AN INVESTIGATION OF NOVICE MIDDLE AND HIGH SCHOOL BAND DIRECTORS’ KNOWLEDGE OF TECHNIQUES AND PEDAGOGY SPECIFIC TO THE HORN

Jennifer B. Daigle

A Thesis
Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

MASTER OF MUSIC

August 2006

Committee:
Carol Hayward, Co-advisor
Andrew Pelletier, Co-advisor
Vincent J. Kantorski
Charles Saenz
ABSTRACT

Carol Hayward, Advisor

The purpose of this study was to determine novice middle school and high school band directors’ knowledge of techniques and pedagogy specific to the horn. Ten band directors currently teaching middle or high school band and who were in their first through fourth year of teaching were interviewed. Questions were derived from current brass methods textbooks and placed in one of the following six categories: (a) collegiate background; (b) teaching background; (c) embouchure, posture and right hand placement; (d) construction of single and double horns; (e) muted, stopped and miscellaneous horn pedagogy; (f) care and maintenance.

Findings from this study indicate that novice middle and high school band directors have varying amounts of knowledge and expertise of the horn and, in general, are lacking fundamental knowledge of specific horn techniques. In addition, it appears that directors have more knowledge and understanding of concepts relating to the horn that are common to all brass instruments as opposed to concepts associated specifically with the horn.
This thesis is dedicated to everyone who has helped inspire and motivate me to make music more than a hobby. I would like to thank family and friends for all their patience and encouragement throughout this process. I would particularly like to thank my parents Rich and Carol, who I know I can always count on for support.
ACKNOWLEDGMENTS

Many people played a critical role in the completion of this thesis and deserve more thanks and acknowledgment than can be written in several sentences.

I would first like to thank Dr. Carol Hayward for all of her guidance, patience and support. Her heartfelt interest in this thesis not only forced me to continue through all the trying times, but it motivated me to expect nothing less than my personal best. I cannot thank her enough for all the time she spent with me brainstorming ideas, helping me create a structured format, and meticulously editing numerous drafts.

I am grateful for Dr. Vincent Kantorski. His attention to minute details, in both the thesis and class assignments, has helped me grow tremendously as a writer over the last three years. Under his guidance I have learned that small things make a big difference in both writing and in life. I would particularly like to thank him for helping me conceive the idea of this thesis, sharing his knowledge of scholarly research, and for all of his editing.

I also want to thank both Mr. Charles Saenz and Dr. Andrew Pelletier for their editing and suggestions for improvement. Dr. Pelletier has consistently pushed me to accomplish more than I thought was possible and has taught me to believe in myself. Mr. Saenz has taught me that a great teacher is more than someone who can teach, it is someone with a caring and supportive personality.

Finally, I would like to express appreciation to the ten participants who took precious time out of their lives to allow me to interview them. I am grateful for their honesty, their willingness to share their knowledge, and their desire to learn.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Need for the Study</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Purpose of the Study</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Delimitations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Method</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Definition of Terms</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>REVIEW OF LITERATURE</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Professors’ Views of Freshman Horn Majors</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Construction and Content of Methods Courses</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Research on Learning</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Effects of “Basics” Being Taught in Methods Classes</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Aural Models in Teaching</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Band Directors’ Knowledge of Tuba</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Texts Used in Brass Methods Classes</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><em>Guide to Teaching Brass, 6th edition.</em></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><em>Teaching Brass: A Resource Guide</em></td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>PROCEDURE</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Constructing Interview Questions</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Selection of Respondents</td>
<td>20</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Answers of respondents A-J on questions pertaining to collegiate background</td>
<td>28-29</td>
</tr>
<tr>
<td>2</td>
<td>Answers of respondents A-J on questions pertaining to teaching background</td>
<td>30-31</td>
</tr>
<tr>
<td>3</td>
<td>Individual answers of respondents A-J on questions pertaining to embouchure, posture and right hand position</td>
<td>33-34</td>
</tr>
<tr>
<td>4</td>
<td>Individual answers of respondents A-J on questions pertaining to construction of single and double horns</td>
<td>35-36</td>
</tr>
<tr>
<td>5</td>
<td>Individual answers of respondents A-J on questions pertaining to muted, stopped and miscellaneous horn pedagogy</td>
<td>37-38</td>
</tr>
<tr>
<td>6</td>
<td>Individual answers of respondents A-J on questions pertaining to care and maintenance</td>
<td>39-40</td>
</tr>
<tr>
<td>7</td>
<td>Scoring of respondents on questions pertaining to embouchure, posture and right hand position</td>
<td>41</td>
</tr>
<tr>
<td>8</td>
<td>Scoring of respondents on questions pertaining to construction of single and double horns</td>
<td>42</td>
</tr>
<tr>
<td>9</td>
<td>Scoring of respondents on questions pertaining to muted, stopped and miscellaneous horn pedagogy</td>
<td>43</td>
</tr>
<tr>
<td>10</td>
<td>Scoring of respondents on questions pertaining to care and maintenance</td>
<td>44</td>
</tr>
<tr>
<td>11</td>
<td>Respondents’ percentage of correct answers by category</td>
<td>45</td>
</tr>
</tbody>
</table>
CHAPTER 1: INTRODUCTION

Statement of the Problem

When instrumental music education majors enter college they are required to have a major voice or instrument. Although some music education majors specialize in the horn, most do not; therefore most music education students learn about playing and teaching the horn in a methods class required by the degree program at their college.

Although these methods classes are often a requirement for graduation, there are no specific requirements in the National Association of Schools of Music handbook concerning how instrumental methods classes should be organized or what information should be included in the curriculum. The handbook requires only a “functional knowledge” of wind instruments, and the “knowledge of and performance ability on wind, string, and percussion instruments sufficient to teach beginning students effectively in groups” (NASM, 1999 p. 90). It does not mandate a required list of advanced skills to be taught specific to individual instruments, and it does not list which instruments should be taught other than the generic terms of wind, string and percussion.

The horn is usually offered in a brass methods class. This class may be organized in a heterogeneous or homogeneous setting and may be taught in one or two semesters. In some colleges, students are taught specifically about the horn and given a chance to play it. In other schools, the horn is omitted in order to allow more time on trumpet and trombone. In fact, according to Dumas (1995), the amount of time spent receiving training on the horn varies from zero to thirteen weeks, with the average music education major receiving only 12.7 hours of instruction.

Besides the limited exposure to the horn, an additional problem is that these courses are often taken in the beginning of the student’s degree program. This often inhibits students’
opportunities to apply the knowledge they learn in this class in authentic teaching settings. Research indicates that being able to recite facts does not mean the student has gained a deep understanding of the subject (Bloom, 1956; Branson, 2000; Duke, 2004). Consequently, a student may do very well on written tests in college but may struggle with connecting all the facts together and forming a profound and lasting understanding of the material covered. This limited comprehension and infrequent chances to apply the material learned may lead to difficulties with retaining the material at a later date.

Need for the Study

There have been numerous studies of the content and structure of methods classes. All have yielded the same result; there are no standard content requirements in methods classes between different universities. Considering this inconsistency in curriculum, it is difficult to judge what students know about their secondary instruments when they graduate, and what information they will retain and apply in their first several years of teaching. Except for a study completed by McAdams in 1988 investigating band directors’ knowledge of tuba, there appear to be no studies available on what band directors actually know about the instruments they are teaching, specifically the horn.

Purpose of the Study

The purpose of this study was to determine novice middle school and high school band directors’ knowledge of techniques and pedagogy specific to the horn. For the purpose of this study, novice band directors included current teachers in their first through fourth year of teaching, who have earned a Bachelor’s degree in music education. To discern what these directors know, novice band directors who teach primarily at the middle school or high school
level were interviewed with a series of open-ended questions focusing on specific horn
techniques and horn pedagogy.

Delimitations

This study did not try to differentiate between knowledge band directors learned in their
methods courses and information they learned on the job. It is assumed that teachers are
constantly learning and trying to better their understanding of teaching techniques and pedagogy.
Thus, it would seem irrational to assume that what teachers know is a direct reflection upon their
collegete training. This study does not document where teachers obtained their knowledge;
instead it attempted to determine what they do and do not know.

Method

Three books were identified as the standard textbooks used to teach brass methods
courses. From these books, a list of topics pertaining to the horn was created. Questions were
derived from this list and placed in one of the following six categories: (a) collegiate
background; (b) teaching background; (c) embouchure, posture and right hand placement; (d)
construction of single and double horn; (e) muted, stopped and miscellaneous horn pedagogy; (f)
care and maintenance.

Novice teachers were contacted and asked to complete an interview ranging from 30 to
45 minutes. These interviews were recorded and transcribed. Aside from background
information, all questions were scored as correct, incorrect, incomplete or did not know. These
scorings were then used to evaluate the data, create charts and draw conclusions.
Definition of Terms

The Horn – A conical brass instrument often referred to as a French horn. The minutes from the first general meeting of the International Horn Society on June 15th, 1971 state, “The International Horn Society recommends that HORN be recognized as the correct English label for our instrument” (IHS, 2004, p. 2). Thus, the word horn in this thesis will be used to refer to the brass instrument and should not be confused with the definition of horn as wind instruments in a jazz band.

(Instrumental) Methods Course – for the purpose of this paper, a methods course will be limited to music education courses in which students learn to play and teach the individual instruments.
CHAPTER II: REVIEW OF LITERATURE

Many musicians, including horn experts, have commented on the difficulty of playing the horn. Berv (1977, p. 9), former Philadelphia Orchestra member and former horn instructor at Juilliard said, “The French horn is the most intricate, difficult and demanding instrument of the entire brass family. Its complexities are great and its challenges numerous.” In his preface, composer and hornist, Schuller (1992, p. 7) called the horn, “a devilishly difficult instrument,” and in an interview, horn pedagogue, Farkas referred to the horn as a “cranky instrument” (Neidig, 1979, p. 544).

Many of the difficulties associated with playing the horn also apply to teaching it. Brown (1981) said that many band directors know less about the horn than any other wind instrument. He wrote, “The French horn section is usually the weakest section in high school bands and orchestras… probably because there is more confusion and misunderstanding surrounding it than any other brass instrument” (p. 113). Lafferty (1991) expanded on this by saying, “Directors are sometimes misguided by its (the horn’s) pedagogical myths (and) an aspiring hornist is left to struggle” (p. 924). This confusion can also be seen by the magnitude of basic horn pedagogy articles in numerous professional journals to which band directors have access (e.g., *School Band and Orchestra*, *The Instrumentalist*, and *Music Educators Journal*). These articles cover topics ranging from basic fingerings, to teaching beginners, to appropriate expectations for high school horn players.

Professors’ Views of Freshman Horn Majors

Although no study has been done on teacher knowledge about the horn, current literature suggests that there is some confusion surrounding horn pedagogy based on the current level of college horn majors across the country. In an article directed toward music educators, Clevenger
(1997), principal horn of the Chicago Symphony, said that 50% of his incoming collegiate freshman horn players have embouchure problems. Hoover (1994) found similar findings when he surveyed 154 applied horn professors at various colleges across the United States about the ability level of their incoming freshmen. His survey consisted of five sections, encompassing: teacher opinion of freshman horn players, student preparation, teacher opinion of method books and studies, skills teachers deem important in incoming students, and student ability to perform excerpts from standard repertoire. Of the 153 responses, Hoover (1994) found that only 3.92% of the horn instructors indicated, “All or nearly all (students) are prepared for college-level study (p. 105). In addition, he found that 11.76% replied “Most (students) are prepared for college-level study,” 37.25% said “About half (of their students) are prepared for college-level work,” 41.18% indicated that “Most (of their students) are not prepared for college-level work,” and 5.88% said that “None or few (students) are prepared for college-level work” (p. 105).

In addition, teachers were asked to rate the ability of their incoming freshmen horn players on skills unique to the horn. Teachers placed low register playing (83%), bass clef reading (81%), stopped horn & muting (80%), transposition (79%), and lip trills (76%) in the “lacking preparation” category (p. 34, 35). Professors contributed additional comments such as “I feel like an old grump, but the students I see [entering college] have been given a certain amount of basic information, but nothing more” (p. 41), and “It usually takes their freshman year to get their skills ‘caught up’ especially lip trills, bass clef and the forever battle with poor intonation” (p. 47). In addition one professor wrote,

“The bottom line is that most directors, in my opinion, have no idea as to [how to] instruct their horn students to play [a] symphonic fortissimo, [the] trill, stopped horn or [how to] transpose. Consequently, unless these kids have studied
privately, most of them are quite unprepared to play college level orchestral music” (p. 43).

This survey clearly showed that collegiate horn instructors perceive a lack of preparation in high school horn players. However, the study did not suggest why so many students entered college unprepared. In order to understand why so many incoming collegiate horn majors have significant deficiencies in their playing and understanding of the horn, it may be enlightening to examine what music educators know about the horn to determine if there is a correlation.

Construction and Content of Methods Courses

Most music education majors are not horn players, and therefore many current band directors received their only training on the horn in their collegiate brass methods class. This course, along with other instrumental technique courses, is often considered the most important course future music educators will take. In an interview with beginning music teachers, the instrumental teachers commented on the importance of their methods courses. One of the interviewees said, “Technique courses are the backbone of teaching beginners” (Krueger, 2001, p. 54).

Many music education experts have also commented on the importance of these courses. “The success of future teachers… depends in part on their knowledge of instruments. Therefore, learning instruments… is a necessary component in the undergraduate preparation of music teachers” (Zorn, 1995, p. v.). Whitener added that, “The study of secondary instruments is one of the most vital aspects of a prospective instrumental teacher’s preparation.” (1990, p. 138). Dietz agreed that the wind technique courses are the most important classes in music education curriculum, and are often not ideal and their importance not stressed enough. Kantorski and
Ellsworth (1988) also stated “Instrumental techniques classes for music education majors may be among the most useful courses available to future music teachers… (And they) contribute greatly to a beginning teacher’s overall versatility and success.” (p. 80).

These courses are so important that there is a specific section in The National Association of Schools of Music (NASM) handbook (1999) describing how to organize and teach these methods classes. The handbook requires a “functional knowledge” of wind instruments, and the “knowledge of and performance ability on wind, string, and percussion instruments sufficient to teach beginning students effectively in groups” (p. 90). The handbook also says that faculty members who have public school teaching experience should teach these classes. However, the handbook does not mention the amount of time needed for study on each instrument or the number of credits required; nor does it require students to be able to teach secondary instruments beyond a beginning level. Because of the vagueness in methods class requirements, states are often left to decide specific credit requirements for certification, and some schools require only one or two performance oriented methods courses for graduation (Teachout, 2004).

Several studies have been done on exactly how various methods classes are organized. These studies vary in size and content, but all show inconsistencies in method course organization and content. In 1976, Huntley surveyed NASM schools on their brass techniques classes. He received completed surveys back from 131 schools and discovered that inconsistencies ranged from the amount of time spent in class, to heterogeneous versus homogeneous groupings, to the number of credits received. Huntley concluded that each class covered different topics, and there was no sense of unified requirements. He suggested that a
“definition of desired brass techniques competencies” would be useful in improving brass methods class instruction (p. 33).

Dachtyl (1992) did a similar survey with percussion methods courses. Although employing a smaller sample, with only 42 responses, the Dachtyl study also established a lack of consistency in methods courses. His major findings, like Huntley, showed that there were no standard content requirements between schools. He also made a surprising discovery that 9.5% of the percussion methods classes were taught by a teacher whose primary instrument is not percussion.

In her master’s thesis, Dumas (1995) specifically looked at horn methods classes by surveying 22 music schools. Like Dachtyl and Huntley, she also found that the content varied greatly by school, and there was no specific definition of desired brass competencies. In addition, she looked at the number of hours students spent in class and the number of hours they spent learning the horn. She found that out of 22 collegiate music education programs surveyed, the average music education major spends 2.4 hours a week in their brass methods course. She also learned that the average music education student spends 5.3 weeks learning the horn in their brass methods classes. This means the typical music education major spends only 12.7 hours receiving training on the horn.

Several other experts have commented on the lack of time devoted to instrumental methods classes (Cooper, 1994; Dachtyl, 1992; Dietz, 1990). Dietz (1990) commented on the time restraints, but also cited other factors such as large class size and instruments that are in poor shape, which allow only the basics to be taught in these classes. In addition, he said that the values of method classes are not stressed enough and often the courses are offered for too few credits, making the courses, in his opinion, inadequate.
In an article geared toward improving methods classes, Brand (1984) acknowledged the value of demonstrations and observations. He said these should be included in methods classes along with standard theoretical knowledge and coaching students on playing. He suggested incorporating current public school music teachers in methods courses either by having panel discussions with accomplished teachers, or hiring current public school teachers as adjunct faculty to help improve the usefulness of the course.

However, there are often problems of incorporating panel discussions and hiring adjunct public school teachers due to scheduling and budgetary problems. In addition, live demonstrations may be difficult if the instructor teaching the methods course is not teaching their primary instrument. These challenges allude to another major problem that many music educators and researchers have written about in regards to instrumental methods classes. The literature suggests that performance technique is often over-emphasized, and that there is not enough time allotted to teach and apply the knowledge obtained in methods classes (Conway, 2002; Dietz, 1990; Leonhard, 1988). Conway (2002) stated that there is often too much emphasis on playing in methods classes and not enough emphasis on teaching. Four years prior to Conway, Leonhard said that although the instrumental methods classes “lie at the very core of music teacher education” (1988, p. 193), there is infrequently a chance for students to apply their knowledge. Dietz (1990) said that often the courses are taken so early in their undergraduate studies that the student does not have a chance to apply their knowledge for several years until they are enrolled in fieldwork or student teaching.

Research on Learning

Duke (2004) wrote, “Learning is more than remembering. Learning requires that the student apply knowledge or skill or both in some meaningful way” (p. 24). When learning to
teach it is often easier to memorize all the facts than to apply them, because teaching, “requires not only knowledge of facts and ideas, but also practice and refinement of skills” (p. 27). In addition, Duke said that it is often difficult to gauge what students truly learn. Students may be able to recite facts needed to pass a test, but may not be able to actively apply those facts when faced in a teaching situation. Duke also stated, “Most tests do not assess whether a learner can actually apply what he knows in useful, meaningful ways beyond contexts in which the knowledge and skills are taught” (p. 79).

Application is not a new concept. In 1956, Bloom published a taxonomy of educational objectives that attempted to classify the “intended behaviors of students – the ways in which individuals are to act, think or feel” (p. 12). It is composed of six major hierarchal classes, knowledge, comprehension, application, analysis, synthesis and evaluation (p.18). Each class in the taxonomy is built upon the previous class and requires skills and knowledge from that preceding class.

Methods classes often focus on the first class, knowledge (terminology, specific facts, methodology, principles and generalizations); and the second class, comprehension. Bloom (1956) defined comprehension as “(when the individual) can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest impactions” (Bloom, p. 204). However, simply knowing and comprehending material does not mean that a student knows how to apply it correctly, and most methods courses do not have enough time or resources to teach, let alone test for application.

In addition to application, music education classes should also be concerned with transfer. In this case, transfer means the ability of the student to take concepts and facts taught in the methods class and apply them in other settings. An example of transfer would be applying
knowledge of instrument ranges for beginners and idiosyncrasies of each instrument, to writing an elementary band piece in a band scoring class or teaching an elementary band. Branson (2000) stated that “attempts to cover too many topics too quickly may hinder learning and subsequent transfer because students (a) learn only isolated sets of facts that are not organized and connected or (b) are introduced to organizing principles that they cannot grasp because they lack enough specific knowledge to make them meaningful” (p. 58).

For a variety of reasons it may be logical to assume that many methods classes are not fashioned in an ideal way to promote application or transfer. It has already been documented that methods courses often receive few credits and little class time. Thus, many methods courses skim over many important facts and theories, looking only for a general level of understanding. In addition, these courses may be taught by graduate students who may not have the experience and organizational skills that a professor may have, perhaps presenting material out of sequence or in an unorganized way that does not help students make meaningful connections. However, a major component in limiting students’ knowledge is the lack of time spent actually teaching students who are not their peers. Without this opportunity, future music educators will have to learn to apply their knowledge without the supervision of a qualified instructor, thus limiting their ability to be successful.

Effects of “Basics” Being Taught in Methods Classes

By applying the information on application and transfer to the construction and effectiveness of the collegiate methods courses, one can begin to see how the lack of class time and the resultant knowledge of only the basics affect the comprehension of music education majors. Because of the lack of teaching time in methods classes, the lack of application experiences, and the fact that many instrumental methods courses are taken long before the
student teaching and field experience, the current instrumental methods classes may have yielded band directors who are not ready to teach all of the individual instruments. In a survey of 244 middle school and high school music teachers in Ohio, Indiana, and Kentucky, only 43% responded that they felt ready to teach percussion based on their collegiate training (Albin, 1985). In addition, 20% said that they felt ready for the current demands on them, 63% said they did not feel ready, and the remaining 17% responded with a more neutral answer. In a more recent survey, only 52.3% of 273 music teachers said they felt ready to teach students to play band instruments (Brophy, 2002).

Unfortunately, it is often difficult for students to teach themselves information and skills not covered in class. Although many concepts transfer between instruments, specific horn techniques not taught in a horn method or brass methods class might never be learned properly. Learning a new instrument, without guidance from a teacher, often leads to bad habits and incorrect technique. Even with the help of books, this problem is not always avoided, since “Instrumental methods (books), no matter how well-written, can contain words that are very misleading, and the reader should be aware of this as he attempts to understand the authors.” (Peverson & McDunn, 1983, p. 5). An example Peverson and McDunn used is the popular phrase in music, “blow hard.” They suggested that seeing this in a book might not be useful if the throat muscles or tongue placement is incorrect.

Aural Models in Teaching

Young instrumentalists, including horn players, need aural models specific to their instrument. As documented previously, many current music educators do not have an adequate knowledge of brass instruments, and presumably many more do not have a characteristic tone on these instruments. Young students often learn by hearing and imitating (Johnson, 2002). In fact
Johnson wrote, “To attempt to play without a good sense of how one wishes to sound is akin to attempting to learn to speak a language without having heard the language” (p. 16). Kinney (1984) suggested that young students do not generally have a concept of characteristic tone and advocated using a four-part approach when using demonstration as a teaching tool. He suggested that (a) the student should play alone first, (b) the teacher should demonstrate, (c) the teacher and student should play together to strengthen the student’s abilities, and (d) the student play alone. Toms (1983) said that when teachers demonstrate expressive playing their students are more likely to want to “gain the satisfaction that comes from creating sensations for themselves” (p. 41). Toms specifically advocated using demonstration for rhythm, dynamics, tone and phrasing.

Sang (1987) not only commented on the ability to model, but also on the importance of modeling well. He said, “teachers who have stronger modeling skills and apply those skills in teaching are more likely to produce students who perform better than teachers who do not” (p. 158). Kohut (1996) emphasized the importance of teacher demonstration and wrote “Teachers sometimes have students listen to good recordings in order for them to gain proper performance concepts. While this can be helpful, it can never fully substitute for a live demonstration.” (p.9).

Band Directors’ Knowledge of Tuba

Although there have been many studies conducted on the preparation of undergraduate music education majors and on collegiate methods classes, there appears to have been no study of what band directors retain and learn on the job, specifically about the horn. However, a study was completed about band directors’ knowledge of tuba. McAdams (1988) attempted to answer the following four questions in his doctoral dissertation:

1. “What body of knowledge of tuba pedagogy is represented in pedagogical materials written for the instrumental music teacher?
2. What specific knowledge of tuba pedagogy do pedagogical experts believe is essential for instrumental music teachers to teach tuba students?

3. To what extent do teachers of elementary instrumental music students who are brass players differ in their knowledge of tuba pedagogy from those teachers who are non-brass players?

4. To what extent do secondary instrumental music teachers who are brass players differ in their knowledge of tuba pedagogy from those teachers who are non-brass players?”

To determine the answers to these questions, McAdams assembled a panel of seven nationally known tuba pedagogues. He gave them each a list of knowledge specific to the tuba and a rating scale to indicate which items they thought were unimportant, essential, or somewhere in the middle. The items deemed important by the panel were then used to create a test for instrumental music educators, including 38 elementary and 25 secondary teachers.

McAdams found that elementary teachers who are brass players received an average score of 50% and elementary teachers who are non-brass players received an average score of 46%. Secondary teachers fared slightly better with an average score of 66% for brass players and 56% for non-brass players. In addition, McAdams made the following conclusions: (1) Books used in methods courses do not “adequately address” (p. 87) the pedagogical issues considered important by a panel of seven nationally recognized tuba pedagogues, (2) Teachers scored higher on questions which not only pertain to tuba, but are relevant to other brass instruments and (3) Music teachers need to have more knowledge of pedagogical knowledge specific to the tuba (i.e. mouthpieces, intonation, embouchure, air stream, literature, vibrato, etc.).
Texts used in Brass Methods Classes

There are three primary books in use today in the collegiate brass methods classes. These books all have a different formats but contain much of the same information. Each book also includes information about brass instruments in general and information about the horn, about playing the horn, and about teaching the horn. None of these books are specifically written about the horn, and only one of the eight authors is a horn player.

*Guide to Teaching Brass, 6th edition*

Although the most current edition was published in 2002 (Bachelder, D. & Hunt, N.), the original book was written in 1968. The first three editions (1968, 1978, 1984) appear to have undergone radical changes. However, a brief examination proves that the material in the first through third editions is essentially the same; it is the format and organization of the book that has been changed. The book, originally in one section, is divided into two sections in the second edition: “Part 1 – Characteristics Common to All Brass Instruments,” and “Part 2 – Individual Instruments.” In addition, some of the material switches chapters, but the vast majority remains unchanged. The most important informational differences are the topic of vibrato and the updated pictures.

The crucial change comes between the third (1984) and fourth (1991) editions. Between these editions, Hunt passed away and Bachelder continued the editing. Much of the formatting and information are similar between these editions, but major sections have been rewritten and clarified. Minor changes have been made in the fifth edition, published in 1994. Essentially, the format and information remain the same, except for the discussion on vibrato and the location of this information within the book.
The current edition (2002) is written in the same two sections as the second through fifth editions, “Part 1 – Characteristics Common to All Brass Instruments” and “Part 2 – Individual Instruments.” Part 1 contains seven chapters, titled: “General, Acoustical and Intonation Considerations,” “Care of Instruments,” “Breathing and Breath Support,” “The Embouchure,” “Articulation,” “Mouthpiece,” and “Vibrato.” Part 2 contains five additional chapters, each designated to a specific instrument. Each chapter includes the history of the instrument, a fingering chart, several exercises or excerpts geared toward the specific instrument, and a selected literature chart.

Chapter 9 is devoted specifically to the horn. This chapter discusses the history and development of the horn, the construction of the modern horn, transposition, and proper playing position (including pictures). In addition to these primary sections, this chapter also covers muting, stopped horn and intonation. A thorough outline of information pertaining to the horn throughout the book can be found in Appendix A.

*Teaching Brass: A Resource Guide*

This book is written in ten chapters, the first five of which cover general information that relates to all brass instruments (Bailey, W., Miles, P., Siebert, A., Stanley, W., & Stein, T., 1992). These chapters are titled “Acoustics of Brass Instruments,” “The Embouchure,” “Articulation,” “Breath Control” and “Brass Equipment.” Chapters six through ten each cover a specific instrument, with chapter seven being designated specifically to the horn. Each of these chapters includes a graded literature list, fingering chart, selected discography and selected bibliography. The last 73 pages of the book are musical exercises, designed to be performed in a class setting.
The horn chapter is focused primarily on theoretical and playing techniques. However, there are sections that deal with teaching the horn to young students, including student qualifications, first sounds, and common student problems. In addition, there are recommended horns and mouthpieces. A thorough outline of information in the book relating to the horn can be found in Appendix B.

_A Complete Guide to Brass Instruments and Pedagogy, 2nd edition_

Published in 1997 (Whitner, S.), the second edition of this book has the same format, chapters, and section headings as the original edition (1990). However, there are more pictures and more information added throughout the book. Most of the information is not new, but rather expands and clarifies the information in the original edition. In addition, there are more personal opinions and an expanded history of brass development.

This book is divided into two parts, “Part 1 – Instruments,” deals with the construction of the instruments, technical problems, and information about the instruments. The chapters cover all of the major instruments in addition to chapters on how brass instruments work, the mouthpiece, miscellaneous brass instruments and the history of brass instruments. “Part 2 – Technique,” (titled “Pedagogy” in the initial publication) deals with how to play and teach the instruments. The chapters are titled, “Tone Production,” “Playing Position,” “Getting Started,” “Instrument Care,” and “Notes for Conductors.” Both editions have an appendix at the end with fingering charts, recording suggestions, and pictures of famous brass sections/ensembles.

Because of the format of the book, information relating to the horn is integrated throughout. A thorough outline of information in the book relating to the horn can be found in Appendix C.
CHAPTER III: PROCEDURE

Constructing Interview Questions

Before writing the interview questions, the author deemed it necessary to establish what methods books were in use at the time of this study. These books would serve as a guide in determining what information brass experts think is important about the horn and what information students have access to. The author conducted an Internet search, using the Google search engine, to access 29 online course syllabi from brass methods classes at major universities. It was determined that ten schools used *Guide to Teaching Brass* (Bachelder & Hunt, 2002), ten schools used *A Complete Guide to Brass Instruments and Pedagogy* (Whitener, 1990) eight schools used *Teaching Brass: A Resource Guide* (Bailey, et all, 1992), and one school used *Teaching Brass to Beginners* (Dunnik, J & Dunnik, K, n.d) (Appendix D).

After establishing the three major books currently in use, the author outlined information pertaining to the horn from each book. This information was divided into two categories “General information relating to the horn” and “Information specific to the horn.” The category titled “General information relating to the horn” contains facts that are not specifically about the horn but are concepts which are applicable to it. Most of the listings in this category contain information common to all of the brass instruments, such as harmonics and articulations. The details listed in the category “Information specific to the horn,” are concepts that apply only to the horn, or are expansions on general brass concepts that have been adapted for the horn (Appendices A-C).

The information from both the “General information relating to the horn” category and the “Information specific to the horn” category was then compiled and used to write the interview questions. The questions were constructed to cover as much of the information as
possible, although an emphasis was put on information found in more than one book. The questions were created in an open-ended format and placed in one of the following categories: (a) collegiate and teaching background; (b) embouchure, posture and right hand placement; (c) construction of single and double horns; (d) buying horns; (e) muted, stopped and miscellaneous horn pedagogy; (f) care and maintenance.

Selection of Respondents

The band directors interviewed in this study were selected based on the following criteria: participants must (a) have earned a Bachelor’s degree in music education, (b) have four or less years of teaching experience (not including student teaching), (c) currently be teaching middle school or high school band in some capacity and, (d) have agreed to be interviewed. In addition, an intentional effort was made to select directors who represented a variety of primary instruments, not including the horn; an array of undergraduate colleges; an assortment of job responsibilities; and a range of different geographical teaching locations.

Names of potential respondents were received through recommendations from various graduate music majors, current music educators, and professional acquaintances. Upon receipt of the names and contact information, communication with potential respondents was established through an e-mail requesting their participation in this study. After agreeing to be interviewed, each participant was mailed a letter and consent form approved by the Bowling Green State University Human Subjects Review Board, requesting their participation in this study (appendix E). The letter informed potential respondents of the following information: (a) the purpose of the study, (b) that the anticipated length of the interview would be between 30 and 45 minutes, (c) that interviews would be recorded on a minidisc recorder and transcribed and (d) that their names
and identifying features would be kept confidential. Respondents were asked to sign and return the consent form.

The Interview

Upon receipt of the signed consent form, respondents were contacted via e-mail and a time to conduct the interview was arranged. At the beginning of the phone conversation, respondents were reminded that the interview would be recorded and transcribed. They were also given a brief overview as to how the questions were constructed and were told that because of the range of questions, they would probably not know all of the information being asked. Respondents were asked to share as much information as they knew about a subject even if they knew their answer was incomplete. They were informed of the categories of the questions, and questions were asked directly from the list. Often, follow-up questions were asked to either clarify an answer or to try to get the respondent to give a complete answer. During the interview process, respondents who did not know an answer to a question or who answered incorrectly, were given the opportunity to hear the correct answer and ask questions.

Data Collection

Once the interviews were completed, they were transcribed. Only the initial questions, follow-up questions, and responses were actually written out. Explanations of incorrect answers and irrelevant information were not transcribed. All identifying information in the collegiate and teaching background category was rewritten in generic descriptions. Questions relating to the horn in the embouchure, posture and right hand placement; construction of a single and double horn; buying horns; muted, stopped and miscellaneous horn pedagogy; and care and maintenance categories were scored as either Correct, Incorrect, Incomplete or Did not know. For the purpose of this study, correct responses consisted of those that were accurate and complete.
Incorrect responses consisted of those that were erroneous or mistaken. Incomplete responses may consist of answers that have certain facts correct and certain facts wrong, or incomplete responses may refer to the reply of a respondent who was able to answer part of the question but not give a full response. Did not know is used to describe questions in which the respondent gave either no response or answered with some variation on the phrase “I don’t know.” These scorings were then used to evaluate the data, create charts and draw conclusions.
CHAPTER IV: RESULTS

Collegiate and Teaching Background of Respondents

All respondents had several characteristics in common; they were all currently teaching middle or high school band in some capacity, all had earned an undergraduate degree in music education, and all had a primary instrument besides the horn. In addition, each respondent was considered a “novice” band director, meaning that they were currently in their first through fourth year of teaching (excluding student teaching). Tables 1 and 2 show how each respondent answered questions about his or her collegiate and teaching background. Additional information on each respondent is below.

Respondent A is currently in her first year of teaching at a middle school where she is the orchestra director and assistant band director. In addition to her middle school teaching responsibilities she assists with the high school marching band. She has two horn players in the middle school band, whom she teaches in sectionals and four horn players in the high school whom she teaches “just a hair.”

Her horn methods class met once a week with a professor and once a week with a graduate student. The meeting with the graduate student was mostly spent playing the instrument, whereas the class with the professor was spent discussing methodology and pedagogy of the horn along with playing the instrument. Except for being called “randomly (to) have us stand in front of the class like we were the teacher and go around and fix people’s position or fingers,” respondent A never had to teach the horn while enrolled in her methods class.

Respondent B is currently in her second year of teaching. Her job responsibilities include directing the fifth grade bands and assisting the high school band director. She directs the
second jazz band and assists with the concert and marching bands. She has five horn players in her school, although she only teaches three of them.

She took one semester of brass techniques in college, and then enrolled in applied trumpet lessons because “I was horrible at the trumpet.” Her methods class met twice a week, and the students were expected to play in “Monster Band” on Fridays on one of the brass instruments. Respondent B never played the horn in her brass methods class.

Respondent C is currently in her first year of teaching at a middle school, where she is the instrumental music teacher and the sixth grade general music teacher. She teaches two concert bands, jazz band, and group lessons. Respondent C currently has no horn players in her program, although she did have a horn player in the beginning of the year who has since moved away.

She took one semester of brass techniques in college where, in addition to playing, students also did some one-on-one teaching and diagnosing of playing problems in class. She estimates that she spent about a third of the semester on the horn, but she also commented that she felt like they lost a lot of instructional time because somebody from a local school was conducting a study on their class.

Respondent D is currently in his fourth year of teaching at a middle school, where he is the director of bands. He has two horn players in his program. Although working towards a Master’s degree in performance, he has completed graduate course work in both performance and music education. In addition to his collegiate education, he has been working as an instrumental repairman for approximately ten years, where he specializes in brass instruments including the horn.
As an undergraduate, he took one semester of brass techniques. This class met twice a week for an hour, and the class was taught in a heterogeneous setting so they could play brass ensembles. Respondent D spent “about zero hours” playing the horn in class and was not required to teach it in any capacity.

Respondent E started his studies at a large public university and transferred to his alma mater after a year and a half. He is in his second year of teaching and teaches in a small private high school. He instructs concert band, concert choir, AP music theory and a music appreciation course. He currently has one horn player in his program.

He took his one semester of brass methods after he transferred, and his class was primarily presented in a lecture style. The beginning of the semester focused on how to teach brass instruments in general and as the semester progressed, the lecturer turned to specific instrument techniques. Respondent E played horn for approximately three weeks in class and had to teach a beginning non-music major a first lesson on horn as part of his final grade.

Respondent F is in his first year of teaching high school band along with fifth grade band. He has two horn players in his high school program. Respondent F has not attended graduate school but did enroll in a graduate level music education course as an undergraduate.

He took one semester of brass techniques in his junior year of college. The course was set up in a heterogeneous manner and met twice weekly. Respondent F played the horn for approximately three weeks during the semester and was never required to teach it.

Respondent G is in her first full-time music teaching job. While working on her Master’s degree in music education, respondent G taught music one day a week. Currently, she teaches instrumental music to grades four through twelve and general music to grades five and six. She has one horn player in her high school and two beginning horn players in the fifth grade.
While in college, she took a half semester course on the horn, taught by the applied horn professor. Like respondent A, respondent G also had to teach in front of the class. During her teaching, the professor would instruct students in the class to play wrong on purpose to see if respondent G could find it.

Respondent H is in his third year of teaching, although he is in his first year of teaching at his current job. He is currently teaching ninth through twelfth grade in a high school which is only in its second year of existence. Prior to the building of the new school, there was no instrumental music program in the elementary schools, so his program is small and growing. His prior job was at a high school with a large music program where he was expected to do everything because he was the only music teacher. In addition to his undergraduate degree, respondent H has a graduate degree in tuba performance from an Ivy League school.

Respondent H took his undergraduate brass methods class in 1998 and had trouble recalling specifics about the class. He remembers that he played horn a few weeks and was never required to teach it. He also thinks that it was taught in a heterogeneous setting and that it was taught by a graduate student whose primary instrument was trumpet.

Respondent I is in his third year working as an assistant band director at a junior high school in Texas. His primary teaching responsibilities are running woodwind sectionals, teaching beginner instrumental classes, and conducting one band. Although there are 25 horn players in the band program at his school, most of them are beginners who are not enrolled in band. Thus, respondent I only teaches one horn player on a daily basis.

He attended a college where music education majors received a degree in music with a minor in education. While enrolled, he completed two semesters of brass methods courses. He recalled that those classes were primarily focused on playing the instruments and that “there
wasn’t a lot of practical information.” He says “I’ve learned a lot where I am (his school) about brass playing and embouchure.”

Respondent J is in her third year of teaching high school and fifth grade band. In addition to seeing students in band rehearsal every day, respondent J teaches each student a private lesson once a week. She only has one horn player in her program and that student is in ninth grade. She graduated with an undergraduate degree in 2001 and immediately proceeded to work towards earning a master’s degree in trumpet performance in 2003.

She took two semesters of brass methods in her sophomore year. The class was set up in a homogeneous fashion, except that on occasion students were split into small groups of like instruments. Respondent J only played horn for three or four weeks and was never required to teach it while enrolled in brass methods.
Table 1

Answers of respondents A-J on questions pertaining to collegiate background

<table>
<thead>
<tr>
<th>Questions</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Location of undergraduate college</td>
<td>Great Lakes Region</td>
<td>Midwest</td>
<td>New England</td>
<td>New England</td>
<td>New England</td>
</tr>
<tr>
<td>3. Graduate work completed</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Performance</td>
<td>None</td>
</tr>
<tr>
<td>3a. Status of degree</td>
<td>In progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Primary instrument</td>
<td>Clarinet</td>
<td>Clarinet</td>
<td>Flute</td>
<td>Saxophone</td>
<td>Voice</td>
</tr>
<tr>
<td>5. Other instruments you feel competent</td>
<td>None</td>
<td>None</td>
<td>Sax</td>
<td>Fl, Cl,</td>
<td>Piano, trombone</td>
</tr>
<tr>
<td>5a. Performing on</td>
<td></td>
<td></td>
<td></td>
<td>Euph, Perc</td>
<td></td>
</tr>
<tr>
<td>6. Number of brass methods courses</td>
<td>2 Semesters</td>
<td>1 Semester</td>
<td>1 Semester</td>
<td>1 Semester</td>
<td>1 Semester</td>
</tr>
<tr>
<td>7. Heterogeneous or homogeneous</td>
<td>Homogeneous</td>
<td>Heterogeneous</td>
<td>Homogeneous</td>
<td>Heterogeneous</td>
<td>Heterogeneous</td>
</tr>
<tr>
<td>7a. Structure of methods class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Amount of time spent on horn</td>
<td>Half semester</td>
<td>None</td>
<td>A third of semester</td>
<td>None</td>
<td>3 weeks</td>
</tr>
<tr>
<td>9. Did you ever teach the horn?</td>
<td>Yes</td>
<td>No</td>
<td>A little</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>10. Who taught the class?</td>
<td>Prof./Grad Stud</td>
<td>Prof./Grad Stud</td>
<td>Grad Student</td>
<td>Professor</td>
<td>Professor</td>
</tr>
<tr>
<td>11. Teacher's primary instrument</td>
<td>Horn/Trumpet</td>
<td>Trombone/Trumpet</td>
<td>Horn</td>
<td>Trumpet</td>
<td>Trombone</td>
</tr>
</tbody>
</table>

(Chart continued on next page)
<table>
<thead>
<tr>
<th>Questions</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Location of undergraduate college</td>
<td>New England</td>
<td>New England</td>
<td>New England</td>
<td>Southwest</td>
<td>Great Lakes Region</td>
</tr>
<tr>
<td>3. Any graduate work completed</td>
<td>1 course</td>
<td>Music Education</td>
<td>Performance</td>
<td>None</td>
<td>Performance</td>
</tr>
<tr>
<td>4. Primary instrument</td>
<td>Trumpet</td>
<td>Flute</td>
<td>Tuba</td>
<td>Saxophone</td>
<td>Trumpet</td>
</tr>
<tr>
<td>5. Other instruments you feel competent performing on</td>
<td>Tuba</td>
<td>Clarinet, Sax</td>
<td>Bass guitar</td>
<td>Clarinet, bassoon</td>
<td>Trombone, sax</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>voice, clarinet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Number of brass methods courses</td>
<td>1 Semester</td>
<td>1.5 Semesters</td>
<td>1 Semester</td>
<td>2 Semesters</td>
<td>2 Semesters</td>
</tr>
<tr>
<td>7. Heterogeneous or homogeneous structure of methods class</td>
<td>Heterogeneous</td>
<td>Homogeneous</td>
<td>Heterogeneous</td>
<td>Heterogeneous</td>
<td>Mixture</td>
</tr>
<tr>
<td>8. Amount of time spent on horn</td>
<td>3 weeks</td>
<td>Half Semester</td>
<td>A few weeks</td>
<td>Half Semester</td>
<td>3-4 weeks</td>
</tr>
<tr>
<td>9. Did you ever teach the horn?</td>
<td>No</td>
<td>A little</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>10. Who taught the class?</td>
<td>Professor</td>
<td>Professor</td>
<td>Grad Student</td>
<td>Grad Student</td>
<td>Professor</td>
</tr>
<tr>
<td>11. Teacher's primary instrument</td>
<td>Trumpet</td>
<td>Horn</td>
<td>Trumpet</td>
<td>Trumpet</td>
<td>Trumpet</td>
</tr>
</tbody>
</table>
Table 2

*Answers of respondents A-J on questions pertaining to teaching background*

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Location of job</td>
<td>MA</td>
<td>KS</td>
<td>CT</td>
<td>CT</td>
<td>MA</td>
</tr>
<tr>
<td>2. Grades currently taught</td>
<td>6-12</td>
<td>9-12, &amp; 5</td>
<td>6-8</td>
<td>6-8</td>
<td>9-12</td>
</tr>
<tr>
<td>3. Year of teaching</td>
<td>First</td>
<td>Second</td>
<td>First</td>
<td>Fourth</td>
<td>Second</td>
</tr>
<tr>
<td>4. Job Description</td>
<td>orchestra assistant band director</td>
<td>5th grade band assistant high school director</td>
<td>Band 6th grade general music</td>
<td>Band</td>
<td>Band Chorus Theory Music Appreciation</td>
</tr>
<tr>
<td>5. Size of school</td>
<td>450 - M.S.</td>
<td>N/A</td>
<td>650</td>
<td>1400</td>
<td>850</td>
</tr>
<tr>
<td>6. Number of students in bands</td>
<td>50 - 6th grade band</td>
<td>N/A</td>
<td>90</td>
<td>200</td>
<td>22</td>
</tr>
<tr>
<td>7. Number of horn players in bands</td>
<td>6</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. Number of horn players you teach</td>
<td>2 frequently</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

*(Chart continued on next page)*
Table 2 (Continued)

*Answers of respondents A-J on questions pertaining to teaching background*

<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Location of job</td>
<td>CT</td>
<td>NY</td>
<td>MA</td>
<td>TX</td>
<td>IA</td>
</tr>
<tr>
<td>2. Grades currently taught</td>
<td>9-12, &amp; 5</td>
<td>4-12</td>
<td>9-12</td>
<td>6-8</td>
<td>9-12 &amp; 5</td>
</tr>
<tr>
<td>3. Year of teaching</td>
<td>First</td>
<td>First (full time)</td>
<td>Third</td>
<td>Third</td>
<td>Third</td>
</tr>
<tr>
<td>4. Job Description</td>
<td>Band</td>
<td>Band General Music</td>
<td>Band Music Theory</td>
<td>Assistant Band Music Appreciation</td>
<td>Band Private lessons</td>
</tr>
<tr>
<td>5. Size of school</td>
<td>355 - H.S.</td>
<td>600 in district</td>
<td>850</td>
<td>950</td>
<td>360 - H.S.</td>
</tr>
<tr>
<td>6. Number of students in bands</td>
<td>45 - 5th graders</td>
<td>40 - H.S.</td>
<td>24</td>
<td>300</td>
<td>42</td>
</tr>
<tr>
<td>7. Number of horn players in bands</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>25</td>
<td>1</td>
</tr>
<tr>
<td>8. Number of horn players you teach</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Scoring of Respondents’ Answers

After the interviews were transcribed, each question for each respondent was scored as correct, incorrect, incomplete or did not know. For the purpose of this study, correct responses are those which are accurate and complete. Incorrect responses are those that are erroneous or mistaken. Incomplete responses may consist of answers that have certain facts correct and certain facts wrong, or incomplete responses may refer to a respondent who was able to answer part of the question but not give a full response. “Did not know” is used to describe questions in which the respondent gave either no response or answered with some variation on the phrase “I don’t know.”

Tables 3 through 6 show how each respondent was scored for their answers to individual questions.

Tables 7 through 10 show the total number of correct, incorrect, incomplete and did not know answers given by the ten respondents to each question.

Table 11 shows the percentage of correct answers respondents gave for each of the following categories: embouchure, posture and right hand placement; construction of the single and double horn; muted stopped and miscellaneous horn pedagogy; and care and maintenance. Each correct answer received one point, each incomplete answer received half a point, and both incorrect and did not know received zero points. The number of points received by each respondent was added up by category and divided by the number of questions in the same category.
Table 3

*Individual answers of respondents A-J on questions pertaining to embouchure, posture and right hand placement*

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please describe a proper horn embouchure including correct mouthpiece</td>
<td>Correct</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>placement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe the angle of the leadpipe in comparison to the floor in a proper</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Correct</td>
</tr>
<tr>
<td>horn embouchure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the proper posture for sitting and playing the horn?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Did not know</td>
</tr>
<tr>
<td>What is the proper posture for standing and playing the horn?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Did not know</td>
</tr>
<tr>
<td>Explain the shape of the right hand position in the bell.</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>Explain the placement of the right hand in the bell.</td>
<td>Correct</td>
<td>Did not know</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far in the bell?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far out of the bell?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Did not know</td>
</tr>
</tbody>
</table>

(Table continued on the next page)
<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please describe a proper horn embouchure including correct mouthpiece placement.</td>
<td>Incorrect</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Describe the angle of the leadpipe in comparison to the floor in a proper horn embouchure.</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>What is the proper posture for sitting and playing the horn?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the proper posture for standing and playing the horn?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Explain the shape of the right hand position in the bell.</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Explain the placement of the right hand in the bell.</td>
<td>Incorrect</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far in the bell?</td>
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<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far out of the bell?</td>
<td>Incorrect</td>
<td>Incomplete</td>
<td>Incorrect</td>
<td>Did not know</td>
<td>Incomplete</td>
</tr>
</tbody>
</table>
Table 4

*Individual answers of respondents A-J on questions pertaining to construction of single and double horns*

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the difference between a single and a double horn?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>On a double horn, what is the difference between the Bb and F horn?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>When should students use the thumb valve?</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Did not know</td>
</tr>
<tr>
<td>How would you go about finding the main tuning slide on a horn?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How do you tune a horn to itself?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Did not know</td>
</tr>
<tr>
<td>What is the difference between string and mechanical linkage?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the difference between a cut bell and a fixed bell?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What criteria would you look for when buying a horn for your school program?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
</tbody>
</table>

(Table continued on the next page)
Table 4 (Continued)

*Individual answers of respondents A-J on questions pertaining to construction of single and double horns*

<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the difference between a single and a double horn?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>On a double horn, what is the difference between the Bb and F horn?</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>When should students use the thumb valve?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How would you go about finding the main tuning slide on a horn?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How do you tune a horn to itself?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Did not know</td>
</tr>
<tr>
<td>What is the difference between string and mechanical linkage?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Did not know</td>
<td>Incomplete</td>
</tr>
<tr>
<td>What is the difference between a cut bell and a fixed bell?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What criteria would you look for when buying a horn for your school program?</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>Question</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
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<td>--------------------------------------------------------------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>What is the difference between a stopped and muted note?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>How is a stopped note notated?</td>
<td>Incorrect</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>What is the correct hand position for a stopped note?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>Besides changing hand position, what else must be done when playing stopped passages</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Did not know</td>
</tr>
<tr>
<td>How do you empty water out of the horn?</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How is trilling on a horn different than on other wind instruments?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Did not know</td>
</tr>
<tr>
<td>Do horn players ever need to read bass clef?</td>
<td>Correct</td>
<td>Correct</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the difference between new and old bass clef notation?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Incorrect</td>
<td>Did not know</td>
</tr>
<tr>
<td>If you were to find a piece in the library with parts in Eb, what must your horn players do to transpose the piece correctly?</td>
<td>Did not know</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>Where does the first horn player sit in relation to the rest of the horn section?</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
</tr>
</tbody>
</table>

(Table continued on the next page)
Table 5 (Continued)

Individual answers of respondents A-J on questions pertaining to muted, stopped and miscellaneous horn pedagogy

<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the difference between a stopped and muted note?</td>
<td>Correct</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>How is a stopped note notated?</td>
<td>Did not know</td>
<td>Correct</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the correct hand position for a stopped note?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>Besides changing hand position, what else must be done when playing stopped passages</td>
<td>Incomplete</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Did not know</td>
<td>Correct</td>
</tr>
<tr>
<td>How do you empty water out of the horn?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How is trilling on a horn different than on other wind instruments?</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Correct</td>
</tr>
<tr>
<td>Do horn players ever need to read bass clef?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the difference between new and old bass clef notation?</td>
<td>Incorrect</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Did not know</td>
</tr>
<tr>
<td>If you were to find a piece in the library with parts in Eb, what must your horn players do to transpose the piece correctly?</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
</tr>
<tr>
<td>Where does the first horn player sit in relation to the rest of the horn section?</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Incorrect</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
</tbody>
</table>
Table 6

*Individual answers of respondents A-J on questions pertaining to care and maintenance of the horn*

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the correct way to oil a horn?</td>
<td>Incomplete</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>How do you clean a horn</td>
<td>Correct</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
</tr>
<tr>
<td>How often should you snake out the leadpipe?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>What common cleaning procedure should a professional do to your horn approximately once a year?</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Did not know</td>
</tr>
<tr>
<td>What is the correct way to insert a mouthpiece into the leadpipe?</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
</tbody>
</table>

(Chart continued on the next page)
Table 6 (Continued)

*Individual answers of respondents A-J on questions pertaining to care and maintenance of the horn*

<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>G</th>
<th>G</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the correct way to oil a horn?</td>
<td>Did not know</td>
<td>Did not know</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
</tr>
<tr>
<td>How do you clean a horn</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>How often should you snake out the leadpipe?</td>
<td>Incorrect</td>
<td>Did not know</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What common cleaning procedure should a professional do to your horn approximately once a year?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>What is the correct way to insert a mouthpiece into the leadpipe?</td>
<td>Correct</td>
<td>Incomplete</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>Question</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Incomplete</td>
<td>Did not know</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------</td>
<td>-----------</td>
<td>------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Please describe a proper horn embouchure including correct mouthpiece placement.</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Describe the angle of the leadpipe in comparison to the floor in a proper horn embouchure.</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>What is the proper posture for sitting and playing the horn?</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>What is the proper posture for standing and playing the horn?</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Explain the shape of the right hand position in the bell.</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Explain the placement of the right hand in the bell.</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far in the bell?</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>What happens to pitch and tone when the hand is too far out of the bell?</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td></td>
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</tbody>
</table>
Table 8

Scoring of respondents on questions pertaining to construction of single and double horns

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Incomplete</th>
<th>Did not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the difference between a single and a double horn?</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>On a double horn, what is the difference between the Bb and F horn?</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>When should students use the thumb valve?</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>How would you go about finding the main tuning slide on a horn?</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>How do you tune a horn to itself?</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>What is the difference between string and mechanical linkage?</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>What is the difference between a cut bell and a fixed bell?</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>What criteria would you look for when buying a horn for your school program?</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>3</td>
</tr>
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</table>
**Table 9**

*Scoring of respondents on questions pertaining to muted, stopped and miscellaneous horn pedagogy*

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Incomplete</th>
<th>Did not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the difference between a stopped and muted note?</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>How is a stopped note notated?</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>What is the correct hand position for a stopped note?</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Besides changing hand position, what else must be done when playing stopped passages</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>How do you empty water out of the horn?</td>
<td>6</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>How is trilling on a horn different than on other wind instruments?</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Do horn players ever need to read bass clef?</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>What is the difference between new and old bass clef notation?</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>What must your horn player do to transpose parts in Eb, what must your horn players do to transpose the piece correctly?</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Where does the first horn player sit in relation to the rest of the horn section?</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 10

*Scoring of respondents on questions pertaining to care and maintenance*

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Incomplete</th>
<th>Did not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the correct way to oil a horn?</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How do you clean a horn</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>How often should you snake out the leadpipe?</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>What common cleaning procedure should a professional do to your horn approximately once a year?</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>What is the correct way to insert a mouthpiece into the leadpipe?</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 11

Respondents' percentage of correct answers by category

<table>
<thead>
<tr>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
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CHAPTER V: DISCUSSION

Analysis of Respondents’ Responses

*Embouchure, Posture and Right Hand Placement*

Respondents scored between 19% and 81% on questions in this category with the average score being 50.2%. Respondent A, who is a first year teacher, whose primary instrument is clarinet and played horn for half a semester in brass methods, scored highest in this category. Respondent E who is a second year teacher, whose primary instrument is voice and spent three weeks on horn in brass methods scored lowest on this category.

When asked to describe a proper horn embouchure, six of the respondents were able to describe the proper 2/3 upper lip and 1/3 lower lip mouthpiece placement as indicated in the brass methods books. Respondents A, I, and D were the only people to comment on keeping the corners tight, and respondent A was the only one to mention the fact that the mouthpiece should also be centered horizontally on the lips. Respondent I was the only one to comment on the proximity of the lips, and J was the only one to mention not pulling the corners back. Although not specifically mentioning the need for tight corners of the lips, respondents G and H both referenced having the students articulate an “mmm” sound before playing. This teaching technique is often used to help students set up a proper embouchure, and it helps to ensure that the corners are in the proper position. However, since respondents G and H only described a teaching technique and did not actually describe the correct embouchure, their answers were scored as incomplete.

Respondents B and E did not even attempt to describe the proper mouthpiece placement and embouchure. It is interesting that neither respondent B nor E is currently working with beginning horn players; both instruct the horn at the high school level only. The same is true for
Respondent F who also instructs the horn only at the high school level and was scored incorrectly on this question. Thus, it would be reasonable to assume that none of them have ever had to teach the correct embouchure set up, as their students presumably already have some form of a functioning embouchure upon their entrance into high school band. It is also interesting to note that the only respondents (A, C, and D) whose answers were scored as correct all taught primarily at the middle school level. Many students start playing horn in middle school, thus teachers working with this age range may have more experience working with beginning horn players.

Since the middle school teachers scored higher than the high school teachers on this question, it may be interesting to investigate how elementary band teachers would fare on this same question. Although many elementary teachers probably do not start students on the horn, they are probably much more thorough in their wording and instructions pertaining to embouchure formation for all instruments and may give a more complete response. Almost all responses had correct information but failed to include all aspects of forming a horn embouchure.

Six respondents did describe the angle of the leadpipe in comparison to the floor as angling down, and many of them elaborated upon this description. Specifically, two commented that the angle of the leadpipe in comparison to the floor should be at approximately a 45-degree angle. Respondent F described the leadpipe as aiming at the floor four or five feet in front of the player. All three of the respondents who scored incorrectly answered that the leadpipe should be parallel to the floor.

Interestingly, both respondents A and D, who did so well on the horn embouchure question, received an incorrect score on this question. The other person who scored incorrectly
was respondent G. All three of these people teach young horn players, with respondents A and D teaching middle school and respondent G teaching two fifth grade horn players (along with her high school student). Although the correct angle for the horn leadpipe is down, frequently, modifications must be made for younger students. When small students rest the horn on their leg, the leadpipe is often too high for them to play with the correct embouchure and angle. If the student is not instructed to sit on the side of the chair and drop his knee or lower his leg (to affect the height of the horn), it seems reasonable to assume that the student may let the height of the instrument dictate the angle of the leadpipe. Respondent F actually addressed this issue in his answer on posture; he mentioned that he has his fifth grade student rest the bell on the chair to put the instrument at a proper height for her. Respondent G also stated “I teach beginners and they are small, and I would think it (the angle of the leadpipe) may be different when they are small. I would think it would be parallel or something really close to it.” Thus, all three incorrect responses may stem from the fact that a parallel leadpipe is what these teachers are accustomed to seeing.

This question also initially seemed confusing for several of the respondents. A couple of people repeated the question back and were only able to give an answer after they were presented with possible answers such as up, down, or parallel. The problem may have been that the respondents were not actually holding a horn, they did not know how to describe the correct answer over the phone, or the question was worded poorly. However, since there were follow-up questions and the respondents were able to clarify the question, the results for the question should still be considered an accurate representation of band director knowledge on the angle of the horn leadpipe in comparison to the floor.
All but one of the respondents were able to describe some type of proper posture for sitting and playing the horn. Six commented on the need for sitting up straight and keeping the feet planted flat on the floor. Respondents who answered were able to describe posture generic for any wind instrument. Two of the respondents did not go any further past this generic posture into specific horn posture. Of the respondents that did go into specifics for the horn, one (respondent A) commented on bringing the mouthpiece to the mouth and not the mouth to the mouthpiece, and one (respondent I) mentioned aligning the horn to your face “so your spine is straight and chin is up.”

There seemed to be some confusion as to whether students should or should not rest the bell of the horn on their leg. Six of the respondents (these are not the same six who commented on the need for sitting up straight) did not address that issue at all. In addition, several people asked specific questions about the placement of the bell on the leg once they were informed of the correct answer. The confusion on this particular portion of posture should not come as a surprise, since it is common for professional players to play with the bell both on and off the leg depending on personal preference. What was interesting was only three respondents (A, F and J) commented on how the size of the student and horn would affect the decision to have the student play with the bell on the leg or off the leg. Respondent F mentioned having his fifth grade student play with the bell on the chair so she would not have to hold the entire weight of the instrument, and respondent A said that, “the bell can be put on their right leg if it fits…if they are not crouching over in order to reach it.” Respondent J seemed to think it was necessary for older students to hold the bell off their leg, but commented on how the height of younger students and the size of the instrument may require them to place the bell on the leg until they grow.
When asked how the posture varies when standing, five of the respondents commented on resting the weight of the bell on the right hand. Two of the respondents (C and D) commented on keeping the horn away from the body and not resting it there. Again, all respondents who answered were able to describe generic posture with feet being apart and back erect, etc. The most thorough response came from respondent C who said, “A lot of support would come from the right hand inside the bell. The horn would be away from his or her body a bit, not resting against their chest. Try and keep the same position as sitting, just not resting (the bell) on the knee.”

Respondents were not able to answer the questions pertaining to the right hand as thoroughly as questions pertaining to posture and the embouchure. Nine respondents were able to identify that the right hand should be in a cup shape. However, six respondents were not able to identify where the right hand should be placed in the bell. After the initial response, almost all respondents were asked to clarify their answer. Respondents were given follow-up questions that asked specifically about the location of the right hand in the bell as compared to the body. Specifically, they were asked if the right hand should be on the side of the bell closest or the side farthest away from the body. If the question was answered with “the side closest,” another question was asked about whether or not the palm was touching the inside of the bell.

Although an unavoidable problem, it seems as if describing the correct hand placement over the phone was confusing to most respondents. Many respondents actually said that they were imagining having a horn in front of them. It seems possible that many of the incorrect answers concerning the placement of the right hand in the bell may only have been incorrect because of miscommunications or not having an actual horn. The following are several examples of answers that may simply have been a miscommunication or problematic in describing over the
phone: “(the) Palm would be on the side closest to you and the fingers would be on the side furthest away,” “Its gotta be far enough in that your hand is hidden,” and “I know its cupped and that your fingers aren’t bent. You bring your thumb and your pinky around. I kinda imagine it as an upside down boat and then you stick it in there.” All of these answers were scored as incomplete, when in reality a simple demonstration of correct hand placement might have accurately depicted whether or not the respondent knew the correct answer. Also, because of not being able to use gestures or show the correct hand placement, it was impossible to have respondents identify how far in the bell the right hand should go. Several respondents broached the subject but could not give a description over the phone that was clear. Thus, this aspect of right hand placement was not a factor when scoring the answers.

Almost none of the respondents were able to identify how the right hand placement affects the pitch of the horn. Only respondent A answered this question completely correctly. In retrospect, the placement of the right hand and how it affects pitch and tone should have been divided into two separate questions. Seven people were able to describe how placing the hand too far in the bell affects the tone, but only one knew how it affected the pitch. When asked how removing the hand from the bell would affect pitch, again only one person answered correctly and only four people knew how it would affect the tone quality.

It appears that many of the other respondents were confused with right hand placement and stopped horn. Seven of the respondents answered that the pitch goes sharp when the hand is too far in the bell. Although not accepted as correct by all horn scholars, two of the three methods books indicate that stopping the horn causes the pitch to raise a half step. Thus, it appears that many respondents assumed that as the hand goes further in the bell the pitch slowly starts to rise like it would if the horn were stopped. After being informed of the correct answer,
only one person acknowledged that the information sounded familiar, and that he had just forgotten it from his brass methods class. Everyone else seemed surprised and several people asked further questions pertaining to how hand placement affects the pitch of the horn.

*Construction of Single and Double Horns*

Respondents scored between 25% and 88% on questions in this category, with the average score being, 61.4%. Respondent D, who is in his fourth year of teaching, whose primary instrument is saxophone, and who has worked as a brass repairman, scored highest. Respondent B, who is in her second year of teaching, whose primary instrument is clarinet and who never played horn in her brass methods class, scored lowest.

When describing the difference between a single and double horn, seven respondents mentioned the addition of the thumb valve on a double horn. However, when respondents were asked what besides the thumb valve made a horn a single or double horn, many knew that there was more tubing but had problems being specific with their answers or using correct terminology. Several answers are as follows: “The single horn only has one horn. It has the F horn. The double horn has the Bb side as well. I think the Bb side tuning slides are straighter,” “The double horn has a lot more tubing to it and if you, something about Bb, the single horn is in F and the double horn is in Bb?” “The single only has one set of valves, not valves, but slides and casings. Am I using the correct terminology?” and “Double horns have two sets of valves. I think single horns are more rare.”

Although many respondents could identify or describe the difference between the double and single horn, most could not completely describe the difference between the Bb and F side of the horn. Nine respondents knew that when the thumb valve was pushed down it put the horn in Bb instead of in F. However, four of the respondents thought that the Bb horn was pitched lower
than the F horn. In addition, the two people who knew that there was less tubing on the Bb side thought that the F side would be easier to play higher on. At least one of these two people thought that the Bb side of the horn worked much like the fourth valve on a tuba or euphonium. They thought that when the thumb valve was activated that the air continued to flow through the F horn and added the Bb slides as extra tubing. It is possible that this logic may have been in more than one respondent’s thought process. This would explain why approximately half of the respondents thought that the Bb side of the horn was pitched lower than the F side.

In addition to not understanding how the Bb and F side of the horn are different, five respondents were not able to identify what range or what notes on the horn should be played with the thumb valve depressed. Respondent A answered this question with the following response: “I don’t know. I know there are double horns. We did not have any in my methods class. We only had singles, and in my middle school we only have singles. I’ve never actually played on a double horn, although I understand the concept of it.” Since respondents were not specifically asked about the kind of horn they played on in methods class, it is impossible to determine if students taught on a double horn understand the proper use of the thumb valve better than students taught on a single horn. However, it does appear that the amount of time spent playing horn in methods class did not play a factor in their knowledge. The five correct responses came from people with different amounts of time spent playing the horn; half a semester, never and three weeks. It should be noted that in order for a response to be scored as correct, respondents needed to have indicated that the thumb valve would be used for higher notes with the thumb valve being activated between G sharp and C natural in the staff. Respondents were not expected to know that the trigger is often used for the C sharp to F natural below middle C. None of the respondents knew.
Five respondents were able to identify completely how one could find the main tuning slide on any horn. They stated that it is connected to the leadpipe, or it is the only slide that all the air goes through no matter which keys are depressed. Two brass players and the brass repairman were among those who were scored as correct. Many of the respondents whose answers were scored as incomplete were able to give the standard location of the main tuning slide being on the back of the horn. However, when asked how to find it if the horn did not have the main tuning slide on the back, most respondents answered with some variation on “I would look for the largest slide,” and mentioned nothing about it being the slide attached to the leadpipe. It should also be mentioned that the four respondents who correctly answered the question about which notes the thumb valve should be used for were not the same four respondents who were able to identify the location of the tuning slide.

Only two people were able to completely describe the process of tuning a horn to itself by tuning the F and Bb horn and then tuning all the valve slides. It should be noted that one person who answered correctly was a tuba player who was familiar with moving valve slides on his instrument. The other person actually did not know the process but was able to figure it out using his knowledge of the horn. Two other people were able to identify that tuning a horn to itself involved moving the individual valve slides, but neither were able to describe a correct process in which to check the valve slides. It should be noted that the two incomplete responses were given from respondent D who has been repairing horns for ten years and from respondent F who is a trumpet player and is presumably familiar with moving valve slides on his instrument. Aside from the two correct responses and two incomplete responses, no other interviewee attempted to describe the process.
Contrary to tuning a horn to itself, seven of the respondents were able to identify the difference between string and mechanical linkage. Some of the respondents were able to correctly answer this question because of their experience with mechanical linkage on a tuba. It seems that very few of the respondents had actually seen mechanical linkage on a horn. However, this did not stop them from talking intelligently about string linkage and from making an intelligent guess about mechanical linkage. When asked informally about the pros and cons of mechanical linkage most respondents did not know. Again, the repairman was able to clearly articulate his views on the differences. It should be noted the question pertaining to the pros and cons was not scored because the author believes that the pros and cons can vary greatly depending on the quality of the bearings and parts used in construction of the instrument.

As with the mechanical linkage question, respondents scored very well and nine people were able to identify the difference between a fixed bell and cut bell horn. Many had not heard that specific terminology but again were able to deduce the correct answer from their prior experience in playing in ensembles with horn players. In several interviews, the words detachable bell were substituted for cut bell on follow-up questions. This substitution helped lead respondents to the correct answer.

When asked about what to look for in a horn when purchasing one for a school program, many directors responded that they would ask a colleague for advice. When asked about specific brands, besides respondent D, who is the instrument repair technician, most respondents listed generic brand names which they like for all instruments, such as Yamaha and Bach, or specific brands which they had heard from horn players although not knowing why. Not a single respondent talked about bell size or bore size in comparison to the size of the student or as a factor in their decision. It seems that price, a reputable brand, and purchasing the horn from a
local store were the main answers in this category. Respondent J was the only person to comment on the importance of playing each individual instrument to “see if it felt muffled or open.”

*Muted, Stopped and Miscellaneous Horn Pedagogy*

Scores in this category ranged from 15% to 75% with the average score being, 43%. As with the category, “construction of single and double horns,” respondent D scored highest and respondent B scored lowest.

Only four of the respondents initially knew the difference between a stopped and muted note. However, it appeared that once the difference was explained to them, most of the respondents had heard of both techniques. Many respondents made some kind of statement to the effect of “oh yeah, I knew that” or “I didn’t know there were different names.”

Only three respondents were able to describe how a stopped note is notated. Interestingly, one of the two people who knew this was one of the people who initially did not know the difference between a muted and stopped note. If this interview had been conducted in person rather than over the phone, it would be interesting to see if when respondents were handed music with a stopped section, they would be able to determine what the crosses above the notes mean. The reason for wondering if actually seeing the music would affect their answer is because one of the respondents said that stopped notes were represented with circles above the notes to indicate stopped passages and circles filled in to indicate the end of the stopped passage. Although this is not correct, a circle above the note does indicate to reopen the horn once the stopped passage is over. By seeing the proper indications, it is possible that the respondent may have recognized the correct notation. In reality, respondents will probably never have to recall
stopped horn notation from memory, and they will probably always see stopped notation within the context of a piece of music.

What respondents do need to be able to recall from memory is that a stopped horn passage must be transposed down a half step. Seven of the respondents were able to determine that when a note is stopped it needs to be transposed. However, four of them did not know which way the note needs to be transposed, with two of them not even rendering a guess. Only three people knew that the fingerings must be transposed down one half step. In fact, one respondent actually asked for clarification. He asked “(you transpose) only when you did it with the hand, not with the mute? If I’m writing for stopped horn, do I need to be cognizant of that, or is it something that the player will do?” Of the three correct responses, two of them came from respondents whose primary instrument is from the brass family.

There was a wide range of scoring on respondents’ knowledge of proper stopped horn hand position. Again, this was problematic because of having to describe the proper position over the phone. Several answers were worded very clearly and showed the knowledge of proper hand position. Here are several examples: “You push the heel of the hand in to close off the bell,” “My instinct is to move the wrist in so the fingers are not moving, but your wrist goes forward,” and “You don’t curl you fingers in, but you make a flat fist and push it all the way in.” However there were also several answers that demonstrated some knowledge but were not specific enough in their description, “Make it (the hand) cover the hole, the inside of the bell.” Although impossible to determine accurately over the phone, it appears that the majority of people had a general understanding of the correct placement, and only one person answered incorrectly by saying the player should make a fist with their right hand and push it as far into the bell as it will go.
Every respondent knew that the horn needed to be rotated in order to get the water out of the horn. However, four of the respondents did not mention that the main tuning slide should be pulled out in order to get all the water out. They suggested that the water be allowed to drain out of the leadpipe or the bell. The same four respondents did not mention or did not know that water should also be removed from the valve slides, and not a single respondent knew how to empty all the valve slides at once out the third valve Bb slide.

When asked how whole step trills are different on the horn than on other wind instruments, half of the subjects were able to speak intelligently about how the close partials on the horn meant that the trills would have to be accomplished with the lips. However when asked what type of exercises they might have students do to practice this, only one person talked about starting slow and increasing the speed. Most did not know, or talked about practicing the trills with some form of alternate fingerings.

All but one respondent knew that horn players often need to read in bass clef. However, not a single person was able to identify the difference between old bass clef notation and new bass clef notation. One respondent came close to the idea of the old notation being displaced an octave. This individual said that the old notation was transposed. Presumably respondents have never seen this because band music is rarely written in bass clef and if it is, it is in the new notation. It seems that all the directors who had students that were advanced and running into this in etude books and orchestral parts have already found a private horn instructor for these students.

Only one person was able to correctly identify how to transpose an E-flat horn part. Most people were able to narrow down the interval to a second, because they knew the interval between F and E-flat. However, all seemed to think that the horn player would need to transpose
up a step instead of down a step. The one person who got this right responded that he got the answer correct because he was a saxophone player and he always had to read the horn parts up a step, so he assumed that the horn players would have to read the E flat alto sax part down a step.

Again, only a single respondent was able to identify the correct placement of the principal horn within the horn section. Almost all respondents thought that the horns should be set up with the principal player in the middle of the section. Many of them thought this because they knew that the first and third parts were considered the high horn parts, and the second and fourth were considered the lower parts. Many of the respondents commented on this and how the people playing the similar parts should sit next to each other so they could hear each other. It also appears that at least three people were confused on this topic because of the assistant horn’s placement in the groups they have played in previously. Several people referenced that they thought the principal horn was the second seat in, so they assumed that the second part was on the edge. When asked if they had ever heard of an assistant horn, all responded yes and then admitted that, when thinking back that was probably exactly what confused them.

*Care and Maintenance*

The respondents’ scores in this category ranged from 20% to 100%, with the average score being 68%. Because of his brass repair background, respondent D was one of the three people scoring 100%. The other two people with perfect scores were both brass players. Respondent E, as in the category “Embouchure, posture and right hand placement,” again scored lowest.

Over half of the people interviewed did not know how to oil a horn. Four of the respondents knew that it was necessary to oil underneath of the valve caps and the same four knew that oil should be dropped down the individual valve slides. Three of the four also knew
that oil needed to be placed on the back side of the horn. Of the three people who were scored correct on ways to oil a horn, one was a tuba player with rotary valves, one was a brass repairman, and one was a trumpet player. Many of the other respondents were able to partially identify how to oil a horn but were not able to give a complete response.

When asked how to clean a horn, six of the people were able to come up with a response that included using a snake (bore brush). Ultimately, this answer was taken and scored as a correct answer. Only three people, including the repairman, and two brass players suggested running lukewarm, soapy water through the slides or valves. Several people commented that they thought the instrument could be washed in the bathtub, but none of them were sure enough and said that they would not instruct a student to do so without checking on it first.

Upon reviewing the answers, it seems as if this question may not have been specific enough. It may be possible that if respondents were asked specifically how to clean the leadpipe and specifically how to clean the slides and valves that they may have elaborated upon their answers and given more specific information. However, it is also possible that respondents thought that cleaning out the leadpipe was all that was required. It seems that the vagueness of the question lead to the lack of specific responses and that respondents may actually have known more than they said.

Unlike the question on cleaning the horn, respondents did very well on their knowledge of cleaning out a leadpipe. Although situations vary and there is no absolute rule about how often a leadpipe should be cleaned out, there were at least two wrong answers with respondents answering that it only needs to be done every several of months. Most respondents knew that the leadpipe should be cleaned out every several weeks and a large amount of people clarified that it would depend on how much the student practices, and if the student has lunch directly before
band. Thus, all respondents who gave an answer varying from “every other day,” to “every several of weeks,” were scored as correct. Only the answer of “every several months,” was scored as incorrect.

Respondents also scored well on describing the proper way to insert the mouthpiece into the leadpipe or mouthpiece receiver. Eight of the respondents were able to indicate that the mouthpiece should be slightly twisted when being placed in the horn and that it should be placed in gently and not forced into the leadpipe. The two incomplete answers did not mention that a twisting motion would help secure the mouthpiece into the receiver. Almost all respondents indicated that the mouthpiece should never be forced in, or else it would get stuck in the instrument.

Summary

As was anticipated, findings from this study indicate that novice middle and high school band directors have varying amounts of knowledge and expertise of the horn. It appears that directors have more knowledge and understanding of concepts common to all brass instruments as opposed to concepts associated specifically with the horn. Respondents averaged a score of 68% on questions pertaining to care and maintenance. It should be noted that of the five questions in this category, only one was specifically about the horn. Three interviewees received full credit on this question. The four remaining questions, involving general brass maintenance, received five to eight correct responses from the ten interviewees.

Respondents averaged only 42% (a 26% drop) on questions pertaining to muted, stopped and miscellaneous horn pedagogy. These questions were all specific to the horn. Each question in this category averaged 3.5 correct responses and, if the question about whether or not horn players ever need to read bass clef is removed, the average number of correct responses drops to
2.9 per question. In addition, respondents averaged only 50.2% on questions pertaining to embouchure and right hand placement, with the weakest area being the placement of the right hand in the bell and how that placement affects pitch and tone.

After interviewing ten respondents on their teaching and collegiate background and on their knowledge of the horn, it appears that there is no correlation between the respondent’s teaching and collegiate background and their knowledge pertaining to the horn. Respondents in their first year of teaching seemed to know just as much as respondents in their fourth year of teaching. It also appears that how their brass methods classes were set up did not affect their knowledge. Respondents who played horn for half a semester seemed to have the same knowledge as respondents who never played the horn in class.

As expected, brass players averaged a higher score in most of the categories than non-brass players. Their scores were between 12 and 15 percentage points higher on three of the four categories. Interestingly, the brass players averaged two percentage points lower than average on questions in the category pertaining to embouchure and right hand placement. However, after reviewing the questions in that particular category, most of them focused on the right hand position, not embouchure. It should also be noted that it appears respondent D’s familiarity with brass instruments from working as an instrument repairman helped him score highest in almost all categories. Specifically, he received 100% on care and maintenance and 88% on construction of the single and double horns.

In general, there seems to be an inconsistency in the knowledge that the respondents have about specific horn techniques. No one person knew everything, and no one person knew nothing. Every respondent had some knowledge in every category, and every question except
for new and old bass clef notation had at least one correct answer. The correct answers often came from a variety of individuals and were not consistent.

Recommendations for Future Research

Since there was no correlation between collegiate and teaching background with how well respondents scored, it is suggested that further investigations be conducted about respondents’ knowledge of secondary instruments and their background. Specifically, a study should be conducted on the construction of brass methods courses (heterogeneous vs. homogeneous, number of semesters, how it is taught, who teaches it, etc.) and resulting knowledge of brass instruments. In addition, whether actually playing the horn in methods class impacts a person’s ability to later teach it, and whether or not playing a single horn or a double horn later impacts teacher’s knowledge of the double horn should be studied.

Since there were so many inconsistencies of teacher knowledge on specific horn techniques, it may be beneficial to determine what knowledge directors need to have to teach horn successfully and create a curriculum based on this. Master teachers and experienced directors could all contribute their thoughts as to the necessary knowledge.

The last suggestion for research pertaining to teacher training would be to determine if the instructor of a methods class impacts the students’ knowledge. Do graduate students impart less material than professors? Is a class taught by a performance faculty member more likely to cover specific instrument techniques than a class taught by a music education faculty member? Would a course offered by the music education department focus more on concepts allowing for a lower performance level but deeper understanding? Do these things make a difference in teacher knowledge?
Finally, it is recommended that a handbook be created for band directors and brass methods students that outlines information about the horn in an easy to follow format with numerous pictures and teaching tips. This could be used to supplement brass methods textbooks, which often times have more information than the typical band director will ever need. A handbook setup as a reference resource may be a useful addition to a band director’s library because often the textbooks have “everyday” material interwoven with the “scholarly” material.
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APPENDIX A: AN OUTLINE OF INFORMATION PERTAINING TO THE HORN IN

GUIDE TO TEACHING BRASS, 6TH EDITION

**General Brass Information Relating to the Horn**

Chapter 1 – General, Acoustical, and Intonation Considerations
- Conical and cylindrical
- **Brass Sound**
  - Lip vibration
  - Brass resonator
  - Mouth cavity, tongue and throat
  - Harmonics
  - Tone color – number of harmonics sounded
- **Intonation problems**
  - Valve combinations
  - Temperature
  - Harmonic series

Chapter 2 – Care of Instruments
- **Damage Prevention**
  - Removing instrument from case
  - Protection of valves and slides
  - Rest periods and putting instrument away
  - Oral hygiene
  - Soft cases
- **Cleaning Procedures**
  - Materials
  - Procedure
  - Rotary valves
- **Common repairs**
  - Stuck mouthpiece
  - Removing dents in the mouthpiece

Chapter 3 – Breathing and Breath Support
- **Posture**
- **Inhalation**
- **Exhalation**
- **Open Throat**
- **Breathing Exercises**

Chapter 4 – Embouchure
- **Requirements to play a brass instrument**
  - Lower and upper jaw alignment
  - Teeth
  - Lips
- **Teaching and forming the embouchure**
  - Embouchure formation
  - Jaw alignment
  - Airstream direction and low and high notes
Chapter 5 – Articulation
- Tongue
  - Overuse
- Tone
- Register
- Amplitude (Volume)
- Attack (Air release)
  - Articulation syllables
- Common Articulation Problems
- Types of Tonguing
- Double and Triple Tonguing
- Flutter Tonguing

Chapter 6 – Mouthpieces
- Mouthpiece Characteristics and Effects on Playing
  - Rim
  - Bite
  - Cup
  - Cup depth
  - Throat shoulder or edge
  - Throat
  - Back bore

Chapter 7 – Vibrato
- 7 Vibrato rules
- Types of Vibrato
  - Lip vibrato and practice routine
  - Hand vibrato
  - Abdominal vibrato
- Use of Vibrato

Information Specific to the Horn

Chapter 2 – Care of Instruments
- Disassembly of rotary valves
- Restringing the horn
- Adjusting rotary valve alignment

Chapter 4 – Embouchure
- Mouthpiece placement

Chapter 7 – Vibrato
- Small percentage of horn players use it

Chapter 9 – The Horn
- History and Development of the Horn
- **Hunting horn**
- **Crooks**
- **Stopping**

- **The Modern Horn**
  - Difference between horn and trumpet
  - Tone quality
  - Orchestral sections and part assignments
  - 3 types of horns – Single F, Single Bb and Double Horn
  - Function of each valve/valve slide
  - **Double horn**
    - 7 harmonic series
    - Transposed a fifth above concert pitch
    - Fingering chart with asterisk to denote when to implement trigger
  - **Single F and Single Bb fingering chart**
  - **Muting valve**

- **Transposition**
  - Transposition by interval chart (written and sounding for all keys)
  - Chart of foreign language equivalents for transpositions
  - Chart on how to transpose various keys
  - Musical examples with original and transposed excerpts

- **Playing Positions For the Horn**
  - Seated position
  - Left hand position
  - Right hand position
    - Tone quality
    - Pitch

- **Muting and Stopping the Horn**
  - Common terms
  - Hand-stopping techniques
    - Hand position
    - Play on F horn
    - Transpose down half-step
  - Two common mutes – transposing (stopped) and non-transposing (straight)

- **Tuning Horns**
  - Main tuning slide
  - Valves slide built sharp and should be pulled out slightly
  - Must be able to hear beats
  - Intonation chart for Bb and F Horns

- **Daily Embouchure and Flexibility Studies**
- **Selected Literature for Horn**
- **List of Recordings**
APPENDIX B: AN OUTLINE OF INFORMATION PERTAINING TO THE HORN IN

TEACHING BRASS: A RESOURCE GUIDE
General Brass Information Relating to the Horn

Chapter 1 – Acoustics of Brass Instruments
- Overtone series
  - Fundamental
  - Partial
  - Chromatic fingering pattern
- Intonation tendencies of brass instruments
  - Overtone series
  - Valve combinations
  - Temperature

Chapter 2 – The Embouchure
- Definition of embouchure
- Six common embouchure traits to all brass instruments
- Common embouchure problems and solutions
  - Mouthpiece visualizer

Chapter 3 – Articulation
- Tonguing basics
  - Definition of articulation
  - Syllables
- Multiple tonguing
- Four common tonguing problems and solutions
- Lips slurs
  - Changing vowel formation with range

Chapter 4 – Breath Control
- Diaphragm
- Thorax
- Points of resistance
  - Glottis
  - Tongue
  - Aperture
- Posture
- Inhalation
- Exhalation
- Common breath control problems
- Breathing exercises

Chapter 5 – Brass Instrument Equipment
- Parts of the instrument
  - Leadpipe
  - Tuning slide
  - Valves
Information Specific to the Horn

Chapter 7 – The Horn

- Instruments of Horn Family
  - Natural horn
  - Single F horn
  - Double horn
  - Various others (single Bb, descant, triple, compensating)
- Student Qualifications
  - Exceptional hearing skills
  - Switching students from trumpet and flute
- Proper Hand and Holding Position
  - Size of player
  - Right hand placement
  - Pictures of right hand, left hand placement and side playing view
  - Right hand placement and pitch
  - Left hand placement
  - Angle of leadpipe
- Embouchure
  - 2/3 top lip and 1/3 bottom lip placement
  - Jaw drops in low range
  - Embouchure problems and solutions
- Articulation
  - Too versus doo attack
  - Problems with high tongue position
  - Multiple tonguing
- First tone
  - Buzz
  - Start on second line G
- Overtone series
- Partials further apart on Bb horn
  - Intonation tendencies
    - Valve combinations
    - Tuning the horn to itself
  - Beginning, intermediate and advanced ranges
    - Development of high and low ranges
  - Warm-up and Practice techniques
    - Musical exercises
  - Stopped Horn
    - Hand position
    - Transposition
    - Common terms for stopped and muted horn
  - Lip trills
    - Musical practice exercises
  - Vibrato
    - Ongoing debate
  - Transposition
    - Chart with terms to indicate transposition
  - Recommended Horns
  - Mouthpieces
    - Parts – rim, cup, throat
    - Recommended Mouthpieces
  - Mutes
    - Hanging from wrist
    - Inserting the mute
  - Cleaning and Maintaining the Horn
    - Emptying water
    - Oiling valves
    - Restringing valves
  - History of the horn
  - Graded literature lists
  - Harmonic Series
    - F Horn
    - Bb Horn
  - Standard fingerings
APPENDIX C: AN OUTLINE OF INFORMATION PERTAINING TO THE HORN IN

A COMPLETE GUIDE TO BRASS INSTRUMENTS AND PEDAGOGY, 2ND EDITION
General Brass Information Relating to the Horn

**Chapter 1 – How Brass Instruments Work**
- Harmonic series
- Valves
  - Types of valves – rotary, piston
  - Function of each valve/ 7 valve combinations
- Design considerations
  - Bore size
  - Bell size
  - Different metals/lacquers

**Chapter 2 – Anatomy of the Mouthpiece**
- Mouthpiece Construction
  - Cup diameter
  - Rim Width
  - Rim Contour
  - Rim Edge
  - Cup depth and shape
  - Throat
  - Backbore
  - Shank
  - General Mouthpiece suggestions

**Chapter 8 – More Brass**
- Alto (Tenor) Horn
- Brass in the Marching Band
  - Mellophone
  - Marching French Horn
  - Poor intonation

**Chapter 9 – Outlines of the Historical Development of Brass Instruments**
- Development of valves

**Chapter 10 – Tone Production**
- Embouchure formation – general characteristics common to all brass instruments
- Embouchure adjustment
  - Tongue placement/vowel syllable
  - Jaw movement
  - Beginners too usually too tight
- The Air
- Attack and Tonguing
  - Syllables
  - Beginners stop sound with tongue
- Double and Triple Tonguing
- Slurring
• Sustaining Continuity
• Concept of Sound
• Special Effects
  o Flutter tongue
  o Glissando
• Common Tone Production Problems
• How to Warm Up and Practice Effectively

Chapter 12 – Getting Started
• Assembling brass instruments – mouthpiece should be twisted in gently
• Mouthpiece buzzing
• Breathing
• Develop a concept of tone

Information Specific to the Horn

Chapter 2 – Anatomy of the Mouthpiece
• Shank
  o American versus European
• Mouthpiece recommendations

Chapter 4 – The Horn (p 34 – 50)
• Types of Horns and history
  o The Single F horn
  o The Double Horn
  o Single Bb horn
    ▪ Stopping valve
  o The Ascending Third Valve Horn
  o The Vienna Horn
    ▪ Performers
  o Descant Horns
    ▪ Triple horn
• Other design factors (in horns)
  o Bell size
  o Material
    ▪ Yellow brass
    ▪ Gold brass
    ▪ Nickel
• Hand Position
  o Function of hand as continuation of instrument
  o Intonation
    ▪ Open to raise pitch
    ▪ Closed to lower
  o Tone quality – placement affects mellowness and brightness
• Handstopping and Muting
  o History of handstopping
  o Pitch goes down when handstopping
Stopped notes usually played on F side
- Transpose down a half-step
- Standard mute – non-transposing straight mute

Using the F and Bb Sections of the Double Horn
- Fingering chart covering complete range of horn, including optional use of Bb fingerings for low D-F

Transposition and Notation
- Transposition intervals for Bb, C, D, Eb, E, G and A
- Transposition of F horn to concert pitch (5th above concert pitch)
- Old and new bass clef notation

Horn Chords
- Play a fifth or sixth above or below notes to give impression of 3 or 4 note chord

Intonation and Tuning
- Hand position
- Specific directions on how to tune the horn to itself

Wagner Tuba
- Recommended Literature
- Recommended books on Horn

Chapter 9 – Outlines of the Historical Development of Brass Instruments
- Historical development of horn

Chapter 10 – Tone Production
- Mouthpiece placement – 2/3 top lip 1/3 bottom lip
- Vibrato – author suggests never using on horn

Chapter 11 – Playing Position
- Bell often blocked by body
- On leg and off leg playing
- Turn chair 30 degrees
- Pictures and diagrams of playing position and right hand position
- Right hand position
- Airstream must be directed downward for good tone production

Problems
- Mouthpiece angle too straight
- Hand position too far in
- Youngsters too small, nothing that can be done to get correct position, change as they grow
- Right hand position should not change from sitting to standing

Chapter 12 – Getting Started
- Start horn on middle C or G
- Assembling brass instruments – mouthpiece should be twisted in gently
- How to remove water from the horn
APPENDIX D: A SURVEY OF BRASS METHODS COURSES BOOK REQUIREMENTS
Survey of Brass Methods Courses Book Requirements


California State Polytechnic University, Pomona
  [http://www.csupomona.edu/~dmgrasmick/mu330/syllabus.html](http://www.csupomona.edu/~dmgrasmick/mu330/syllabus.html)

Central Connecticut State University

Chapman University (CA)
  [http://www1.chapman.edu/syllabi/Music/MUS126.doc](http://www1.chapman.edu/syllabi/Music/MUS126.doc)

Dordt College (Iowa)

Eastern Kentucky University
  [http://www.music.eku.edu/faculty/martin/syllabi/BrassMethods-Trumpetsyllab.htm](http://www.music.eku.edu/faculty/martin/syllabi/BrassMethods-Trumpetsyllab.htm)

Madonna University (MI)
  [http://ww3.madonna.edu/ncatemde/Course%20Syllabi/MusicEducation/MUS3640.htm](http://ww3.madonna.edu/ncatemde/Course%20Syllabi/MusicEducation/MUS3640.htm)

Oberlin College

Troy University (AL)
  [http://spectrum.troy.edu/~jzingara/Music%203351%20Syllabus.htm](http://spectrum.troy.edu/~jzingara/Music%203351%20Syllabus.htm)

University of Dayton
  [http://www.udayton.edu/~music/courses/fall96.html](http://www.udayton.edu/~music/courses/fall96.html)

West Liberty State College (WV)
  [http://www.wlsc.edu/Academics/LiberalArts/ArtsComm/musfacmi252.asp](http://www.wlsc.edu/Academics/LiberalArts/ArtsComm/musfacmi252.asp)

California State University Long Beach
(http://courses.csulb.edu/dzanutto/lowbrass.html)

Furman University (South Carolina)
(alpha.furman.edu/~mbritt/WEB/MUS29/MUS29syl.htm)

Georgia State University
(http://www.music.gsu.edu/facsturesources/brassdept/syllabi/BrassMethodsSyllabus.htm)

Luther College (Iowa)
(http://academic.luther.edu/~smitmi01/Curriculum/CourseMaterials/363%20Syllabus.html)

Mississippi State University
http://www2.msstate.edu/~gblev/MUE3262.html

Missouri State University
(http://education.missouristate.edu/accreditation/programs/MUS/3.20%20Program%20Syllabi/Music%20144-syllabus%20only.htm)

University of Alabama
(http://64.233.179.104/search?q=cache:P6uUXR9zkccJ:musiced.ua.edu/syllabi/MUE%2520353%2520Davis.pdf+brass+class+and+sylabus%22A+complete+guide+to+brass+instruments%22&hl=en&gl=us&ct=clnk&cd=4)

University of Texas at Arlington
(http://www4.uta.edu/SyllabusWeb/SYNonMod.jsp?yyyys=20051&subj=MUSI&subnr=1100&sec=001)

West Texas A&M University
(http://wtclass2.wtamu.edu/viewSyllabus.php?courseId=3010&sFile=0)

Western Illinois
(http://department.monm.edu/music/Betts/MUSI254/MUSI254syl.htm)

Greensboro College (NC)  
(http://64.233.179.104/search?q=cache:Lwnrw34pv4YJ:www.gborocolege.edu/academics/fa02syllabi/MUS239Af02.pdf+brass+class+and+%22Teaching+brass%22+Bailey&hl=en&gl=us&ct=clnk&cd=20)

Houghton College (NY)  
(http://campus.houghton.edu/webs/employees/pdeboer/syllabi/MUSIC217syllabus.htm)

Louisiana Tech University  
(http://www.latech.edu/tech/musicdpt/ABL/LowBrassSyllabus.html)

Loyno University (LA)  
(http://64.233.179.104/search?q=cache:ddXtHzZB9IJ:www.loyno.edu/courses/syllabi/MUED-M210-0012004F.pdf+brass+class+and+%22Teaching+brass%22+Bailey&hl=en&gl=us&ct=clnk&cd=29)

Oklahoma Baptist University  
(http://www2.okbu.edu/public/academics/schools/finearts/music/BrassSyllabus.htm)

University of Alabama  
(http://64.233.179.104/search?q=cache:xvDtfne1Lv4J:www.ua.edu/sacs/syllabi/04115318.pdf+brass+class+and+%22Teaching+brass%22+Bailey&hl=en&gl=us&ct=clnk&cd=7)

University of West Florida  
(http://64.233.179.104/search?q=cache:fcKko8rsr5MJ:www.uwf.edu/music/kmobbs/BRASS%2520Methods%2520Syl.doc.pdf+brass+class+and+%22Teaching+brass%22+Bailey&hl=en&gl=us&ct=clnk&cd=14)

Western Carolina University (North Carolina)  
(http://wcuvax1.wcu.edu/~acherry/270syll.htm)

Dunnick, J. & Dunnick, K. (19??). *Teaching Brass to Beginners*

University of Wisconsin (Eau Claire)  
(http://www.uwec.edu/mus-the/Faculty/Syllabi/MUSI202PO.htm)
APPENDIX E: COVER LETTER AND CONSENT FORM
January 16, 2006

Dear Music Educator:

As a dual master’s degree graduate student in Music Education and Horn Performance at Bowling Green State University, I am conducting a research project for my master’s thesis titled, “An Investigation of Novice Middle and High School Band Directors’ Knowledge of Techniques and Pedagogy Specific to the Horn.” Specifically, the purpose of this study is to interview middle school and high school band directors with four or less years of teaching experience to determine what they do and do not understand about the French horn. This letter is to request your voluntary participation in this study.

This thesis seeks to find out what information music education students are being taught in their undergraduate curriculum about horn and what they retain. Current information shows that there is no consistency in what is being taught in brass methods courses. In addition, there are no studies dealing with what beginning band directors know about the horn. The information obtained from this study could be used in the future to help improve brass techniques courses or to write a handbook on horn for beginning teachers.

You have been invited to participate in this study based upon the number of years you have been teaching and your undergraduate degree in music education. Specifically, I am requesting permission to interview you about your knowledge of horn techniques and pedagogy. I estimate that your participation will take approximately 30 to 45 minutes. Please be aware that this interview will be recorded on a minidisk recorder and transcribed.

There are no known risks or benefits to you by participating in this study and your identity will not be disclosed. All information will remain confidential and will be used solely for this research project. Confidentiality will be maintained by eliminating all names from the final document, along with replacing specific geographical and school details with general descriptions. Recordings from the interviews will not be labeled by name and they will be erased once the thesis has been accepted by the graduate college. In addition the only people permitted to hear the recordings will be myself and my advisors. These recordings will be stored in a file cabinet in my apartment. In addition, you may withdraw from this study at any point in time and need not answer all the questions.
Please feel free to contact me via phone at (508) 965-8098 or through e-mail at jdaigle@bgsu.edu with any questions about this research project. You may also contact my advisor, Dr. Carol Hayward at (419) 372-2187 or chaywar@bgsu.edu. If you have any additional questions please feel free to contact the Chair of the Human Subject Review Board at Bowling Green State University at (419) 372-7716 or e-mailing hsrb@bgsu.edu with questions about your rights as a research participant.

Sincerely,

Jennifer B. Daigle
Music Education/Horn Performance
College of Musical Arts, BGSU
Please sign and date the following form. When completed, please mail the form (not the cover letter) back in the included self-address/prepaid envelope.

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By signing the following form, I acknowledge that I have received and read the cover letter describing the requirements of this study. I have been informed that all information will be kept confidential and I can withdraw from the study at any point in time. I have also been informed that there are no known risks or benefits associated with participating in this study. Finally, I acknowledge that I have been notified that my participation in this study is completely voluntary, and I can refrain from answering any or all questions without penalty or explanation.

______________________________  __________________
(signature)                     (date)

______________________________
(printed name)