potential problem areas. The following example, a Medium achiever in the Lower-level Undergraduate group, is representative of the types of statements commonly made by subjects within the early stages of solo score study procedures:

First thing I do is look at clefs, because my [primary instrument] tends to jump in clefs. The second thing I look for is the key signature, and the time. In this piece it is B-flat Major. The next thing I do is kind of scan the piece for anything that might be something I really need to focus on and practice. I look for patterns, I look to see if I can find any chord changes or anything that I might not be able to hear right off.

Following this initial contextualization of basic elements, subjects tended to engage in playing the score (or excerpts) on their primary instrument. The first playing episode usually occurred within the first 10-15 statements; this tendency held true across all education and achievement level groups and within solo and full score contexts. Following the initial play-through, subjects then began a process of correcting missed notes or rhythms, working towards a performance that was technically accurate.

A notable trend emerged when comparing the solo score preparation procedures of Lower-level Undergraduates with those of Upper-level Undergraduates and Student Teachers. Consider the following example, which is the complete procedure of a High achiever in the Lower-level Undergraduate group working with the Copland solo score:

All right, basically I'm just going to look at, just kind of glance over everything [*sic*]. So now I just look through everything look for problem areas, and I'll just run through it once to make sure at a very slow tempo [subject plays primary instrument]. Now I'm just looking at it to see how I can improve the articulations. I'll take note of the parts, places where I missed notes, and I'll pay special attention to those next time, so I'll mark those right now. I'm going to play through it again [subject plays primary instrument]. I'm going to isolate measure three and get that octave leap I've missed twice already [subject plays primary instrument]. I'm going to play through it one more time [subject plays primary instrument]. All right, this time I'm going to not pay as much attention to the notes and exaggerate all the articulations [subject plays primary instrument]. All right, I'll record.

In this example, the subject attempts to establish a general context ('glance over everything'). After the third full statement, the subject plays the primary instrument, and continues with the preparation process by addressing incorrect notes and articulations. Once these elements were performed satisfactorily, the subject was ready to record a final performance. For comparison, consider the following example, the complete transcript of a High achiever in the Student Teacher group working with the Copland solo score:

Well, the first thing I notice is the key. I'm going to just look through it in my head, get an idea of what the piece sounds like. Now I'll just play through it at a slow tempo, get a feel for the piece [subject plays primary instrument]. I notice the articulations, there are a lot of different articulations, especially in the last few bars. I'm going to run those and see if I can get the contrast right [subject plays primary instrument]. Okay, now I'll go back and try and get more of a playful style happening through the entire piece. I think choosing a good tempo will really help [subject plays primary instrument]. The fingerings aren't too difficult, but I want to try again for repetition's sake [subject plays primary instrument]. Okay, I think that's about how I would do that.

Several similarities between this example and the one previous are apparent. In both examples, the subject conducted a general survey of the piece, and engaged in playing the primary instrument early in the score preparation procedure. Both subjects addressed issues of articulation; both also addressed aspects of technical difficulty. The Student Teacher subject, however, addressed expressive elements of the piece that the Lower-level Undergraduate subject did not; in this case, the Student Teacher attempted to achieve a more 'playful style' in their performance.

These two examples serve to illustrate the primary differences in solo score study procedures among education level groups. In general, Lower-level Undergraduates tended to stop working with the score once the technical aspects of their performance were addressed and corrected. Subjects of more advanced education level groups, however, were more likely to address expressive elements of the music before recording their performance.

One interesting trend arose during analysis of score study procedures in the context of the Bach solo score. When preparing the Bach score (in which the title of the piece was omitted from the printed page), 18 of 21 subjects correctly identified the piece as a chorale; three subjects did not attempt to identify the genre or form of the piece. This trend is notable due to the fact that the investigator did not prompt subjects to identify the score as a chorale; subjects seemed to engage in this process on their own.

In full score contexts, several notable differences among education level groups were observed. In the Lower-level Undergraduate group, the initial establishment of context (key, meter, tempo, etc.) that was very common in solo score preparation was not as consistently observed in full score preparation. Full score study procedures seemed to progress in a much more unpredictable, ‘stream of consciousness’ manner. The following example is from the transcript of a High achiever working with the Arnold score:

The first thing I would look for would be entrances, where different sections play together. All the forte-pianos, they have that everywhere, all over the place [*sic*]. So I guess I would try to work the whole band with that, because at one point or another, they all have it, it’s in every part. Maybe just work them on scale passages or something like that, just on chords, just getting what a true fortissimo and a true piano is and the going from that and getting that precise. They have a lot of little glisses, little triplet pick-ups. Everybody has that at one point or another, that slurred gliss and the two staccato notes.

In a small number of statements, the subject mentions several elements of the music (ensemble precision, dynamics, teaching strategies, pick-up notes, articulation), yet does so in a manner that leads to few specific decisions or conclusions. This type of



pattern, numerous elements being addressed in few statements in a seemingly random manner, was a dominant trend in the full score procedures of a majority of Lower-level Undergraduate subjects. This trend was consistent across Medium and High achievements level groups.

The following excerpt was taken from the transcript of an Upper-level Undergraduate (a High achiever) working with the Arnold full score:

The first thing I see is that the score is transposed for each of the instruments so I won't have to worry about thinking about who is playing what when I'm telling them their parts [*sic*]. I notice the tempo is rather quick, and so hopefully I have good clarinets and flutes who are going to be able to play that fast. Those parts will almost definitely need to be slowed down to get all the notes right. The accompaniment at the beginning doesn't seem too difficult. The forte-pianos are something that I think is going to need to be exaggerated [*sic*]. The triplet grace notes coming into the different entrances is something that's going to need to be practiced just so that they are all uniform, not just between one instrument that does it again, but so that all of the instruments sound exactly the same when they do it. First and second flutes, clarinets, E-flat and first B-flat clarinets, the fifth measure after the first sixteenth note run have to make sure that the eighth-note is short, need to cut off the sound on that note. The flute part isn't too high and the fingerings aren't very difficult up there.

This example is representative of the types of procedures demonstrated in general by Upper-level Undergraduate subjects; analysis did not reveal any trends or differences among achievement level groups. Full score preparation procedures of Upper-level

Undergraduates were similar to those displayed by Lower-level Undergraduates in that there was little effort demonstrated to establish a general context of the piece, and subjects tended to address elements in a similar stream of consciousness style. Note in the previous example the number and variety of topics addressed: score transposition, tempo, difficulty level of non-melodic parts, dynamics, grace notes, ensemble precision and uniformity, as well as the articulation, rhythm, and technical difficulty in specific woodwind parts.

Although certain elements of full score study procedures were found to be similar in comparisons among Lower-level and Upper-level Undergraduate subjects, the previous example highlights two important differences. First, Upper-level Undergraduates were much more likely to identify elements in specific parts; for example, a Lower-level Undergraduate might indicate a rhythm ‘in the woodwinds,’ whereas an Upper-level Undergraduate might indicate the rhythm occurring in the flute, clarinet, and oboe parts. Second, Upper-level Undergraduates tended to identify an element of the score, then in subsequent statements, decide how the element should be treated or evaluate the potential difficulty of the element for the performers. In the previous example, for instance, the subject identifies the quick tempo of the piece, then implies a certain level of difficulty (‘I hope I have flutes and clarinets who are good enough to play that fast’), and a possible way to treat the element in rehearsal (‘Those parts will almost definitely need to be slowed down to get all the notes right’). This identify/evaluate/make decision pattern of was common within full score procedures of Upper-level Undergraduates.

Full score procedures of Student Teacher subjects seemed to fall into two separate types. The first type included the identify/evaluate/make decision pattern of statements

described as common among Upper-level Undergraduates. Two Medium achiever Student Teachers demonstrated this type of pattern when preparing both the Arnold and Reed scores; one Student Teacher (also a Medium achiever) displayed this pattern when preparing the Reed score.

In both the Reed and Arnold score contexts, procedures of the two High achiever Student Teachers reflected a second type of pattern. This pattern was also evident in the procedures of one Medium achiever Student Teacher working with the Arnold score. The following example, a High achiever working with the Reed score, demonstrates:

It looks like there's a variation of the melody, if you will, on the first bassoon and the alto clarinet, they double the same part [*sic*]. We've got suspension in the second flute and second clarinet, between bars 15 and 16, that you would definitely want to bring out... The melody again appears to be in the first trumpet... Of course from there on out, I am bringing out the black notes, again I'm pointing out the ties across the bar line that are not group ties. I'm going to certainly put a ritard on the last measure for some added musical effect. I'm looking for a rich sonority in the brass and the woodwinds, so that the only thing that really changes is the timbre of the ensemble between the sections of the band that come in. As far as what I would look for in a first rehearsal of this piece, depending on the ensemble, probably, if I were to rehearse this with, say the top band at [subject identifies a local high school], we would play through it one time. Tell them, "Guys, there's a lot of accidentals, you are going to want to look at those." [*sic*] And then we'd probably just play through it... There is not a lot of note issues, so it is going to be very tonal... I don't foresee the student having any

hearing problems, hearing a certain chord or a modulation or anything like that, or even finding odd pitches.

There are some similarities between the pattern demonstrated in this example and the first pattern described earlier – the seeming randomness of order of topics addressed and the identification of elements in specific parts. The key difference is that in this second pattern, subjects tended to engage in a long process of identification of elements, withholding evaluation or decisions until the end of the process. Note in the previous example that the subject identifies numerous elements, among them melody, harmonic motion, phrasing, tempo modulations, and timbre; however, the subject makes little effort at definitive decisions or evaluations until the last portion of their procedure, when s/he describes what they would do in the first rehearsal. The result of activities with this pattern is a score study procedure that can be divided into two general parts: the first part in which elements are identified and described, and a second in which decisions and evaluative judgments are made.

In general, verbal responses made during score study activities tended to be vague and non-specific among subjects of less advanced education levels, with higher degrees of specificity being demonstrated as education level advances. This trend held true in both full and solo score contexts; there were few differences in degrees of specificity among achievement level groups. Comparisons of responses between score contexts suggested that Lower-level Undergraduates reflected similar degrees of specificity in both full and solo score contexts; when education level increased, however, responses made during full score study were noticeably more specific than were statements made in

solo score contexts. For example, consider the following excerpt made by a High achiever in the Lower-level Undergraduate group working with the Bach solo score:

Well, the first thing that I notice is that it says 'largo.' It's in bass clef... it may be in G minor, yep, I believe it is [*sic*]. I'm noticing the fermatas, and since it's by Bach, it must be a Bach chorale. So, something like this, it's not so much phrasing, but tone and tempo. I'm just going to go ahead and run it once [subject plays primary instrument]. All right, well, it's pretty straightforward... I need to think about how I want to shape the phrases, remembering what chord I am ending on, where to break, where not to break after the fermatas, the shaping I want to do, do I want the phrase to be quiet, do I want it to be loud, what kind of effect to I want, so that's pretty much all I need to think about in this one [*sic*]...

In this example, the subject identifies several musical elements in verbal discussion about the score, including phrasing, tone, tempo, key, harmony, and dynamics. Specific information regarding the treatment of these elements, however, is noticeably absent. Rather than simply stating that s/he needed to think about 'how I want to shape the phrases,' the subject might have identified two contrasting approaches to phrase treatment, or indicated specific measures in the music and how treatment of phrases would be applied.

When compared with the example above, the following excerpt from the same subject working with the Arnold full score, demonstrates that differences in degrees of specificity between the contexts is minimal:

Let's see, it's in 2/4, and I believe that we are in C major... I would go over the sixteenth-note grace notes coming into the saxophone and trumpet lines. All this

before I ever gave the first downbeat, I would just run over them, starting with the grace notes, the 1<sup>st</sup> and 2<sup>nd</sup> oboes as well [*sic*]. I would also talk about the horns and 1<sup>st</sup> and 2<sup>nd</sup> bassoons and bass clarinet and 3<sup>rd</sup> clarinet, forte-pianos. Depending on the knowledge of the group, I would describe them as bell tones [*sic*].

As was evident in the example from the solo score, the subject identifies several elements to be addressed, and does indicate specific instrumental parts that contain the identified elements. Through such terms as ‘I would go over...’ and ‘I would just run over them...,’ however, a certain degree of specificity is absent. To increase the specificity of these responses, the subject might have indicated specific steps in a teaching sequence or specified the desired musical result (i.e. “I would want the grace notes prior to the beat, so they hit the downbeat of the next measure together.”)

As education level increased, specificity in verbal descriptions also increased. The following quote is from a Medium achiever in the Student Teacher group working with the Bach score:

I guess I’ll go ahead and start off with a good forte. Make the first fermata, you know, a decent length with a caesura after that, a full break right there. The next one I am going to do the same way. After that I am going to start, ok, [*sic*] go back to the 2<sup>nd</sup> fermata – decrescendo that one so I can set up a more mezzo-piano in the third phrase, probably do some ritard at the end of that one. No break at the end of that fermata, no break and a crescendo up to the next phrase, so the next one will be at a forte. Full break at the end of the 4<sup>th</sup> fermata...

Apart from the differences in degree of specificity described earlier, note also the subject’s use of professional terminology – whereas the Lower-level Undergraduate

described dynamics with the terms ‘loud’ and ‘quiet,’ the Student Teacher subject used specific degrees of dynamic level (forte, mezzo-piano) and contrasting manipulations of dynamics (crescendo, decrescendo).

The increase in specificity within verbal descriptions in relation to increase in education level was evident also in full score contexts. The following excerpt is from the transcript of an Upper-level Undergraduate (a Medium achiever) working with the Reed full score:

I want the moving lines, where the trumpets have quarter notes or the trombones have quarter notes, and especially when they have eighth notes and it’s going up and down, to kind of bring that out and then pull back whenever they go through it. And the same in the woodwinds, and same at measure 19 when it goes back to the brass. I see that the bass line has the moving part in the second and the third trombones at 19, going towards the end. I think that at the end of 19, the phrasing, I want to kind of back down the melody so that the counter-point, the bass line can be brought out – actually, the harmonies at the end, like at the end before it reaches the final fermata [*sic*] ...

There are certain areas within this example where specificity within verbal descriptions is lacking; for example, the phrase “...and especially when they have eighth notes and it’s going up and down, to kind of bring that out and then pull back whenever they go through it...” might be interpreted to mean dynamic treatment, tempo treatment, balance, texture, or any combination of these elements. There are, however, several areas addressed in specific terms, such as location of the element being considered (in terms of

measure and instrument part), and identification of specific rhythms within instrumental parts.

When working with solo scores, audible sound was an integral part of score preparation procedures. Every subject, regardless of education or achievement level, used audible sound in their solo score preparation; this was true for both Bach and Copland score contexts. Most often, audible sound came in the form of performance of all or part of the solo score on the primary instrument; there were very few instances of work at the piano, singing, or other types of sound making activities.

In full score contexts, however, use of audible sound was absent from the score preparation procedures demonstrated by a majority of subjects across all education and achievement level groups. In the Lower-level Undergraduate group, no single subject used audible sound when working with either the Reed or the Arnold score. Among Upper-level Undergraduates, one Medium achiever used sound (singing) while preparing the Arnold score, another Medium achiever engaged in singing when preparing the Reed score, and two High achievers worked at the keyboard while preparing both full scores. One High achiever in the Student Teacher group used the keyboard while working in both full score contexts; no other subject in this group used audible sound when preparing full scores.

In general, subjects did not work towards development of an internal sound image. This trend held true across all subject groups and all score contexts. One Lower-level Undergraduate (a Medium achiever), two Upper-level Undergraduates (one Medium achiever and one High achiever) and one Student Teacher (a High achiever) made statements relating to development of an internal sound image; these few instances



occurred only in solo score contexts. The following quote, from a Lower-level Undergraduate (a Medium achiever) working with the Copland solo score, is representative of the general types of statements made towards this issue:

I'm just looking through the piece right now, looking at any different articulations because I see staccato at the beginning, and I'm thinking through how I'm going to play that. Now I'm going to try and concentrate and just go through and get the rhythm in my head and finger it on my instrument. Now I'm just going to blow air through my horn and 'air play' it...

In most cases, comments made towards development of an internal sound image were of a similar cursory nature, and tended to occur within the first few statements as part of the establishment of the general context of the piece.

### **Composer Interviews**

Statements made during composer interviews were separated by composer and coded according to the following categories: Accurate, Inaccurate, Suspect, I Don't Know, and Miscellaneous. Accurate statements were those that were clearly and inarguably correct (such as the dates of a composer's life being given accurately); Inaccurate statements were those that were clearly and inarguably incorrect (such as association of a composer with an incorrect style period). Suspect statements lacked sufficient information to be classified as either Accurate or Inaccurate. For example, many subjects stated, "I have played a lot of stuff by this composer, but I can't recall any titles." It is possible that they were recalling the correct composer; however, it is just as possible that they were recalling a similar piece by a different composer. Therefore, this type of statement was coded as Suspect due to lack of specificity. I Don't Know

statements were those in which subjects specifically stated that they did not know an answer to a certain question; Miscellaneous statements were those that were unrelated to the given question.

Table 12 presents mean frequencies of overall total responses by education level group. Included are mean frequencies for each response category and percentages of response categories in relation to overall total responses.

Table 12

Mean total responses and percentages for composer interviews by education level.

	Total	Accurate	Inaccurate	Suspect	I Don't Know
Lower-level UG ( <i>n</i> = 6)	47 <sup>1</sup>	14 <sup>2</sup> (30%) <sup>3</sup>	6 (13%)	11 (23%)	16 (34%)
Upper-level UG ( <i>n</i> = 9)	64	27 (42%)	10 (16%)	16 (25%)	11 (17%)
Student Teachers ( <i>n</i> = 6)	71	34 (48%)	9 (13%)	21 (30%)	7 (9%)

<sup>1</sup> Mean frequency of total responses given by group for all composer interviews.

<sup>2</sup> Mean frequency of response type given by group for all composer interviews.

<sup>3</sup> Percentage of response type from total responses from group for all composer interviews.

Results indicated consistent progressive increases in mean total responses across education level groups. Mean frequencies and percentages of Accurate and Suspect responses reflect a similar progressive increase across education level groups; frequencies and percentages of I Don't Know responses, however, decrease conversely in relation to advancing education level. Comparisons of mean frequencies of Inaccurate responses suggested no consistent trends; percentages of these responses, however, remain fairly consistent across education level groups.

Table 13 presents mean frequencies of overall total responses by achievement level group, and mean frequencies and percentages for each response category. Results

Table 13

Mean total responses and percentages for composer interviews by achievement level.

	Total	Accurate	Inaccurate	Suspect	I Don't Know
High ( <i>n</i> = 8)	66	31 (47%)	10 (15%)	16 (24%)	9 (14%)
Medium ( <i>n</i> = 13)	58	22 (38%)	8 (14%)	16 (28%)	12 (21%)

Note: Due to rounding, sums of total percentages do not always equal 100%.

indicated that High achievers tended to respond more frequently than did Medium achievers. Responses from High achievers generally reflected higher frequencies and percentages of Accurate responses, and slightly lower frequencies and percentages of I Don't Know responses. Mean frequencies and percentages of Suspect responses and Inaccurate responses are fairly consistent between achievement level groups.

Table 14 presents the mean frequencies and percentages of response categories from each specific composer interview by education level group. Results indicated progressive increases in mean frequencies of total responses given in Bach and Arnold interviews across education levels; group differences among mean frequencies of total responses in Copland and Reed interviews suggested no salient trends. Progressive increases in mean frequencies and percentages of Accurate responses across education level groups were evident within all four composer interviews. Inaccurate and Suspect responses decreased conversely in relation to increased education level within composer interviews for Bach and Copland; within the Reed and Arnold interviews, mean frequencies and percentages for Inaccurate and Suspect response categories progressively increased as education level advanced. Means and percentages of I Don't Know

Table 14

Mean frequencies and percentages of responses from specific composer interviews by education level.

		Lower-level UG	Upper-level UG	Student Teachers
<u>Bach:</u>	Total	14 <sup>1</sup>	18	20
	Accurate	5 <sup>2</sup> (36%) <sup>3</sup>	10 (55%)	12 (60%)
	Inaccurate	3 (21%)	2 (11%)	2 (10%)
	Suspect	4 (29%)	5 (28%)	5 (25%)
	I Don't Know	2 (14%)	1 (6%)	1 (5%)
<u>Copland:</u>	Total	18	19	17
	Accurate	5 (28%)	9 (47%)	9 (52%)
	Inaccurate	5 (28%)	4 (21%)	2 (12%)
	Suspect	4 (22%)	4 (21%)	4 (24%)
	I Don't Know	4 (22%)	2 (11%)	2 (12%)
<u>Reed:</u>	Total	12	12	15
	Accurate	2 (17%)	4 (33%)	7 (47%)
	Inaccurate	2 (17%)	1 (8%)	1 (7%)
	Suspect	3 (25%)	4 (33%)	5 (33%)
	I Don't Know	5 (42%)	3 (25%)	2 (13%)
<u>Arnold:</u>	Total	8	13	21
	Accurate	1 (13%)	3 (23%)	6 (29%)
	Inaccurate	0 (0%)	3 (23%)	6 (29%)
	Suspect	1 (13%)	3 (23%)	7 (33%)
	I Don't Know	6 (75%)	4 (31%)	2 (9%)

Note: Due to rounding, sums of total percentages do not always equal 100%.

<sup>1</sup> Mean frequency of total responses given by group for specific composer interviews.

<sup>2</sup> Mean frequency of response type given by group for specific composer interviews.

<sup>3</sup> Percentage of response type from total group responses for specific composer interviews.

responses tended to progressively decrease as education level increased within interviews during Bach, Reed, and Arnold score study contexts. Within the Copland context, decreases in means and percentages of I Don't Know were evident from Lower-level to Upper-level Undergraduate groups; comparisons between Upper-level Undergraduates and Student Teachers indicated minimal differences.

Table 15 lists the mean frequencies and percentages of all response categories from each specific composer interview by achievement level group. Results indicated that High achievers tended to respond more frequently than Medium achievers within Bach and Arnold interviews; comparisons of mean total responses within Copland and Reed interviews suggested minimal differences between achievement level groups. High achievers responded with higher percentages of Accurate responses within Bach, Copland and Reed interviews. Medium achievers tended to respond with higher percentages of I Don't Know than did High achievers. In two score contexts (Reed and Arnold), percentages and means of Suspect and I Don't Know responses given by Medium achievers equaled the percentages and means of Accurate responses.

Three trends were found to be consistent in comparisons of responses from specific composer interviews among education level and achievement level groups: 1) the highest mean frequencies and percentages of Accurate responses occurred within the Bach interviews; 2) the lowest mean frequencies and percentages of I Don't Know responses occurred within the Bach interviews; and 3) the lowest mean frequencies and percentages of Accurate responses occurred within the Arnold interviews.

Table 15

Mean frequencies and percentages of responses from specific composer interviews by achievement level.

		High ( <i>n</i> = 8)	Medium ( <i>n</i> = 13)
<u>Bach:</u>	Total	22	17
	Accurate	12 (55%)	8 (47%)
	Inaccurate	2 (9%)	3 (18%)
	Suspect	7 (32%)	4 (24%)
	I Don't Know	1 (5%)	2 (12%)
<u>Copland:</u>	Total	17	16
	Accurate	9 (53%)	7 (44%)
	Inaccurate	3 (18%)	2 (13%)
	Suspect	3 (18%)	4 (25%)
	I Don't Know	2 (12%)	3 (19%)
<u>Reed:</u>	Total	14	13
	Accurate	6 (43%)	4 (31%)
	Inaccurate	2 (14%)	1 (8%)
	Suspect	3 (21%)	4 (31%)
	I Don't Know	3 (21%)	4 (31%)
<u>Arnold:</u>	Total	16	11
	Accurate	4 (25%)	3 (27%)
	Inaccurate	4 (25%)	2 (18%)
	Suspect	4 (25%)	3 (27%)
	I Don't Know	4 (25%)	3 (27%)

Note: Due to rounding, sums of total percentages do not always equal 100%.

These three trends do not seem surprising. Apart from being a prominent figure in the contexts of music history, Bach's music is often studied in music theory classes, and is frequently studied and performed by wind instrumentalists in solo, large ensemble, and chamber ensemble settings. It seems logical to assume that subjects in this study had experienced Bach's music frequently and in a wide variety of contexts. It is likely that most subjects had less experience with the music of the other three composers. The low percentages of Accurate responses observed within the Arnold context is predominantly due to certain consistent misconceptions that were common among subjects of all levels. Most subjects indicated that Arnold's compositions were written for wind band. In fact, a majority of the large ensemble compositions by Arnold that would be familiar to wind instrumentalists were originally written for orchestra and transcribed for wind bands by other persons.

Transcripts of subjects' verbal responses given while thinking out loud during score study tasks were reviewed and analyzed in an effort to identify occurrences of transfer of knowledge of specific composers, and describe subjects' application of this knowledge within the scope of score study procedures for a given piece. As subjects were thinking out loud during score study tasks, the investigator allowed them to talk uninterrupted until score study was complete. Therefore, it is possible that certain aspects of knowledge transfer occurred internally with no manifestation in verbal behaviors. It does seem, however, that analysis of data collected from transcripts of subjects' verbal responses provides substantial insight as to the quantity and nature of subjects' knowledge transfer while engaged in score study tasks.

Among education level groups, score study procedures of Lower-level Undergraduate subjects reflected the least amount of transfer of composer knowledge, and the least established contexts for musical decision-making. Of the six total subjects in this group, only one made any type of statement that suggested an effort to relate the music being studied to their own pre-existing knowledge of the composer. This subject, a Medium achiever used this same sentence in three score study tasks while working with music by Copland, Reed, and Arnold: “I think I have played this before, but I am not sure.” The subject then proceeded with descriptions of musical elements on the page with no further indications of knowledge of a composer being transferred into score study procedures.

Analysis suggested slightly more evidence of transfer of composer knowledge among score study procedures of Upper-level Undergraduates. Of nine total subjects in this group, one subject (a High achiever) made an effort to identify the composer of each excerpt (i.e. “This piece is by Bach”). In the following quotation, a Medium achievement level subject seems to make an effort to contextualize an excerpt; however, a lack of existing knowledge about the specific composer hinders this effort: “It’s by Alfred Reed, and I know he is a famous composer and he writes a lot of stuff, but I can’t really think of anything that he has written.”

One Upper-level Undergraduate rated as a Medium achiever used knowledge gained from prior experience in performing works by Malcolm Arnold to initiate full score analysis:

Well, I’ve played a couple of things by Malcolm Arnold, and I guess the one thing that jumps out in my mind is that they’re usually all kind of difficult, at least



for the trumpet player, so I'm kind of looking at that, you know, kind of checking out the parts with that in mind to see what level of difficulty it is.

This statement indicates the use of prior knowledge about a composer to establish an initial focus of attention, in this case technical difficulty; however, there is no evidence of transfer of knowledge to establish context for decision-making with regard to expressive elements such as phrasing, dynamics, or tempo.

Among the six subjects in the Student Teacher group, two subjects rated as High achievers provided the only evidence of transfer of score study knowledge within score study procedures. One subject's score study of a full score excerpt by Alfred Reed began with the following statement: "OK, this looks like a chorale setting, it's by Alfred Reed, so I'm expecting some very sonorous qualities in the music just by looking at the composer." The subject did not elaborate on or continue this line of thought in subsequent statements.

## **Summary of Results**

### **Score Study Interviews**

The perceptions of where score study definitions were learned and developed were remarkably consistent within and among education level groups. Lower-level Undergraduates relied on observation and personal opinion, Upper-level Undergraduates used information learned in music education and conducting courses, and Student Teachers described a synthesis of knowledge learned in undergraduate course work with practical experience gained during student teaching.

All subjects in all education level groups could identify at least one area of rehearsing, practicing or performing that could be directly related to or affected by score

study. As with the definitions of score study, a lack of specificity was evident in the descriptions of these relationships, with aspects of subjects' descriptions being increasingly more specific as experience and training increased. Subjects' perceptions of where these relationships were learned were similar to those responses given concerning score study definitions; Lower-level Undergraduates relied on observation and personal opinion, Upper-level Undergraduates used information learned in course work, and Student Teachers using both knowledge learned in course work and practical experience gained during student teaching.

Overall, analysis suggested no apparent relationships or trends between groups when comparing score study definitions among High and Medium musical achievers. In general, comparisons between High and Medium musical achievers within each group suggested no salient trends. One exception was the finding that within the Upper-level Undergraduates and Student Teacher groups, achievement level seemed to have little bearing on tendencies of responses concerning the end product of score study. Responses that included aspects of score study as development of internal sound images (reflective of viewpoints of expert conductors) occurred in similar proportions between High and Medium achievers in these education-level groups.

One common factor in responses in score study interviews among all subjects was lack of specificity in descriptions of score study and its related elements. The primary differences in score study perspectives among subject groups were marked by increases in descriptions of specific, behavior-oriented elements and the progressive inclusion of artistic, musically expressive functions of score study in relation to increased training and application of score study skills. Perspectives of Lower-level Undergraduate students

lacked specificity in descriptions of score study, and did not include the concept of score study as an activity of creative music-making. As training and experience increased, responses tended to contain greater specificity and reflect a broadening perspective inclusive of artistic and expressive functions of score study. Also, as training increased, subjects' perspectives tended to become less reflective of observation and opinion, and more grounded in knowledge and experience gained through course work in conducting, instrumental methods, and student teaching field experience.

#### Score Study Procedures

Results of analysis of frequencies of mean statements made in score study activities suggested several notable trends. Overall, mean frequencies of statements increased as education level increased; in other words, subjects with more education responded more frequently than did subjects with less education. The rate of increase in mean frequencies of statements across education level groups was greater in full score contexts than in solo score contexts. Subjects tended to respond more frequently in full score contexts than in solo score contexts, and more frequently in the Marcato score set than in the Legato score set. In general, Medium achievers tended to respond more frequently than did High achievers; one notable exception occurring within the Student Teacher group, where High achievers responded more frequently in full score contexts than did Medium achievers.

Results of analysis of topics addressed during score study procedures indicated that within solo score contexts, percentages of statements in Technical and Expressive topic groups seemed reflective of the type and style of music being studied. In the Bach score context higher percentages of statements were observed in the Expressive category;

in the Copland score context higher percentages were more consistently observed in the Technical category. Within full score contexts, percentages of statements in the Technical group were consistently over 50% for all subject groups in both Arnold and Reed scores; percentages of Expressive statements were considerably lower. In most subject groups, the Expressive category reflected approximately 20% of the total statements; Expressive statements did not exceed 25% within any subject group.

Percentages of statements in the Strategies topic group were consistently in the 20%-30% range; Percentages of Strategies statements were higher in the Marcato score contexts than in Legato score contexts. Subjects responded with lower percentages of Other statements within full score contexts than in solo score contexts. In the Upper-level Undergraduate and Student Teacher groups, Medium achievers consistently responded with substantially higher percentages in the Other category than did High achievers during study of solo scores.

In solo contexts, subjects generally initiated their score study procedures with a look through of the music, followed by a cursory assessment of the overall technical difficulty of the piece and identification of potential problem areas. Subjects then tended to engage in playing the score (or excerpts) on their primary instrument. After the initial play-through, subjects then began a process of correcting missed notes or rhythms, working towards a performance that was technically accurate.

In general, Lower-level Undergraduates tended to stop working with the solo score once the technical aspects of their performance were addressed and corrected. Subjects of higher education level groups, however, were more likely to address expressive elements of the music before recording their performance. When preparing the

Bach score, subjects of all education and achievement levels made an effort to identify the piece as a chorale.

In full score contexts, several notable differences among education level groups were noted. In the Lower-level Undergraduate group, the initial establishment of context was not as consistently observed in full score preparation; full score study procedures seemed to progress in a much more unpredictable, stream of consciousness manner. Full score preparation procedures of Upper-level Undergraduates were similar to those displayed by Lower-level Undergraduates in that the initial process of contextualization was absent; Upper-Level undergraduates also tended to address elements in a similar stream of consciousness style. Upper-level Undergraduates were much more likely to identify elements in specific parts than were Lower-level Undergraduates; also, an alternating pattern of identification/evaluation/decision was common within full score procedures of Upper-level Undergraduates.

Full score procedures of Student Teacher subjects seemed to fall into two separate types. The first type included the identification/evaluation/decision pattern of statements described as common among Upper-level Undergraduates. In the second type, subjects tended to engage in a long process of identification of elements, withholding evaluation or decisions until the end of the process. This resulted in a score study procedure that can be described in two general parts: the first part in which elements are identified and described, and a second in which decisions and evaluative judgments are made.

In general, verbal responses made during score study activities tended to be vague and non-specific among subjects of lower education levels, with higher degrees of specificity being demonstrated as education level increased; this trend held true in both

full and solo score contexts. When working with solo scores, audible sound was an integral part of score preparation procedures; in full score contexts, however, use of audible sound was notably absent from the score preparation. Overall, subjects did not work towards development of an internal sound image; this trend held true across all subject groups and within all score contexts.

#### Composer Interviews

Results indicated consistent progressive increases in mean frequencies of total responses given in Bach and Arnold interviews across education level groups; comparisons of mean frequencies of total responses in Copland and Reed interviews among education level groups suggested no salient trends. High achievers tended to respond more frequently than did Medium achievers; responses from High achievers generally reflected higher frequencies and percentages of Accurate responses, and slightly lower frequencies and percentages of I Don't Know responses.

Progressive increases in mean frequencies and percentages of Accurate responses across education level groups were evident within all four composer interviews. Inaccurate responses and Suspect responses decrease conversely in relation to increased education level within composer interviews for Bach and Copland; within the Reed and Arnold interviews, mean frequencies and percentages for these two response categories progressively increase as education level increases. Mean frequencies and percentages of Accurate and Suspect responses reflect a progressive increase across education level groups; frequencies and percentages of I Don't Know responses, however, decrease conversely in relation to increased education level. Means and percentages of I Don't Know responses tended to progressively decrease as education level increased within the

Bach, Reed, and Arnold score contexts. Within the Copland interviews, decreases in means and percentages of I Don't Know were evident from Lower-level to Upper-level Undergraduate groups; comparisons between Upper-level Undergraduates and Student Teachers indicated minimal differences.

Three trends were found to be consistent in comparisons of responses from specific composer interviews among education level and achievement level groups: 1) the highest mean frequencies and percentages of Accurate responses occurred within the Bach interviews; 2) the lowest mean frequencies and percentages of I Don't Know responses occurred within the Bach interviews; and 3) the lowest mean frequencies and percentages of Accurate responses occurred within the Arnold interviews.

Among education level groups, score study procedures of Lower-level Undergraduate subjects reflected the least amount of transfer of composer knowledge, and the least established contexts for musical decision-making. Analysis suggested slightly more evidence of transfer of composer knowledge among score study procedures of Upper-level Undergraduates. Among the six subjects in the Student Teacher group, two subjects rated as High achievers provided the only evidence of transfer of score study knowledge within score study procedures.

## CHAPTER 5: DISCUSSION AND CONCLUSIONS

The discussion of results is conducted through the perspective of a *basic interpretative qualitative study*. As described in Chapter 3, this type of study is descriptive in nature, uses inductive analysis to identify common trends or themes, and interprets results within the context of the relevant literature framing the study (Merriam, 2002, p. 7). Results of this study are presented in comparison to major disciplinary ways of thinking demonstrated by expert conductors and in relation to the extant research literature.

Important differences between expert conductors and undergraduate novices should be considered when interpreting the results of this study. Expert conductors possess knowledge and skills learned during years of training and experience. Subjects in this study were novices with little or no experience conducting ensembles at any level. Experts work with ensembles consisting of musicians of the highest caliber. Novices in this study were music education majors learning to teach ensembles of students in secondary schools. Given the necessarily intrusive aspects of the semi-controlled research environment of this study, it may not be reasonable to expect undergraduate novices working with brief score excerpts to emulate in total the specific behaviors and procedures of expert conductors.

It does seem reasonable, however, to expect to see evidence of principles related to score study derived from practices of expert conductors. The review of literature suggested three principles of score study that seemed particularly relevant in this study: score study as a means towards development of internal sound image, use of pre-existing



knowledge to contextualize scores as a basis for decision-making, and score study as a component of expressive music making.

Results are interpreted in relation to the three primary score study principles. Patterns of score study demonstrated by subjects in this study are discussed, followed by a discussion of results in relation to principles of transfer derived from extant research literature. The chapter concludes with recommendations for future research.

### **Internal Sound Image**

Experts are near unanimous in their opinion that the primary goal of score study is an internal sound image, a complete realization of the piece within the conductor's mind (Bamberger, 1965; Barton, 2001; Casey, 1993; Chesterman, 1976, 1989; Ellis, 1994, 1997; Harris, 2001; Hart, 1979; Knight, 2001; Moss, 2002; Wagar, 1991; Williams, 1998). This internal image provides the standard of performance that the conductor expects to hear, and therefore serves as a model for comparison with the audible sound produced by the ensemble in rehearsal or performance. Most experts agree that the internal sound image should be thoroughly developed before rehearsal with the ensemble begins.

Empirical research supports the importance of internalized sound image as well. Studies in the area of error detection (Byo & Sheldon, 2000; Crowe, 1996; Hochkeppel, 1993; Hopkins, 1991) have found that a well-developed, accurate concept of aural expectations (what the conductor expects to hear from the ensemble) is directly related to the ability to detect errors in ensemble performance. These studies also demonstrate that novice conductors can be trained how to study scores as a process of internal sound

image development, and that error detection ability can improve as a result of such training.

In general, subjects in the current study did not seem to work towards development of an internal sound image. In full score contexts, this trend was abundantly clear and consistent among all achievement and education level groups, especially when one considers the notable lack of inclusion of audible sound within score study procedures demonstrated by a majority of subjects. This finding is not unexpected when considering subjects of the Lower-level Undergraduate group. These subjects had not yet taken course work specific to conducting, many had not taken more than one course in instrumental methods, and many were unfamiliar with issues related to score reading such as transposition. It is interesting to note, however, that the ability to work with sound and build an internal sound image in full score contexts did not appear to progress or develop in relation to training and experience.

Within solo score contexts it might be argued that the activity of practice and performance on the primary instrument resulted in the creation of an internal sound image. This may indeed be true; however, two aspects of this finding must be considered. First, no subject specifically stated that the purpose of playing the instrument was to attain an internal sound image; second, statements that might indicate that the subject was working towards an internal sound image, such as ‘I am just going through it in my head,’ did not occur beyond the first few statements of the transcript. It seems that once work with audible sound from the primary instrument began, the focus was to refine and develop a desirable performance; internal sound image did not appear to be of major concern.

The lack of focus on development of internal sound image is noteworthy when one considers the perspectives on score study described by subjects in the initial interview. Responses of subjects of higher education levels tended to reflect the notion that development of internal sound image was an important issue. Subjects in Upper-level Undergraduate and Student Teachers consistently used terms such as ‘know how the piece goes in your head,’ ‘memorize the piece,’ and ‘build a sound clip in your head of how the piece goes.’ These descriptions, however, failed to materialize in actual practice.

There are several possible explanations for the lack of evidence of development of internal sound images. It may be an issue of sequence; it is possible that other skills such as keyboard skills, transposition, and fundamental aspects of gesture need to be learned prior to learning the high-level skill of internal sound imaging. The lack of specificity in descriptions of score study procedures (from experts and subjects alike) may also be a contributing factor. Subjects may use terms such as ‘know how the piece goes in your head’ without fully understanding the exact meaning or the specific processes they describe.

Creation of an internal sound image is a complex skill. It may not be reasonable to expect novice conductors to work towards and complete a mental sound image after a short period of time engaged with a brief score excerpt. It may be that sound imaging should be taught in a sequence that progresses from simpler skills to those more complex. For example, in conducting courses, students could be taught how to work with single-part scores using audible sound (i.e. singing, work at the keyboard or with the primary instrument) before progressing to work with multi-part scores. These steps could be then

followed by gradual reductions in the use of audible sound during score study procedures and work done to develop internal sound imaging ability.

### **Score Study as a Component of Expressive Music-making**

Experts tend to engage in score study with an eye towards artistic expression (Bamberger, 1965; Barton, 2001; Casey, 1993; Chesterman, 1976, 1989; Ellis, 1994, 1997; Harris, 2001; Hart, 1979; Knight, 2001; Moss, 2002; Wagar, 1991; Williams, 1995). Thorough and effective score study allows the conductor to realize composer intent and achieve the full scope of musical expression inherent in the work. Experts arrive at a completed musical interpretation of a given piece well before other aspects of score study (such as selection of conducting gestures or rehearsal planning). Score study as a process towards expressive music making has been virtually unexplored in music education research.

Within the contexts of this study, there was little evidence to indicate that subjects considered score study and its relationship with musical expression. During the initial score study interview, subjects tended to describe score study primarily in terms of rehearsal preparation, identification of potential problem spots and teaching strategies. In solo contexts, subjects tended to focus more on expressive elements of the music than on technical elements or teaching strategies, and the amount of focus on expressive elements tended to increase as education level increased. In full score contexts, subjects focused predominantly on technical issues and teaching strategies, and in many cases, the amount of attention devoted to expressive elements actually decreased as education increased.

All subjects in this study were music education majors; therefore the tendency to focus primarily on aspects that are more related to teaching than to artistic expression is

not necessarily a negative trend. One would expect that a teacher of young, inexperienced musicians would address technical elements of performance prior to addressing expressive elements. Expert conductors work with ensembles of the highest caliber of musicians, therefore issues related to technical difficulty of a piece are not considered as they would be if the ensemble were to consist of younger, less-experienced players. It is possible that when studying a complex and difficult work by a modern composer that experts deal with technical issues before progressing to expressive elements.

It does seem, however, that conductors should exhibit a concern for music-making and musicianship with ensembles at any level, as these are the core elements of ensemble performance. In order to encourage novices to address expressive elements more consistently, it may be necessary to train them to deal with music that might not ordinarily be considered expressive in ways that are conducive to musical expression. For example, in music theory courses, assignments simple four-part exercises used for harmonic analysis might include elements of expression, such as dynamics or phrasing. Results indicated that subjects were aware of and dealt with expressive elements in solo score contexts, but did not address expressive elements as consistently in full score contexts. Instructors of undergraduates may need to be more proactive in forcing issues of transfer and drawing connections for students to use their knowledge and skills across various musical contexts.

### **Score Contextualization**

Expert conductors tend to establish contexts for appropriate interpretations of expressive elements of the music very early in the score study process. (Buell, 1990; Ellis, 1994; Hart, 1979; Toney, 2000; Wagar, 1991). Contextualization of the score

generally occurs from two primary perspectives. One can be described as an artistic perspective, that is, the conductor establishes the context of the piece relative to historical era, style, genre, composer, or other elements relative to the artistic aspects of the score. The other can be described as a personal perspective in that the conductor establishes the context of the piece within the parameters of his/her own knowledge and experience. Both perspectives aid the conductor in processes of decision-making, evaluation, and interpretation of musical elements, as well as assimilation of new music and efficiency of time spent in score study.

Results of this study indicate that, in general, novice conductors do not engage in either artistic or personal parameters of contextualization. In most cases, evidence of contextualization consisted primarily of brief statements such as “I think I have played something by this composer,” or “I have heard this piece before.” A notable exception to this trend was found within the contexts of the Bach solo score. In this score context, subjects consistently identified the style and genre of the piece in the early stages of score preparation. This finding is noteworthy because it was common among subjects across all achievement and education level groups, and subjects engaged in this contextualization process on their own; the investigator did not prompt or ask the subject to do so. It should be noted that the Bach score did not contain any expressive markings other than the initial tempo, and the title of the chorale was not given (only the name of the composer was provided).

One consideration with regard to transfer during score study procedures is the breadth and depth of each subject’s pre-existing knowledge base. It may not be reasonable to expect a subject to transfer knowledge of a composer, piece, style, or genre

if that person does not possess such knowledge in the first place. Percentages of accurate responses given during composer interviews seem to indicate that subjects of higher education levels possess a certain amount of knowledge sufficient to initiate the process of transfer and contextualization. It is not surprising that Lower-level Undergraduate subjects would be less likely to demonstrate this type of transfer given their educational background and experience. One would expect, however, that the ability to transfer and use knowledge would increase as education and experience increased. In general, this was not observed within the settings of this study. Differences that might be expected between High and Medium achievers were also absent.

In order to encourage novice conductors to engage in a contextualization process when studying full scores, it may be necessary to train them to contextualize music they encounter in other settings, such as applied lessons, ensemble rehearsals, or music theory courses. Novices could be taught that when encountering new music, the first three things to identify are 1) the composer of the piece, 2) the general style of the piece (marcato or legato), and 3) the approximate tempo. The information gained could then be used to facilitate decision-making within an appropriate context, or serve as a springboard for further inquiry should they encounter a composer or style that is unfamiliar. This simple, three-part process could be taught to novices early in their undergraduate course work, and could serve as the foundation for more advanced contextualization processes to be learned in upper-level music courses.

### **Patterns of Score Study Procedures**

Procedures of expert conductors tend to reflect a general three-part pattern, described as ‘macro-micro-macro.’ First, the conductor obtains a general overview of the

work, followed by a cyclical process of identification and decision-making, and concluding with a reconstruction of the piece into an internal sound image. This three-part process has been described in writings on score study methods by expert conductors (Battisti & Garafolo, 1990; Corporon, 1997), and has been included within several proposed models of score study (Covington, 1993; Lentczner, 1977; Markoch, 1995; Stalter, 1996).

Results of this study indicated that procedures demonstrated by Lower-level Undergraduates seemed to progress in an unpredictable, stream of consciousness manner. Upper-level Undergraduates tended to address one element or topic at a time, followed by immediate evaluation/decision-making for each element or topic before proceeding. Student Teachers tended to engage in a two-part procedure, the first part being identifications and descriptions of several different elements or topics in succession, followed by a second part in which several decisions and evaluative judgments were made regarding the elements identified.

It is possible that novice conductors need to be instructed in the macro-micro-macro approach as a specific method or technique for studying scores. It seems more likely, however, that the pattern is less of a score study method and more of a result of other principles being applied appropriately during the process of score study. If novice conductors are taught how to internalize sound and develop internal sound images, if they are taught to contextualize scores and treat score study as an activity related to expressive music making, a macro-micro-macro pattern might be the result of these procedures being applied effectively.



## Conclusions

Though the exact magnitude of the effects of training or the rate of development of skills could not be assessed within the contexts of this study, results suggested positive effects of training in the following areas. As education level progressed, subjects tended to describe perspectives of score study more similar to those of experts, respond more frequently and more accurately in score study activities, demonstrate greater degrees of specificity in verbal responses, and use musically appropriate terminology more frequently. Score study procedures seemed to progress from a random stream of consciousness style with reactive, passive decision-making to a more linear, focused procedure that tended to be more aggressive and proactive in decision-making. Results support findings of other research studies that suggest that elements of conducting can be taught effectively through a variety of methods, including gesture (Johnson & Fredrickson, 1995; Orzolek, 2002; Price, 1985; Yarbrough, 1987; Yarbrough, Wapnick & Kelley, 1979), aural perception skills (Hayslett, 1996), and error detection (Boyer, 1974; Collings, 1973; Costanza, 1971; Decarbo, 1982; Grunow, 1980; Liles, 1978; Ramsey, 1979; Sidnell, 1971).

The most salient issue suggested by the results of this study was the overall lack of transfer demonstrated by subjects in all aspects of score study procedures. For example, perceived functions of score study as described in the initial score study interview did not transfer into actual practice during score study procedures. Knowledge of composers and style periods demonstrated in composer interviews did not transfer into contextualization of scores being studied. Use of audible sound and focus on expressive

music making demonstrated during work with solo scores did not transfer into full score study procedures.

The lack of transfer observed within this study supports similar findings of research efforts in other areas of music teaching and learning. Research studies in error-detection indicate that skills learned in controlled environments do not seem to transfer effectively to contexts of on-podium music making (Byo & Sheldon, 2000; DeCarbo, 1982; Forsythe & Woods, 1983). Wine (1995a) observed a lack of transfer across time in undergraduate and graduate conducting students' use of a study method of score miniaturization. Broomhead (2001) found that subjects who were members of ensembles considered to be musically expressive did not transfer elements of expressive musicianship into solo performances.

A key issue in teaching for transfer seems to be one of directed focus on specific areas to be transferred from one context to another. Price (1992) conducted a study examining transfer among undergraduate students enrolled in a music education course. Subjects were taught a variety of teaching techniques and reinforcement principles and, as part of the course, participated in a teaching practicum giving one-on-one private lesson instruction to secondary school students. Experimental group subjects were given specific instructions to incorporate the use of sequential patterns within their private lesson teaching; control group subjects were not given specific instructions to transfer the techniques learned in the methods into their private lesson teaching. Results indicated that experimental group subjects who were given specific instructions for transfer were much more adept in their use of sequential patterns in their practice teaching than were control group subjects. These findings led Price to conclude, "One cannot assume that

lecturing prospective teachers on proper teaching techniques will have an impact on their behavior” (p. 84). Stated another way, one cannot assume that skills and knowledge taught in a classroom setting will transfer into authentic settings of music making.

Jellison (2000) derived four principles from research literature that govern the probability of transfer in music teaching:

The probability of transfer of valued skills and knowledge from school music contexts to out-of-school adult music contexts will be increased (1) when students participate in music experiences and learn skills and knowledge that are similar to music experiences, skills, and knowledge that are valued for adults; (2) when students have frequent opportunities to practice the same skills and tasks, and apply the same knowledge using numerous and varied examples in multiple contexts; (3) when students learn fewer things more deeply and thoroughly; and (4) when students learn meaningful principles rather than isolated facts and skills (p. 125).

Jellison’s first principle of transfer relates to selection of skills and knowledge to be taught. In Chapter 1, the point was made that the selection of skills taught to novices should be based on major disciplinary ways of thinking as demonstrated by experts in field. Within the contexts of this study, expert conductors’ assertions of the importance of score study and the relationships of score study to other elements of conducting have been well established. Analysis of data from the initial score study interviews suggests that the subjects in this study understand the importance of score study as well. Why, then, is there such a noticeable lack of transfer from descriptions of score study into actual practice during score study procedures?

One possible factor may be related to Jellison's second principle; the issue of frequency of opportunities to facilitate transfer in multiple contexts. Subjects in the current study received training in full score study in class settings where it was one of many curricular components with few opportunities for one-on-one instruction. Student Teacher subjects had no more than four consecutive semesters of experience working with full scores, as subjects in this group had completed two semesters of conducting course work and one semester of instrumental methods prior to student teaching. Lower-level Undergraduates had not yet taken courses in conducting, and Upper-level Undergraduates had completed one semester of conducting. Evidence in the initial score study interviews suggests that subjects receive a majority of their training in score study from instrumental methods and conducting courses; therefore, opportunities to practice score study skills in multiple and varying contexts is limited.

Another possible explanation for the lack of transfer in score study procedures may be related to Jellison's third principle, which relates to the issue of learning fewer things more deeply. Conducting is a complex art that requires a myriad of skills: baton technique, beat patterns, gesture, facial expression, verbal communication skills, interpersonal skills, knowledge of music history and style, rehearsal techniques, knowledge of instruments, score reading ability (including transposition), not to mention skills identified as necessary when engaged in score study. All of these issues must be addressed within three semesters of course work at the undergraduate level. Expert teachers of conducting indicate that very often there is not enough instructional time available to adequately prepare novice conductors (Battisti, 1997; Ellis, 1994; Harris, 2001; Williams, 1998). The overwhelming number of skills to be taught combined with

the short amount of instructional time may create an environment in which the most necessary elements of score study cannot be addressed in sufficient depth to facilitate transfer.

Jellison's fourth principle relates to selection of principle-based skills to be taught (as opposed to isolated facts) in order to facilitate transfer. Five principles of score study, derived from the literature on expert conductors, have been addressed in the course of this project. In the area of score study, novices should be taught 1) the primary goal of score study is the development of an internal sound image; 2) score study is a component of expressive music making; 3) score study is a process of contextualization of a piece; 4) decision-making during score study should be proactive and anticipatory; and 5) a macro-micro-macro approach to score study procedures.

When viewed from a broader perspective, one can see that many of the skills inherent within these five principles are not entirely unique to contexts of score study and conducting. For example, aural skills necessary for development of an internal sound image are also important to work in music theory. Expressive music making is an integral part of performance in solo, ensemble, and chamber music settings. Contextualization of a score requires knowledge of musical history, styles, and genres.

Research has shown that skills taught and learned in one context do not automatically transfer into practice within other contexts (Broomhead, 2001; Byo & Sheldon, 2000; DeCarbo, 1982; Forsythe & Woods, 1983; Price, 1992; Wine, 1995a). Teachers must force the issue of transfer upon students by giving them specific instructions as to what skills should be transferred, and the appropriate situation within which transfer should occur (Price, 1992). Results of this study support this line of

research in that subjects left to their own devices during score study tasks demonstrated little evidence of transfer. It is possible that transfer of knowledge may have been more evident in the contexts of this study had subjects been given specific instructions to do so.

Given the cross-disciplinary nature of score study, results of the current study suggest that a more unified, holistic approach to the teaching of music skills across the undergraduate music curriculum may be in order. If students are forced to make transfers of material from one course to another, if they are taught how subjects are relevant and important to one another, the probability that skills taught in undergraduate course work will transfer into actual practice is greatly enhanced.

### **Recommendations for Future Research**

Results of this study suggest that research is needed that examines the nature of transfer in score study activities. Future projects could identify specific variables of score study behaviors, and describe instructional settings and methods that are conducive towards transfer of knowledge and skills necessary for effective conducting. There is need for deeper research into score study behaviors of expert conductors. Much of the extant literature in which experts' score study procedures are described is anecdotal in nature; these procedures deserve intense, systematic empirical investigation.

Identification and description of specific variables demonstrated by experts when engaged in score study can in turn lead to enhanced and improved pedagogical materials for use in training novices in the difficult art of conducting.

Research is needed that examines the effects of score study on other conducting behaviors such as eye contact, gesture, and rehearsal pacing. Many experts believe that these variables are directly related to score study; however, little empirical evidence

exists to support these relationships. More insight is needed with regard to individual components of score study procedure. Among the variables that could be studied in stricter, more controlled settings with greater number of subjects include specific topics addressed during score study, the sequence in which score topics are addressed, and factors that influence a conductor's selection and prioritization of score elements.

The effects of training on development of score study skills are in need of systematic inquiry. The results of the current study shed some light towards this area; however, little empirical evidence exists that delineates stages of development or certain benchmarks that provide indication as to the appropriate levels of progress across consecutive years of training. Towards this end, more specific evidence as to the differences between subjects of varying levels of training, musical aptitude and music achievement are needed. Also, research investigating the use of sound during score study procedures and the resultant effects (if any) on interpretation and development of internal sound image is necessary.

MENC: The National Association for Music Education has identified the improvement of the quality of music teaching and learning as a primary concern of our profession. With this view in mind, it is the investigator's intention that the results of the current study serve as a basis for further research efforts into the teaching and learning of conducting. It is hoped that results of this line of research will enhance the preparation pre-service music teachers and, in turn, enhance the overall quality of music teaching in the future.

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APPENDIX A: IRB EXEMPTION APPROVAL, SAMPLE CONSENT  
FORM, AND STUDENT GRADE REPORT FORM

IRB #: 2090 LSU Proposal #: \_\_\_\_\_

LSU INSTITUTIONAL REVIEW BOARD (IRB) for  
HUMAN RESEARCH SUBJECT PROTECTION

578-8692  
FAX 6792, Office: 203 B-1 David Boyd Hall

**APPLICATION FOR EXEMPTION FROM INSTITUTIONAL OVERSIGHT**

Unless they are qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples or data obtained from humans, directly or indirectly, with or without their consent, must be approved in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

**Instructions:** Complete this form. If exemption seems likely, submit it. If not, submit regular IRB application. Help is available from Dr. Robert Mathews, 578-8692, irb@lsu.edu or any screening committee member.

**Principal Investigator** Jeremy S. Lane  
**Student?** Y

**Ph:** 344-4641 **E-mail:** jlane4@lsu.edu **Dept/Unit:** Music Education

**If Student,** name supervising professor: James L. Byo, Ph: 578-2593

**Mailing Address** School of Music, Room 278 M&DA

**Project Title**

An Interpretive Descriptive Analysis of Score Study Thought Processes Used by Undergraduate Instrumental Music Education Majors in Varying Musical Contexts

**Agency expected to fund project:** N/A

**Subject pool** (e.g. Psychology Students) Undergraduate music education majors.

**Vulnerable populations" to be used:** none.

**I certify my responses are accurate and complete.** If the project scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted.

**PI Signature** [Signature] **Date** 10/7/02 (no per signatures)

**Screening Committee Action:** Exempted ☒ Not Exempted ☐

**Reviewer** \_\_\_\_\_ **Signature** S. Kim MacGregor **Date** 10/17/02

S. Kim MacGregor

RAM

### **SAMPLE CONSENT FORM**

<b>Title</b>	An Interpretive Descriptive Analysis of Score Study Thought Processes Used by Undergraduate Instrumental Music Education Majors in Varying Musical Contexts
<b>Site</b>	LSU School of Music
<b>Contact</b>	Jeremy S. Lane (principal investigator) 540 E State, Baton Rouge, LA 70802 (225) 344-4641, jlane4@lsu.edu
<b>Purpose of Study</b>	The purposes of this qualitative study are to 1) provide a holistic description of procedures used by undergraduate instrumental music majors in score-study (music reading) tasks, 2) examine relationships among these procedures and their use in varying musical contexts, 3) examine relationships among overall musical ability, education level, and score-study ability, and 4) identify specific variables related to score-study that could be examined future research.
<b>Inclusion Criteria</b>	Undergraduate instrumental music education majors enrolled at LSU.
<b>Number of Subjects</b>	Approximately thirty.
<b>Study Procedures</b>	Subjects will participate in two separate videotaped interview sessions with the investigator. During each session, subjects will engage in music reading, performance, and evaluation tasks. Each session is expected to last approximately one hour.
<b>Benefits</b>	Findings of this study could benefit collegiate-level educators involved in music teacher training, and could identify variables that might be used as the basis for further research efforts in this area.
<b>Risks</b>	There are no known potential risks.
<b>Right to Refuse</b>	Participation in the study is voluntary. Subjects may change their mind and withdraw from the study at any time without penalty or loss of any benefit to which they may otherwise be entitled.
<b>Privacy</b>	Subjects will participate in this study anonymously. Data will not be able to be linked to the identity of the subject. In all write-ups, names will be changed in order to ensure subject privacy.
<b>Financial Information</b>	Subjects participation in this project is on a voluntary basis.
<b>Signature</b>	The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the investigators' obligation to provide me with a copy of this consent form if signed by me. I give my consent for the investigator to consult with the chairperson of Music Education department in order to verify grades earned in music courses.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### Student Grade Report Form

(completed by all potential subjects)

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Instrument \_\_\_\_\_

Please circle the letter that corresponds with the grade earned in the following music courses:

Applied Lessons, Fall I	A	B	C	D	F	I or N/A
Applied Lessons, Spring I	A	B	C	D	F	I or N/A
Applied Lessons, Fall II	A	B	C	D	F	I or N/A
Applied Lessons, Spring II	A	B	C	D	F	I or N/A
Applied Lessons, Fall III	A	B	C	D	F	I or N/A
Applied Lessons, Spring III	A	B	C	D	F	I or N/A
Major Ensemble, Fall I	A	B	C	D	F	I or N/A
Major Ensemble, Spring I	A	B	C	D	F	I or N/A
Major Ensemble, Fall II	A	B	C	D	F	I or N/A
Major Ensemble, Spring II	A	B	C	D	F	I or N/A
Major Ensemble, Fall III	A	B	C	D	F	I or N/A
Major Ensemble, Spring III	A	B	C	D	F	I or N/A
Major Ensemble, Fall IV	A	B	C	D	F	I or N/A
MUS 1130: Class Piano I, Fall I	A	B	C	D	F	I or N/A
MUS 1131: Class Piano II, Spring I	A	B	C	D	F	I or N/A
MUS 1132: Class Piano III, Fall II	A	B	C	D	F	I or N/A
MUS 1133: Class Piano IV, Spring II	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Fall I	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Spring I	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Fall II	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Spring II	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Fall III	A	B	C	D	F	I or N/A
MUS 1700: Recital Hour, Spring III	A	B	C	D	F	I or N/A

continued on next page

Student Grade Self-report Form, continued

MUS 1731: Introduction to Music, Fall I	A	B	C	D	F	I or N/A
MUS 1732: Introduction to Music, Fall I	A	B	C	D	F	I or N/A
MUS 2731: Music Theory I, Fall II	A	B	C	D	F	I or N/A
MUS 2732: Music Theory II, Spring II	A	B	C	D	F	I or N/A
MUS 3732: Music Theory III, Fall III	A	B	C	D	F	I or N/A
MUS 3733: Music Theory IV, Spring IV	A	B	C	D	F	I or N/A
MUS 2053: Survey of Music History I, Fall III	A	B	C	D	F	I or N/A
MUS 2054: Survey of Music History II, Spring III	A	B	C	D	F	I or N/A
MUS 2300: Instrumental/Vocal Techniques <i>(please list section and semester in which grade was earned)</i>	A	B	C	D	F	I
_____	A	B	C	D	F	I
_____	A	B	C	D	F	I
_____	A	B	C	D	F	I
_____	A	B	C	D	F	I
_____	A	B	C	D	F	I
MUS 3771: Conducting I	A	B	C	D	F	I or N/A
MUS 3772: Conducting II	A	B	C	D	F	I or N/A
MUED 1000: Foundations of Music Education	A	B	C	D	F	I or N/A
MUED 2045: Behavioral Techniques	A	B	C	D	F	I or N/A
MUED 3170: Elementary Methods	A	B	C	D	F	I or N/A
MUED 3171: Secondary Instrumental Methods	A	B	C	D	F	I or N/A
MUED 3630: Student Teaching	A	B	C	D	F	I or N/A

Consent & Permission to Verify Grades:

I give my consent for the investigator to consult with the chairperson of Music Education department in order to verify grades earned in music courses.

Signature \_\_\_\_\_

Date \_\_\_\_\_

## APPENDIX B: MUSIC ACHIEVEMENT RATINGS

Table 16  
Composite music achievement ratings for subjects by group.

Group:Subject	Ensemble Rating	Applied Rating	GPA Rating	Total Points	Final Rating
1:1	2	2	1	5	L (M)
1:2	2	2	2	6	M
1:3	2	3	3	8	H
1:4	3	1	1	5	L (M)
1:5	1	2	1	4	L (M)
1:6	3	3	3	9	H
2:1	3	2	2	7	M
2:2	3	2	3	8	H
2:3	3	2	3	8	H
2:4	2	2	3	7	M
2:5	2	2	2	6	M
2:6	3	3	3	9	H
2:7	2	2	2	6	M
2:8	3	2	3	8	H
2:9	2	2	3	7	M
3:1	2	2	3	7	M
3:2	2	2	3	7	M
3:3	1	2	1	4	L (M)
3:4	3	3	3	9	H
3:5	2	2	3	7	M
3:6	3	2	3	8	H

Note: Group 1 = Lower-level Undergraduates; Group 2 = Upper-Level Undergraduates; Group 3 = Student Teachers.



Table 17  
Achievement level totals by education level groups.

	Lower-Level	Upper-Level		
	Undergraduates	Undergraduates	Student Teachers	Totals
Medium	4	5	4	13
High	2	4	2	8

## APPENDIX C: INVESTIGATOR INTERVIEW GUIDE

**Subject:** \_\_\_\_\_ **Session #:** \_\_\_\_\_ **Date:** \_\_\_\_\_

### SCORE-STUDY INTERVIEW (Session 1 only):

I: During this interview process, I will be asking questions concerning your knowledge and beliefs on several issues related to score study. Please answer freely - this is not a 'right' or 'wrong' situation where I am looking for a specific, correct answer, nor am I trying to challenge your knowledge or make you feel insecure. Answer to the best of your ability, and if you don't know an answer, don't hesitate to say 'I don't know.' It is perfectly acceptable in this setting.

As you know, the topic of this project is score study. Give me your definition of 'score study' in as much detail as possible.

How or from where did this definition develop?

How would think that the process of score study would relate to other behaviors of rehearsal, practicing, and performing?

How do you know this?

What is the end product, or ultimate goal, of score study?

What is your experience with score study?

### SOLO SCORE-STUDY:

I: I am going to give you a short melodic excerpt for your instrument. I want you to study and prepare this as if you were going to play it in a public performance, such as a Thursday afternoon music hour. As you prepare, you may practice as often and in whatever manner you choose - on your instrument, singing, playing on the piano, or any other method you use to prepare music under normal conditions. You may mark on the score or make notes using the pencil and tablet provided on your stand. Demonstrate as accurately as possible within this setting the procedure you normally use when practicing and preparing music for solo performance.

As you work, I want you to tell me which element of the music you are working on - rhythm, intonation, technical aspects relating to your instrument, phrasing, etc. Also, describe what activities you will do (or are doing). For example, you might say "I am working on the rhythm in measure 3, and I am going to practice the sixteenth-note pattern first..."

When you are done, let me know and we will record the excerpt. You will be allowed to hear the recording, and may re-record as often as you like to get the performance you want. Do you have any questions?

Here is the excerpt - you may begin working now.

Here is an evaluation sheet. Use whichever method you are comfortable with (for example, a 1-10 rating; words only; a festival-type rating) and evaluate your performance. You may hear the recording as often as you like. You do not need to tell me what you are working on. Once you are done, hand the sheet to me, I may ask you questions to clarify what you have written. Do you have any questions?

Here is the sheet, and I will play the recording now.

#### COMPOSER INTERVIEW - SOLO SCORE

I: Tell me what you know about the composer of this excerpt.

What style period was he most associated with?

Can you name some other composers associated with this style period?

What are some characteristics of this period?

What are some characteristics of this composer's music?

Can you name some significant compositions by this composer?

Have you played or conducted music by this composer? Which pieces and when?

#### FULL SCORE-STUDY

I: I am going to give you a score to an excerpt from a piece for full band. I want you to study the score as if you were going to conduct an ensemble of young musicians in their first rehearsal with the work. As before, I would like you to tell me which element of the music you are working on, and what you are doing or thinking during that process.

You may use your own instrument, use the keyboard, sing through parts, conduct, mark the score, make notes on the tablet provided, or engage in any activity you choose. Your end product will be a list of issues that you would want to address during the first rehearsal. Your list may have only one or two things, or it may have several things you wish to accomplish.

Once you are finished listing the issues for the first rehearsal, tell me and we will proceed to the next activity. Do you have any questions?

I: Identify the issue that to you would be the number one priority. Why did you choose this as the number one priority? Tell me in as much detail as possible one method or technique you might use to address this issue in rehearsal.

- I: Here is an evaluation sheet. Use whichever method you are comfortable with (for example, a 1-10 rating; words only; a festival-type rating) and evaluate the performance you will now hear. You may hear the recording as often as you like. You do not need to tell me what you are working on. Once you are done, hand the sheet to me, I may ask you questions to clarify what you have written. Do you have any questions?

Here is the sheet, and I will play the recording now.

- I: Now that you have heard a band of young musicians play this excerpt, is there anything on your list of rehearsal goals you would like to change?

*If yes:* What did you change from your original list? Tell me what you heard that made you reconsider.

*If no:* What did you hear that confirmed or supported your choices of issues to address?

#### COMPOSER INTERVIEW - FULL SCORE

- I: Tell me what you know about the composer of this excerpt.

What style period was he most associated with?

Can you name some other composers associated with this style period?

What are some characteristics of this period?

What are some characteristics of this composer's music?

Can you name some significant compositions by this composer?

Have you played or conducted music by this composer? Which pieces and when?

## APPENDIX D: MUSIC FOR INTERVIEWS

### Set I: Solo: Bach, *Chorale: "Jesu! der du meine Seele"*

Oboe

**Largo** Bach

The musical score is written for Oboe in G major, 4/4 time, with a tempo marking of 'Largo'. It consists of three staves of music. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a common time signature. The melody starts on a half note G4, followed by quarter notes A4, Bb4, and A4. The second staff continues the melody with quarter notes G4, F4, E4, and D4, followed by a half note C4. The third staff concludes the phrase with a half note B3, followed by quarter notes A3, G3, and F3, ending with a double bar line. The score includes fingerings (5, 9) and breath marks (arcs over notes) to guide the performer.

Set I: Band Score: Reed, *Chorale Prelude: Thus do you fare, my Jesus*, mm. 1 - 20.

**Thus Do You Fare, My Jesus** Alfred Reed

**Largo**

C Piccolo

1st & 2nd C Flutes

1st & 2nd Oboes

English Horn

Eb Clarinet

1st Bb Clarinet

2nd Bb Clarinet

3rd Bb Clarinet

Eb Alto Clarinet

Bb Bass Clarinet

Bb Contrabass Clarinet

1st & 2nd Bassoons

1st & 2nd Eb Alto Saxophones

Bb Tenor Saxophone

Eb Baritone Saxophone

1st & 2nd Horns in F

3rd & 4th Horn in F

1st & 2nd Bb Trumpets

3rd Bb Trumpet

1st & 2nd Bb Cornets

1st Trombone

2nd Trombone

3rd Trombone

Baritone

Tuba

String Bass

Timpani

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10

Pic.

Fl.

Ob.

E. Hn.

E♭ Cl.

B♭ Cl. 1

B♭ Cl. 2

B♭ Cl. 3

A. Cl.

B. Cl.

Ch. Cl.

Bsn.

A. Sx.

T. Sx.

B. Sx.

10

Hn. 1

Hn. 2

B♭ Tpt. 1&2

B♭ Tpt. 3

Cnt.

Tbn. 1

Tbn. 2

Tbn. 3

Brtn.

Tba.

10

SB

10

Timp.

*picc.*

-3-



Set II: Solo: Copland, *Appalachian Spring (Suite)*, rehearsal nos. 24 - 25.

from Appalachian Spring

Aaron Copland

Oboe



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Set II: Band Score: Arnold, *English Dances for Band, Set I*, mvt. II, mm. 1-28.

**English Dances for Band, Set I**  
II.

Malcolm Arnold

**Vivace**  $\text{♩} = 138$

The score is written for a large band. The instruments listed on the left are: Piccolo, 1&2 Flutes, 1&2 Oboe, Clarinet in Eb, 1 Bb Clarinet, 2 Bb Clarinet, 3 Bb Clarinet, Alto Clarinet, 2nd Bass, Bass Clarinet, 1&2 Bassoons, 1&2 Alto Saxophones, Tenor Saxophone, Baritone Saxophone, 1&2 Cornets, 3 Cornet, Trumpet, 1&2 Horns, 3&4 Horn, 1&2 Trombones, 3 Trombone, Baritone, Basses, String Bass (F, Bb, C), Timpani, and Percussion. The music is in 2/4 time with a key signature of one sharp (F#). The tempo is marked 'Vivace' with a metronome marking of 138. The score includes various dynamics such as *f*, *fp*, and *sf*, and performance instructions like 'Tpt. muted' and '1 Muted'.

from second movement of *English Dances, Set I* for band by Malcolm Arnold, arr. by Maurice Johnstone.  
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7

Pic.

Fls.

Obs.

E♭ Cl.

1 B♭ Cl.

2 B♭ Cl.

3 B♭ Cl.

A. Cl.

B. Cl.

Bsns.

A. Sxs.

T. Sx.

B. Sx.

1&2 Cnts.

3 Cnt.

Tpt.

1&2 Hns.

3&4 Hns.

1&2 Tbns.

3 Tbn.

Brtm.

Bss.

SB

Timp.

Perc.

Snare drum

*p* <

**A**

13

Pic. *ff*

Fbs. *ff* *a2* (1 Bb, a2 Bb.)

Obs. *ff*

E♭ Cl. *ff*

1 B♭ Cl. *ff*

2 B♭ Cl. *ff*

3 B♭ Cl. *f*

A. Cl. *ff*

B. Cl. *ff*

Bsns. *ff* *a2*

A. Sxs. *ff* *a2*

T. Sx. *ff*

B. Sx. *ff*

1&2 Cnts. *ff*

3 Cnt. *ff* *typ.*

Tpt. *ff*

1&2 Hns. *ff* *a2 gliss.*

3&4 Hns. *ff* *a2 gliss.*

1&2 Tbns. *ff*

3 Tbn. *ff*

Brtm. *ff*

Bss. *ff*

SB *ff*

Timp. *ff*

Perc. *f*

*f* *f* *f*

4

-5-

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May 22, 2003

Jeremy S. Lane  
540 East State  
Baton Rouge, LA 70802

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on page 23 of the score, Violin I, Rehearsal No. 24 – Rehearsal No. 25 (6 measures)

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Oskaloosa, IA 52577

December 6, 2002

Jeremy S. Lane  
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Baton Rouge, LA 70802

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## APPENDIX G: EVALUATION FORMS

### *Solo Evaluation Form*

Original version published by University Interscholastic League, n.d.

# 6

## UNIVERSITY INTERSCHOLASTIC LEAGUE SOLO-SMALL ENSEMBLE Entry Blank and Comment Sheet

**INSTRUCTIONS:** See current issue of the Constitution and Contest Rules.

Event and Code ..... Class (1, 2, or 3).....  
 School represented..... City.....  
 Title of selection..... Composer-arranger.....  
 PML page number..... Indicate collection or volume if applicable.....

Name(s) of participant(s) in alphabetical order, last name first.

1. ....	Grade in School .....	10. ....	Grade in School .....
2. ....	Grade in School .....	11. ....	Grade in School .....
3. ....	Grade in School .....	Continue for MADRIGALS ONLY:	
4. ....	Grade in School .....	12. ....	Grade in School .....
5. ....	Grade in School .....	13. ....	Grade in School .....
6. ....	Grade in School .....	14. ....	Grade in School .....
7. ....	Grade in School .....	15. ....	Grade in School .....
8. ....	Grade in School .....	16. ....	Grade in School .....
9. ....	Grade in School .....		

**ADJUDICATION INSTRUCTIONS:** Comment on the areas listed below.

TONE:	TECHNIQUE:	Diction	INTERPRETATION:	SELECTION:	GENERAL EFFECT:
Control	Attack	Release	Dynamics	Suitability to capacity of performer	Stage Presence
Intonation	Rhythmic Accuracy	Tonguing	Tempo		Memorization
Quality	Pitch Accuracy	Breathing	Phrasing		Artistry
Naturalness	Smoothness	Pedal	Style		Posture
	Fingering	Articulation	Accompaniment		
	Embouchure		Rhythm		

**CONSTRUCTIVE COMMENTS:**

**RATING:** (Circle one, *DO NOT* add minus or plus)

I      II      III      IV      V

Write in rating here \_\_\_\_\_

\_\_\_\_\_  
*Signature of Official*

## *Solo Evaluation Form*

Revised version for use in project.

# **Solo Evaluation Form**

Evaluation Instructions: Comment on the areas listed below.

---

TONE:	TECHNIQUE:		INTERPRETATION:	SELECTION:	GENERAL EFFECT:
Control	Attack	Release	Dynamics	Suitability to	Artistry
Intonation	Rhythmic Accuracy	Tonguing	Tempo	capacity of performer	
Quality	Pitch Accuracy	Breathing	Phrasing		
Naturalness	Smoothness	Articulation	Style		
	Fingering		Rhythm		
	Embouchure		Fermata Treatment		

---

Constructive comments:

*Band Evaluation Form*

Original version published by University Interscholastic League, n.d.

UNIVERSITY INTERSCHOLASTIC LEAGUE

4

CONCERT

Entry Blank and Comment Sheet

INSTRUCTIONS: See current issue of the Constitution and Contest Rules.

Organization event and code \_\_\_\_\_ Conference \_\_\_\_\_ Region \_\_\_\_\_

School \_\_\_\_\_ City \_\_\_\_\_

Director \_\_\_\_\_ Date \_\_\_\_\_ Number of Students \_\_\_\_\_

Check one of the following: \_\_\_\_\_ Varsity \_\_\_\_\_ Non-varsity \_\_\_\_\_ Composite \_\_\_\_\_ Combined \_\_\_\_\_

Composer/Arranger	Title (include selections and/or movements)	Grade of Selection	Page # PML	Vocal Voicing
1) _____	_____	_____	_____	_____
2) _____	_____	_____	_____	_____
3) _____	_____	_____	_____	_____

ADJUDICATION INSTRUCTION: Comment on the areas listed below.

TONE: Blend, Intonation, Quality, Maturity, Control, Support, Volume, Intensity, Balance, Vowels

TECHNIQUE: Rhythmic precision, Articulation, Attack, Release, Fluency, Flexibility, Diction

INTERPRETATION: Note spacing, Accents, Style, Phrasing, Tempo, Dynamic range-control, Rhythm patterns, Expression-fluency

STAGE APPEARANCE: Uniformity, Posture, Response, Precision, Attentiveness, Vitality

MISCELLANEOUS: Definition of parts, Delineation of melody, Clarity-precision, Style contrasts, Inner voices, Musicianship

CONSTRUCTIVE COMMENTS:

Rating: (Circle one, *DO NOT* add plus or minus.)

I    II    III    IV    V

Write in rating here: \_\_\_\_\_

\_\_\_\_\_  
*Signature of Official*

*Band Evaluation Form*

Revised version for use in project.

## **Band Evaluation Form**

Evaluation Instructions: Comment on the areas listed below.

---

TONE: Blend, Intonation, Quality, Maturity, Control, Support, Volume, Intensity,  
Balance

TECHNIQUE: Rhythmic precision, Articulation, Attack, Release, Fluency, Flexibility

INTERPRETATION: Note spacing, Accents, Style, Phrasing, Tempo, Dynamic range-  
control, Rhythm patterns, expression-fluency

MISCELLANEOUS: Definition of parts, Delineation of melody, Clarity-precision, Style  
contrasts, Inner voices, Musicianship

---

Constructive comments:

## APPENDIX H: DATA TABLES

Table 18  
Percentages of individual topics addressed by achievement level within Lower-level Undergraduate group in each score setting.

	Bach (Solo)		Reed (Full)		Copland (Solo)		Arnold (Full)	
	<i>High*</i> (16)**	<i>Medium</i> (50)	<i>High</i> (50)	<i>Medium</i> (204)	<i>High</i> (25)	<i>Medium</i> (78)	<i>High</i> (59)	<i>Medium</i> (122)
Accidentals	0.0	2.0	0.0	2.0	0.0	2.6	0.0	0.8
Articulation	6.3	4.0	5.8	1.5	16.0	7.7	10.2	4.9
Balance/Blend	---	---	0.0	4.9	---	---	0.0	0.0
Conducting	---	---	3.8	0.0	---	---	0.0	0.0
Context	6.3	6.0	1.9	2.0	4.0	10.3	0.0	4.9
Dynamics	0.0	16.0	1.9	2.5	8.0	2.6	13.6	4.1
Ensemble Precision	---	---	9.6	3.4	---	---	3.4	3.3
Evaluation	18.8	20.0	19.2	16.2	4.0	19.2	6.8	9.0
Fermatas	6.3	4.0	7.7	2.0	---	---	---	---
Instrumentation	---	---	7.7	16.2	---	---	25.4	20.5
Intonation	---	---	5.8	2.9	---	---	0.0	0.0
Key	6.3	10.0	0.0	2.5	0.0	6.4	0.0	4.9
Melody	---	---	1.9	1.5	---	---	10.2	0.8
Meter	0.0	2.0	1.9	1.5	0.0	2.6	3.4	2.5
Musicianship	---	---	0.0	0.0	---	---	0.0	0.0
Other	18.8	4.0	0.0	2.5	20.0	16.7	5.1	2.5
Phrasing	12.5	12.0	1.9	5.4	4.0	1.3	0.0	0.0
Pitch Accuracy	26.8	0.0	1.9	2.9	36.0	7.7	0.0	1.6
Range	0.0	0.0	0.0	0.5	0.0	1.3	0.0	0.0
Rehearsal Method	---	---	0.0	1.5	---	---	0.0	9.0
Rhythm	6.3	2.0	9.6	6.9	0.0	7.7	3.4	19.7
Score Study	---	---	0.0	0.0	---	---	0.0	0.0
Style	0.0	4.0	1.9	3.9	4.0	7.7	3.4	0.8
Tempo	6.3	12.0	7.7	2.0	4.0	6.4	3.4	6.6
Texture	---	---	5.8	10.3	---	---	11.9	4.1
Tone	0.0	2.0	3.8	5.4	0.0	0.0	0.0	0.0

Note: ' --- ' in a cell indicates topic not used in coding.

\* High Achievers ( $n = 2$ ); Medium Achievers ( $n = 4$ ).

\*\* Total number of group statements within each context.

Table 19

Percentages of individual topics addressed by achievement level within Upper-level Undergraduate group in each score setting.

	Bach (Solo)		Reed (Full)		Copland (Solo)		Arnold (Full)	
	<i>High*</i> (90)**	<i>Medium</i> (91)	<i>High</i> (289)	<i>Medium</i> (269)	<i>High</i> (40)	<i>Medium</i> (138)	<i>High</i> (203)	<i>Medium</i> (396)
Accidentals	0.0	1.1	0.3	0.4	0.0	1.4	0.5	1.0
Articulation	1.1	5.5	3.1	4.5	20.0	14.5	4.9	4.8
Balance/Blend	---	---	9.7	4.1	---	---	0.0	1.0
Conducting	---	---	1.4	0.7	---	---	2.0	1.8
Context	7.8	5.5	6.6	5.9	5.0	5.1	5.4	6.6
Dynamics	21.1	17.6	5.5	5.2	15.0	2.2	3.4	6.6
Ensemble Precision	---	---	2.1	2.6	---	---	4.9	3.3
Evaluation	15.6	14.3	17.3	17.8	12.5	17.4	18.2	20.7
Fermatas	15.6	7.7	3.1	1.9	---	---	---	---
Instrumentation	---	---	19.7	12.6	---	---	20.7	22.0
Intonation	---	---	3.5	2.6	---	---	1.5	1.3
Key	4.4	3.3	0.3	5.6	0.0	8.7	1.5	1.0
Melody	---	---	2.4	2.6	---	---	4.4	2.8
Meter	0.0	1.1	0.0	0.4	0.0	0.7	0.0	0.0
Musicianship	---	---	0.3	0.4	---	---	0.0	0.8
Other	4.4	14.3	3.8	2.6	2.5	18.8	1.0	2.5
Phrasing	6.7	9.9	1.7	3.7	7.5	3.6	0.0	0.0
Pitch Accuracy	3.3	7.7	0.3	1.9	17.5	13.0	3.4	3.0
Range	1.1	0.0	3.1	0.4	0.0	0.7	2.0	1.0
Rehearsal Method	---	---	0.7	1.1	---	---	3.0	1.5
Rhythm	2.2	1.1	3.1	5.2	5.0	2.9	7.4	5.1
Score Study	---	---	0.0	0.4	---	---	0.0	1.5
Style	2.2	2.2	2.1	3.0	2.5	3.6	3.0	4.0
Tempo	14.4	8.8	1.4	3.7	10.0	6.5	8.9	2.3
Texture	---	---	7.6	9.7	---	---	3.9	4.3
Tone	0.0	0.0	0.7	1.1	2.5	0.7	0.0	1.3

Note: ' --- ' in a cell indicates topic not used in coding.

\* High Achievers ( $n = 4$ ); Medium Achievers ( $n = 5$ ).

\*\* Total number of group statements within each context.



Table 20

Percentages of individual topics addressed by achievement level within Student Teacher group in each score setting.

	Bach (Solo)		Reed (Full)		Copland (Solo)		Arnold (Full)	
	<i>High*</i> (38)**	<i>Medium</i> (199)	<i>High</i> (213)	<i>Medium</i> (186)	<i>High</i> (65)	<i>Medium</i> (117)	<i>High</i> (280)	<i>Medium</i> (414)
Accidentals	2.6	1.0	1.4	9.7	3.1	0.0	0.0	1.4
Articulation	5.3	0.5	3.3	0.0	16.9	2.6	9.3	3.4
Balance/Blend	---	---	0.5	0.0	---	---	0.4	2.9
Conducting	---	---	1.4	9.1	---	---	0.4	1.4
Context	7.9	3.0	4.2	0.0	3.1	12.8	4.6	2.9
Dynamics	18.4	22.1	3.8	4.8	20.0	9.4	7.9	7.5
Ensemble Precision	---	---	2.3	2.2	---	---	1.8	4.1
Evaluation	13.2	16.1	15.5	2.2	20.0	12.0	14.6	21.3
Fermatas	23.7	12.1	6.6	9.7	---	---	---	---
Instrumentation	---	---	20.7	29.6	---	---	12.1	18.4
Intonation	---	---	0.9	0.0	---	---	0.0	1.2
Key	2.6	2.5	1.4	1.1	4.6	4.3	3.2	1.2
Melody	---	---	2.8	1.1	---	---	3.9	4.8
Meter	2.6	0.0	0.9	1.1	1.5	1.7	1.1	0.7
Musicianship	---	---	2.3	0.0	---	---	0.0	0.5
Other	2.6	20.6	1.9	4.8	7.7	20.5	3.9	3.4
Phrasing	5.3	10.1	3.8	2.2	4.6	9.4	0.7	0.5
Pitch Accuracy	7.9	3.5	4.2	0.0	6.2	6.8	7.1	2.9
Range	0.0	0.0	0.0	0.0	0.0	0.9	2.9	1.4
Rehearsal Method	---	---	4.2	0.0	---	---	7.9	1.4
Rhythm	2.6	0.5	1.4	5.9	3.1	4.3	6.8	6.5
Score Study	---	---	0.0	0.5	---	---	0.0	0.2
Style	0.0	1.0	0.5	1.1	1.5	8.5	2.1	3.1
Tempo	5.3	4.5	2.8	0.0	7.7	4.3	4.6	1.9
Texture	---	---	11.3	15.1	---	---	2.1	5.3
Tone	0.0	2.5	1.9	0.0	0.0	2.6	2.5	1.4

Note: ' --- ' in a cell indicates topic not used in coding.

\* High Achievers ( $n = 2$ ); Medium Achievers ( $n = 4$ ).

\*\* Total number of group statements within each context.

## VITA

Jeremy Lane was born in Albuquerque, New Mexico, on May 7, 1969. He attended public schools in Ruidoso, New Mexico, and graduated with honors from Ruidoso High School in 1987. Following graduation from high school, he obtained a Bachelor of Music Education degree from New Mexico State University (1992), and a Master of Music degree from Baylor University (1998). He has five years experience teaching secondary instrumental music in the Centerville, Texas, and Kermit, Texas, public schools.

Mr. Lane currently teaches in the School of Music at the University of South Carolina in Columbia. His duties include teaching undergraduate and graduate courses in music education, supervision of student teachers, and conducting research.