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The Development of a Competency Based Approach for Teaching a College Level French Horn Techniques Course in a Homogeneous Setting.

Kevin Michael Andry
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a college level French horn techniques course in a homogeneous
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Andry, Kevin Michael, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1988

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300 N. Zeeb Rd.
Ann Arbor, MI 48106

THE DEVELOPMENT OF A COMPETENCY-BASED APPROACH FOR TEACHING A COLLEGE
LEVEL FRENCH HORN TECHNIQUES
COURSE IN A HOMOGENEOUS SETTING

A Dissertation

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

in

The School of Music

by

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ABSTRACT

The purpose of this study was to develop a competency- based approach to teaching a college-level horn techniques course in a homogeneous setting. Five students were taught horn techniques using the College Horn Techniques text written for the course. Students demonstrated the achievement of competency levels in three categories: cognitive, psychomotor, and pedagogical. Competencies were defined and explained in the text.

Data were scores of four cognitive module quizzes, one cognitive final exam, a psychomotor performance exam, and two observation forms--Performance Evaluation Form and Pedagogical Evaluation Form. Additionally, an evaluation of the College Horn Techniques text was completed by each student.

Results indicated that the text written for the course was an effective method for teaching horn techniques to instrumental music education majors. Moreover, results showed that the competency based approach was an effective method of teaching horn techniques. Students were able to change their teaching skills efficiently by observing themselves via videotape and by taking data through systematic observation. Data also indicated that intermediate horn pupils were able to correct rhythmic errors more easily than errors in pitch.

CHAPTER I

Virtually every college and university offering a bachelor's degree with a major and/or emphasis in instrumental music education provides secondary or minor instrumental techniques courses. These minor instrumental courses may be designed to do two things: (1) to give the prospective instrumental teacher the actual "hands on" experience necessary to acquaint him or her with the fundamentals of playing the instrument, and (2) to prepare the prospective instrumental teacher to be able to teach the instrument to students at the beginning and intermediate levels. Even though prospective instrumental teachers are being taught secondary instruments courses, many of them are entering the field of public school instrumental music with inadequate background training in the technical problems involved in teaching most band instruments. In some cases, this inadequacy may be the result of neglect on the part of the student. Many undergraduates, deeply committed to their major instrument, tend to shy away from involvement with other instruments, not realizing that once they are in the field as professional teachers, a playing familiarity with all the instruments may be of critical importance (Kinyon, 1982). In other cases, this inadequacy may be caused by either poor design of the methods class, insufficient methods books, poor training by the teacher, lack of sufficient time spent on each instrument, or a combination of the above. Charles Hoffer (1977) expressed concern that some brass methods classes are designed so that too much emphasis is placed on learning to play the instrument, which

leaves the students deficient in teaching knowledge. He added that in other cases, these classes contain little playing of music, and "the learning that results is largely a 'head' knowledge based on limited practical understanding."

While Hoffer placed the blame for poor training in minor instruments on the method itself, others feel that the inadequacy of teacher training is a result of the lack of sufficient time spent on each instrument (Moore, 1963). There is not enough time in the student's preparation program for him/her to achieve efficiency of performance on all the instruments of the band.

Another view of the inadequacy of preparation in minor instruments was expressed by Norman Hunt (1974). Hunt voiced concern that many brass techniques classes are taught entirely on the mastery of skills with no provisions made for the musical development of the student. He added that these classes should emphasize the performance of "worthwhile literature," and he maintained that brass instrument instruction in the college curriculum for instrumental music teacher education should hold a status equal to that of instruction in any other performance medium. Thus, the college brass methods teacher is faced with the problem of how to teach brass secondary instrument courses and what should be included in the content of these courses.

Although there are several sources available which address the teaching of a college level French horn techniques class in a heterogeneous setting, there is no method book available which approaches the instruction of a college level horn techniques class in a homogeneous setting.

Lawrence D. Huntley (1975) expressed a growing concern over a lack of available materials and information specifically used for a brass techniques course. He concluded in his study that a need exists for a comprehensive method book for the teaching and learning of brass techniques competencies. Moreover, Huntley's survey revealed that 49.6% of the schools in the study used a brass class format that was heterogeneous, 33.6% offered classes that were homogeneous, and 16.8% of the methods classes included both "homogeneous and heterogeneous class groupings." While Huntley's data do not specify the different instruments which comprise his categories, it may be assumed that homogeneous means one specific brass instrument and heterogeneous means all brass instruments. Huntley confirms this assumption in a letter to James Robertson (Robertson, 1983). Huntley's study also revealed that over forty percent of the schools surveyed did not use a college-level brass class method book, and that less than fifty percent of those respondents who did use a college-level method book were completely satisfied with the method book. Even more significant was the fact that none of the existing brass class method books completely satisfied the needs of brass techniques teachers and nearly all of them indicated the importance and use of supplemental materials.

¹The International Horn Society recommends that horn be recognized as the correct name in the English language for the instrument which is commonly called the French horn. (From the Minutes of the first general meeting of the International Horn Society, June 15, 1971, Tallahassee, Florida.)

The fact that many institutions offer brass techniques courses in a homogeneous setting, together with the lack of a text for teaching a horn techniques course, indicate that a need exists for a method book which would: (1) provide information to teach a horn techniques class in a homogeneous setting, (2) serve as a supplement to a text designed to teach the horn in a heterogeneous setting, and (3) provide a source of information which would benefit horn students, horn teachers, and prospective and present instrumental music conductors. Furthermore, this method would have to contain the cognitive information needed to provide teachers with the fundamentals of teaching the horn, together with stimulating musical examples that add to the overall musical development of the student. Additionally, the design of the method book should be such that it can be used for classes which do not provide a sufficient amount of time on each instrument. The purpose of this study was to develop such a method book.

It was determined that because playing and teaching instrumental music is performance oriented, a method used to teach instrumental techniques should also be performance oriented. Thus an effort was made to incorporate a program which would train prospective teachers to meet performance criteria for classroom teaching.

A competency-based, or performance-based (both terms are used interchangeably), teacher education program, in its simplest sense, is a teacher education program in which the competencies to be acquired and demonstrated by the student and the criteria to be applied in assessing the competencies of the student are made explicit and the student is held accountable for meeting those criteria (Arends, Masia,

and Weber, 1973). Moreover, a competency-based education program trains prospective teachers to be able to meet certain performance objectives or intended outcomes. There is an emphasis on the "ability to do" rather than the more traditional emphasis on the "ability to demonstrate knowledge." Houston and Howsam (1972) give the following characteristics of competency-based instruction: (1) there are precise learning objectives which are defined in behavioral and assessable terms, (2) accountability--the learner knows all expectations required of him/her and is held accountable for meeting the established criteria, (3) personalization--each student has some choice in the selection of objectives and learning activities, (4) criterion-referenced rather than norm-referenced--the student's achievement is compared with stated objectives and specified criteria and is not relevant to the achievement of other students, and (5) emphasis is placed on the learner and learning process rather than teacher and teaching process. Another characteristic of the competency-based program is the fact that the competencies which are to be acquired by the student and the criteria to be applied in assessing these competencies are made public beforehand (Arends, Maslam, and Weber, 1973). The students are made fully aware of what is expected of them and how those expectations are related to their role as teachers.

The first step involved in building a competency-based method is to define and specify specific performance objectives, or performance goals. Presumably, these goals are related to student learning and can be assessed by the following criteria of competence; (1) knowledge

criteria that assess the cognitive understandings of the teacher education student, (2) performance criteria that assess specific teaching behaviors, and (3) product criteria that assess the teacher's ability to examine and assess the achievement of his/her pupils (Schmieder, 1973). Houston (1972) substitutes the product criteria for consequence-based objectives. Consequence-based objectives may be assessed by examining achievements of pupils taught by the prospective teacher.

Once these performance objectives are specified and defined, they are grouped into various instructional modules. Each instructional module or delivery system, is a set of learning activities intended to facilitate the student's achievement and demonstration of an objective or set of objectives. It is important that the objectives of each module contribute to the competencies of teachers in the field (Arends, Maslam, and Weber, 1973). In specifying the competency to be acquired and demonstrated in each module, the following questions should be addressed; (1) if it is knowledge which is specified, exactly what knowledge is it that the student is to have mastered, (2) if it is an attitude which is specified, exactly what affective behavior is it that the student is to have displayed, (3) if it is a teaching behavior which is specified, exactly what teaching behavior is it that the student is to have demonstrated, and (4) if it is teaching effectiveness which is specified, exactly what pupil change is it that the student is expected to bring about and under what circumstances is that to be accomplished (Arends, Maslam, and Weber, 1973)?

Competency-based teacher training has also been applied to music education. Specific areas of interest have included conducting (Madsen and Yarbrough, 1985), music therapy (Alley, 1980), music education (Rosenthal, 1985), and classroom skills and musicianship (Moore, 1963). The use of videotape equipment has been heavily relied upon and has been proven effective as a means of assessing student competencies in music (Holt, 1974).

An early study applied the techniques of observation, measurement, and evaluation to teaching conducting (Yarbrough, 1975). In this study, a behavioral observation form was developed to measure frequency of extra-musical conductor responses such as eye contact, facial expressions, body movement, and speech characteristics. Students were videotaped and required to observe, measure, and evaluate their performance as conductors. Data showed that the behavioral observation form was a viable tool for assessing student competencies. This study was replicated by Price (1985) with the same results. Subsequent studies indicated the importance of self-assessment as an additional means of teaching extra-musical and musical and musical rehearsal behaviors to student conductors at the university level (Yarbrough 1976, March; Yarbrough, 1980).

In another study (Yarbrough, Wapnick, and Kelly, 1979), systematic self observation feedback was compared to instructor feedback on the acquisition of basic conducting skills by beginning conductors. Here data seemed to support self-assessment as a viable alternative to an instructor's feedback. Data from a study done with music therapy majors (Alley, 1980) also confirmed the assumption that

self- assessment is a viable alternative to an instructor's feedback. It was noted, however, in this study that students did seem to verbalize enjoyment of teacher interaction.

In yet another study, data from conducting students' self- assessment of their conducting technique were compared with data generated from a content analysis of self-evaluation critiques (Yarbrough, 1987). Although no significant correlation was shown between student self- assessment and self-evaluation critiques, results did seem to show a significant, positive, and high correlation between student self-assessment and posttest conducting scores. That is, students who scored a high frequency of correct conducting responses on the posttest were likely to have given themselves more correct marks in self-observation of their conducting. These results are meaningful in that they support the notion that students can effectively change their conducting by studying operational definitions, participating in practical conducting experiences, observing themselves via videotape, taking data through systematic observation, and writing self-evaluative critiques.

Thus, the purpose of the present study was to develop a competency-based approach to teaching a college level horn techniques class. This approach would parallel that of the competency-based instruction for conducting students by showing that students can efficiently learn cognitive, psychomotor, and pedagogical techniques needed to teach the horn by studying operational definitions, participating in psychomotor experiences, participating in practical

teaching experiences, observing themselves via videotape, and taking data through systematic observation.

Before any operational objectives were defined and specified, a review of the literature pertaining to teaching the horn and horn techniques was undertaken. At present, there is no method book which teaches horn techniques to college instrumental music education majors in a homogeneous setting. Therefore a review of the method books designed to teach horn techniques in a heterogeneous setting is necessary to determine how the horn is presently being taught in these classes.

Huntley (1975) lists the following books as being available for use in a heterogeneous brass class:

Learning to Teach Through Playing (Mueller)
Guide to Teaching Brass (Hunt)
Playing and Teaching Brass Instruments (Winslow and Green)
Brass Ensemble Method (Hunt)
The Brass Instruments (Winter)

Learning to Teach Through Playing (Mueller, 1968) was found by Huntly to be the most widely used of the method books available. It contains many good playing exercises and pictures demonstrating the proper formation of the embouchure and playing positions. In addition, it gives good descriptions of the rudiments of brass playing and contains a good list of books and recordings for further examination by the interested student. Although the method is designed for use in a heterogeneous setting, it does not fully accommodate the needs of a brass class in such a setting. The use of this method in a mixed brass class would require additional materials

pertaining to the selection of students, proper care and maintenance procedures, makes and models of horns, tuning the horn, transposition, and muting and stopping the horn.

Guide to Teaching Brass (Hunt, 1968) and its companion, Brass Ensemble Method (Hunt, 1974) are similar to the Mueller text. They too contain many good photographs and exercises. Moreover, the Guide is a full sized text that offers more cognitive information that is omitted because of space limitations in each of the other texts discussed. Thus, the Guide serves a dual purpose as a text for the course and as an excellent source book for the instrumental conductor.

The Winslow and Green text (1961) contains a large number of excellent musical examples but lacks information pertaining to the various aspects of horn teaching such as transposition, literature, muting, stopped horn, starting beginners, and types and models of horns and mouthpieces. Moreover, the photograph demonstrating the proper right hand position in the bell is also weak, as it depicts a hand position that is too closed that would probably result in a closed, muffled sound.

James Winter's text, The Brass Instruments (1969) gives a good description of the fundamentals of playing and teaching the horn. This can be attributed to the fact that Winter is a horn player and teacher. Winter, however, neglects to include information pertaining to transposition, literature, and makes and models of horns. The text also lacks photographs of the proper playing position, and more importantly, the position of the right hand in the bell.

Some of the more significant data found in Huntley's study (1975) were the rankings of certain aspects of a brass class. Huntly had his respondents rank the following areas in the order of importance: (1) performance techniques, (2) teaching techniques, (3) investigation of brass literature, (4) knowledge of maintenance procedures, (5) knowledge of repair techniques, (6) history, and (7) acoustics. These areas were ranked as follows:

1. teaching techniques
2. knowledge of maintenance procedures
3. performance techniques
4. acoustics
5. investigation of brass literature
6. knowledge of repair techniques
7. history

Since Huntly's report of 1976, another text for teaching a heterogeneous brass class has emerged. Brass Ensemble Method for Music Educators (Zorn, 1977) is an excellent method for a mixed brass class. It contains a large amount of helpful exercises, good photographs of embouchures and playing positions, and it discusses many teaching concepts, including grade level for beginners, recruiting, and scheduling beginning brass classes. Zorn's method, however, lacks information about muting, stopped horn, transposition, and, although he explains the use of the F/B flat double horn in the text, he fails to notate the suggested switchover points from the F to the B flat side in his fingering charts.

Several books available that contain important information about horn technique may also serve as source books for the instrumental teacher. One such book is The Instrumental Music Director's Source Book (Kinyon, 1982). Many of the ideas presented in this book are

important to a brass methods class. Kinyon states that very young instrumentalists need almost daily supervised practice. He adds that most beginning method books favor trumpet and clarinet players and suggests the use of supplementary materials for beginning horn students. Kinyon also tackles some of the basic pedagogical problems most frequently encountered by teachers of beginning brass students. His list of seven problems that face beginning brass players, for example, gives the young brass teacher a starting point to aid in diagnosing problems at an early stage of the development of brass students. Teaching with this in mind could help to eliminate the problems at an early stage, thus preventing them from becoming bad habits which would hinder further progress on the instrument. Kinyon adds that beginning horn students do not progress as fast as the other basic instruments because of certain idiosyncrasies of the instrument.

Yet another good source book for a brass techniques class is Developing Individual Skills for the High School Band (Weerts, 1969). Weerts gives a brief history of the horn, lists methods and solos, discusses selection of mouthpieces, gives fingering rules for switching from the F to the B flat side of the horn, explains transposition of the two most frequent transpositions in the band repertoire, (E and E flat) and gives a list of selected recordings. Two shortcomings of his book are his suggested use of cold cream as a lubricant for the valve slide and an incomplete description of how to play stopped horn.

As a preliminary step to writing the text, College Horn Techniques (see Appendix A), to be used in the course, an extensive

review of articles, pamphlets and textbooks was undertaken. Representative references were used to illustrate certain points of view with the acknowledgment that many other teachers accept these views. When controversial subjects were discussed, an attempt was made to present all sides.

Proper Breathing

Most wind teachers acknowledge the fact that proper breathing is crucial to the playing of any wind instrument. There are probably as many methods of teaching proper breathing as there are teachers. Although most students are told to breathe from the diaphragm, teachers do not make sure they fully understand this concept (Perrini, 1970). The mechanics of diaphragmatic breathing can be broken down into two components; inhalation and exhalation. The most important function of breathing is performed by the diaphragm, which causes the lungs to fill with air. The intercostal muscles also play an important part in the inhaling and exhaling process because these muscles control the expanding and contracting of the lower ribs (Farkas, 1956).

One good description of the mechanics of breathing from the diaphragm was given by Abby Mayer and his brother Lloyd Mayer, M.D. (1971). They stated that lung tissue, which is extremely flexible, can be stretched so as to increase its surface area to almost twice its standard capacity. The volume of the chest cavity is governed by the rib cage. This inner size can expand or increase the lung tissue to a limited capacity if one breathes "from the chest." Diaphragmatic breathing, however, increases this capacity by drawing the diaphragm

down into the lower organs, thus leaving more room for the expansion of the lung tissue. Mayer and Mayer maintain that this method of breathing does no harm to the lower organs.

Another explanation notes that air should be taken quite low, with significant expansion around the bottom of the rib cage, around the waist, and into the back, fairly well down the sides of the body, and forward into the abdomen (Pease, 1972).

Farkas gives an accurate description of the exhalation process in his book, The Art of Brass Playing (1962). He explains that once the student is able to inhale large quantities of air rapidly and silently, he must learn to exhale properly by steadily projecting the air through the instrument. In normal exhalation, the relaxed diaphragm tends to spring back to its original shape in an uncontrolled manner. This lack of control is unsuitable for musical purposes. The correct procedure for exhalation is to steadily contract the abdominal muscles, forcing the lower organs back up. This gives the musician control of the speed and energy with which the diaphragm is pushed upward. When asked how do you teach breathing to a beginning brass player, Farkas responded:

I remind the student that breathing is a natural activity so it will be no great problem to breathe correctly while playing a brass instrument. I believe that often too much stress is placed upon this quite natural act, to the point that the student becomes terrified that he or she cannot breathe correctly. My advice to students is, "Relax, this is very similar to ordinary breathing except that we are going to use bigger quantities of air and we are going to inhale quickly and exhale slowly." (Getting down. . . 1979)

The importance of knowing the fundamentals of diaphragmatic breathing, and at least one good method of teaching it to students cannot be overemphasized. One such method was described by Thurmond (1970):

Have the student COUGH:
 (Diaphragm UP) Stomach IN
 Have the student BREATHE IN:
 (Diaphragm DOWN) Stomach OUT
 Have the student HISS: (snake)
 (Diaphragm UP) Stomach IN
 Have the student PANT: (dog)
 (Diaphragm UP-DOWN) Stomach IN-OUT

Thurmond adds that younger students must be allowed to breathe "any way they can--as much as they can." He maintains that the quality of the tone must be taught after the technique of getting a tone or of holding a tone is learned.

Some wind teachers advocate a method of teaching correct breathing through some form of physical exercise which can be practiced outside of the student's normal practice time (Perrini, 1970). Students should practice deep breathing exercises while walking:

1. Breathe in (inhale) slowly and evenly for eight steps
2. Hold it for eight steps
3. Exhale for four steps
4. Hold it for four steps
5. Repeat steps three and four until out of breath

Improvement can be noted in the number of times steps three and four can be repeated.

Winter (1969) contends:

There is probably no better way to teach a student to breathe properly than to tell him to lie on his back for a while before going to sleep, and to observe for himself where and how he breathes when he is stretched out and thoroughly relaxed. It is at this time that he begins, again, to breathe as nature intended him to, and as he did when he was a small child.

Embouchure

The functioning of the lips in forming the embouchure is one of the most difficult things in the world to explain (Farkas, 1956). Simply stated, the lips are set in vibration by an air stream. This vibration is the motivation for the sound produced on the instrument, much like the vibration of the two reeds on a double reed instrument. By relaxing or contracting facial muscles the horn player changes the firmness and thickness of the lips, and changes the size of the lip opening, or aperture. Thinner lips coupled with a smaller aperture will produce higher pitches than thicker lips with a large aperture.

The correct formation of the lips should be what Farkas calls the "puckered smile." This "puckered smile" is a combination of a smiling embouchure and a whistling embouchure. Farkas advocates wet lips when buzzing with the teeth kept apart and a pointed chin. He adds that the puffing out of the cheeks while playing is wrong because it is an indication that something is seriously wrong with the formation of the embouchure. If the cheeks are puffed out and filled with air, the correct facial muscles cannot work.

Many teachers agree that students should be taught how to buzz their lips properly before being allowed to attempt playing the horn. Moreover, teachers should not assume that fifth and sixth graders

cannot understand the details, workings, reasons, and procedures for development of a good embouchure (Robinson, 1967). Students should learn the buzz first without the mouthpiece, which may take a few days. When the lips are vibrating well, check the air stream with the hand. If the air stream is moving straight forward, the lips are even; if it goes down toward the chin, have the student move the jaw forward and downward, pointing the chin. Once the student has mastered the buzz, place the mouthpiece over the natural aperture. The natural aperture varies with different students because of inconsistencies in teeth and jaw structure from student to student.

Another approach to teaching horn embouchure was described by Thurmond (1970). He suggested that beginners buzz without the mouthpiece for at least one week. He also maintained that changing the student's embouchure should never be done without the advice of a professional because the student may become discouraged and be turned away from music completely.

Most teachers advocate a mouthpiece placement of two thirds upper lip to one third lower lip. Farkas's book, A Photographic Study of Forty Virtuoso Horn Players' Embouchures (1970), showed that an overwhelming majority of professional horn players and teachers recommend this mouthpiece placement. Farkas added that if the student has a desire for other proportions, the teacher does not fight it providing the student gets results.

A study by Saxton (1971) showed that two thirds to one third mouthpiece placement allows a more evenly distributed amount of top

and bottom lip within the mouthpiece rim. He attributed this to the fact that when forming the embouchure, the vibrating surface of the upper lip normally extends down approximately even with the biting edge of the upper teeth. Therefore a good portion of the upper lip in the mouthpiece is not vibrating because of the upper teeth.

The lower lip, however, has a larger vibrating surface because of the lowered jaw and separated teeth.

The following important points are common to a good horn embouchure: (1) There should be a well-centered side-to-side position. (2) An average of 2/3 upper lip to 1/3 lower lip is generally the normal mouthpiece placement. (3) There should be an important combination of good lip contraction plus a little smile at the corners of the mouth. (4) There should be a relaxed appearance, with no attempt to form a hard, over-exaggerated, self-conscious embouchure. (5) There should be an opening in the lips similar to the shape of an oboe reed. (6) Do not clamp the upper and lower lips together in the center of the embouchure (Farkas, 1956).

For all practical purposes, once a good embouchure is developed, care must be taken to maintain it without any changes. There are times when changes do, however, take place (Schulze, 1950). The following reasons may be responsible for sudden changes in the embouchure: (1) lack of sleep, (2) forcing of high or low notes, (3) improper warm up, (4) over exposure to the sun or strong winds, (5) dry lips due to smoking, (6) sudden changes in weather, (7) colds or temporary stomach ailments, (8) spicy foods, (9) a run down physical condition, and (10) incorrect practice. It is strongly recommended

that students use of a mirror while practicing to maintain a good embouchure (Schmoll, 1960).

Teachers should encourage students to play without making any embouchure change while descending into the low register (from written e down). Few students, however, are able to play down into the bottom of the low register without making a change which results in the old German einsetzen (setting in) embouchure (Winter, 1969). This shift consists of pulling, or rolling the bottom lip out of the mouthpiece entirely or in part, thus playing with the upper lip only. The lower jaw must be pushed forward and downward. Most students can shift into this embouchure without great difficulty, but the return to the normal embouchure requires hours of practice and patience. The use of wet lips greatly aids in making this shift and, in some cases, a very slight toss of the head helps as well (Winter, 1969).

Fingerings

All of the previously mentioned brass method books contain information regarding finger combinations for the single F horn, the single B flat horn, and the F-B flat double horn. The Art of French Horn Playing (Farkas, 1956) gives the best instructions for combining the F and B flat sides of a double horn. Farkas noted that perhaps no two players agree exactly as to when and where the transition from the F to the B flat side should take place.

Playing Position

The playing position of the horn has evolved in correlation with the evolution of the instrument itself. Joseph Bellamah has shown that opinions have changed in the past twenty-five years as to what should be the correct playing position for the horn. In a study done in 1960, Bellamah consulted the opinions of leading authorities on horn playing and teaching. When asked if they advocate sitting or standing during the practice period, the authorities overwhelmingly recommended that all of the practicing be done while sitting. In a follow-up study done in 1976, Bellamah noted that not a single one of the artists recommended that all of the practicing be done while sitting. They recommended a combination of the two. Farkas specified that he preferred sitting for learning orchestral works and standing to practice solos to be performed in public in a standing position. (Getting down. . . 1979)

One advocate of practicing while standing lists the following reasons (Brophy, 1976):

1. Better deep breathing.
2. Students should practice "the hard way."
Virtually all aspects are harder except deep breathing--harder to hold the instrument, finger dexterity is more difficult to maintain, and manipulation of the right hand is more difficult.
3. Standing helps prepare for bells up passages, which horn players rarely practice.
4. For giving solo performances--standing demonstrates more showmanship.
5. Learn to blow a dark tone rather than depending on the body to darken the sound.
6. It is easier to locate the proper angle of the mouthpiece and mouthpipe to the lips. Also the slight natural pivot or changing of this angle used when changing registers is more easily accomplished when holding the horn free.

7. There is a psychological advantage of playing with the feet securely planted to the floor.
8. Standing eliminates the awkward feeling caused by a chair of the wrong height.
9. It is easier to assume the correct posture.
10. Learning to play in tune through slight adjustments of the embouchure, oral cavity or tongue as opposed to the right hand.

Most authorities agree that beginners should sit while playing because of the weight of the instrument in order to get the correct hand and lip position. The playing position while sitting is governed by several needs:

First, and most often sacrificed because of poor posture, is freedom of tone production; second, comfortable and efficient breathing; third, freedom from undue muffling of the tone at the bell; fourth, the state of mental alertness of the player; and fifth, attractive appearance (Howe, 1966).

The player should sit normally erect, with the player's back away from the chair. The edge of the bell should rest on the outside of the right thigh without pointing the bell into the clothing. This method takes most of the weight away from the hands and arms, giving them and the whole body a more relaxed attitude.

As soon as the pupil is old and strong enough to maintain the proper position while standing, he should be required to do so, at least part of the time. Proper diaphragmatic breathing and control cannot be acquired as well when sitting (Thurmond, 1970). A saxophone neck strap may be used to aid students who are unusually small (Perrini, 1970). This procedure is advocated to insure a correct right hand position and under no circumstances should the bell be faced in toward the abdomen.

The importance of the correct right hand position in the bell of the horn cannot be overemphasized. The right hand position is as important to horn technique as the embouchure, breath support, fingerings and tonguing. Scharnberg (1981) recently observed that one of the least understood aspects of horn playing for the public school hornist seems to be the placement and function of the right hand in the bell of the instrument. Three main considerations governing the placement of the hand in the bell: (1) how it is shaped, (2) how it is held in the bell, and (3) how far it is inserted (Yaw, 1976). Students should use their ear to help determine the correct placement of the hand in the bell simply by inserting the hand to the point where the sound becomes more compact and typical of the horn (Fox, 1979).

Another consideration concerning proper playing position is the positioning of the music stand. This consideration, which seems simple enough, can cause serious embouchure problems for those students who have to hold their instruments in an awkward position to be able to see both the conductor and their music. Students should arrange their chairs in a position that they can look directly down the mouthpiece of the horn to the music and can see the director at the same time (Crain 1967). Small students have a similar problem with holding the horn by resting the bell on the thigh. In many instances, the mouthpiece would strike the student somewhere in the vicinity of the forehead. The horn can be raised or lowered by moving the right leg forward or backward, thus raising or lowering the mouthpiece (Perrini, 1970).

Care and Maintenance

A horn is a mechanical instrument which requires proper care and maintenance. Farkas (1956) compares the artist's care of a horn to the racing driver's care for a car. Instrumental directors spend countless amounts of money repairing instruments which are not cared for properly.

The easiest maintenance procedure is simply to avoid denting or scratching the instrument at all costs. Dents affect the playing qualities of a horn. The most critical spots to avoid dents are the mouthpipe and the tubing of the bell (Farkas, 1956). Preventing dents can be merely a matter of being careful not to leave the horn unattended in a position where some unknowing individual may accidentally knock it over. Students should keep instruments in a good protective case when not in use.

Lubrication is an important aspect of horn maintenance. The two areas that need lubricating are the slides and the rotary valves. Farkas (1956) recommends the use of gun grease as a slide lubricant. He adds that the use of vaseline should be discouraged because vaseline makes the slides too slippery. Anhydrous lanolin is also a popular slide lubricant among professional horn players and teachers.

Rotors must be lubricated in three places. The first place needing lubrication is on the rotors directly under the caps. This should be done with a light commercial valve oil. The space on the underside of the valve between the axle and its bearing requires a heavier household oil such as sewing machine oil (Farkas, 1956). A third place needing lubrication is the inner workings of the valve

(Erlenbach, 1975). After removing each slide, pour six to eight drops of a commercial rotary valve oil down each slide. Reinsert the slides in their casings as far as they are able to go and tip the horn upside down, working the valves. This procedure should be carried out at least once a week. Pure odorless kerosene, which works as well as commercial valve oil and is less expensive than its counterpart, is another lubricant used to oil the inner workings of the valves (Strucel, 1971).

Noisy, clicking valves can usually be cured by placing a drop of heavier oil (sewing machine oil or Three-in-One) on the bearings (Strucel, 1971). It is important not to use this heavy oil on the interior of the valves because the valves will gum up and become sluggish.

Occasionally instrumental teachers encounter instruments that have been totally neglected. Frozen valves can usually be freed by placing an eyedropper full of Kerosene down each rotor. Stuck slides can be loosened with an application of penetrating oil (Markle, 1963). Allow them to sit overnight and then try to remove the slide carefully by hand. Do not use any mechanical means to remove the stuck slide, for this may only damage it. Repeat this process two or three times on a stubborn slide and if it still cannot be removed, seek professional help.

Some manufacturers make horns with mechanical linkages. These tend to be very noisy and require frequent lubrication at the pivot points. A drop of STP (automotive crankcase additive) or plain vaseline on the pivot joint will usually reduce the noise (Strucel,

1971). When lubrication no longer stops the noise, take the instrument to a qualified repairman. He may need to recess the pivot screw and crimp the universal joints.

Farkas (1956) noted that one of the first pieces of equipment that a brass player should own is a flexible cleaning brush. Although, these brushes are not manufactured specifically for the horn, the ones designed for the trumpet work fairly well on the horn. To clean the mouthpipe, pull out the main tuning slide (the one closest to the mouthpiece), then pour about a cup of warm water down the mouthpipe, and run the brush through the mouthpipe section, starting at the larger end of the tubing. Follow this procedure with a thorough rinsing of the leadpipe with clean water. This procedure should be done about every other week. In addition to the leadpipe, the mouthpiece must be cleaned periodically with an appropriate brush.

If the above procedure is neglected, dirt will carry farther into the tubing, making it necessary to clean the entire horn. Cleaning the entire horn requires the removal of all the valve slides, and the immersion of the horn and slides in a tub of lukewarm water and mild soap (Erlenbach, 1975). Hot water is not recommended because it tends to cause the laquer finish to peel. Allow the water to penetrate the valves by working them up and down while submerged. Then clean each slide with a flexible cleaning brush, being careful not to force the brush through the slide. If it seems to jam in the slides, simply remove the brush and insert it into the other end of the slide, cleaning it as far as possible. Discard the soap solution and use fresh lukewarm water to rinse each part of the instrument. Wipe dry

with a clean soft cloth. Then lubricate the slides and valves before playing the instrument.

Replacing strings is most easily taught by a sequence of pictures which illustrate the restringing process (See Farkas, 1956, p. 9). Horn players should remove all the old strings and replace them with new ones about twice a year. Most horn players and teachers advocate using thirty to forty pound nylon or linen fishing line to replace valve strings. Plastic lines tend to stretch and narrower lines tend to cut into the valve post (Erlenbach, 1975).

Selection of Students

The selection of horn students is something that should not be left to chance. There are four basic considerations to follow (Howe, 1966):

1. A will to learn
2. Aural ability
3. Background in music
4. Brass instrument background

One authority on the subject, Schmoll (1965), feels that teachers should also select students to play the horn who have average or above average intelligence and musical talent. Schmoll also dispels the myth that it takes thin lips to become a good horn player. He insists that no one has demonstrated that small lips are an advantage over larger lips (Schmoll, 1960).

Another perspective of selecting beginning horn students was explained by Farkas (1956). He stressed the desirability of telling

the student that the horn is a difficult instrument, thus turning away the lazy students from the start.

Most teachers recommend that horn students start on the horn and not on another brass instrument with the intent to switch to the horn later during the student's development. Some teachers, however, have taken the position that students should be started on an easier brass instrument and switched to horn after the fundamentals have been learned. One such teacher, Weger (1961), defended his position by stating:

If you start your instructional program in grades five or six, switch the student to the French horn in the seventh grade. It is much simpler to teach finger facility, breathing, embouchure development and tone placement on the baritone or cornet to the grade school-aged child. Fifth and sixth graders are generally too underdeveloped physically to endure the problems which are inherent in the instrument.

Types, Makes, and Models of Horns and Mouthpieces

There has been much debate over the recommendation of beginning model horns for students. This prompted a survey by the editors of The Horn Call, a semi-annual journal published by the International Horn Society (Survey Results. . . 1971). The survey showed that fifty-four percent of the horn teachers and players preferred starting beginners on a single F horn. Their reasons for choosing the single F horn were because the single F horn possesses the characteristic horn sound and that it is an aid in ear training. Twenty percent of those surveyed recommended the F-B flat double horn for beginners. They felt that it was better to start a student on a professional model, rather than make a switch later. Sixteen percent preferred beginning

students on a single F model or an F-B flat double horn. Six percent chose the single B flat horn as the instrument to start beginners on and two percent chose the single B flat or the F-B flat double horn. The survey determined that the most widely recommended model horns for beginners were the Conn 6D, Conn 4D, the Holton-Farkas models, and used horns.

This survey by no means ended the controversy concerning the types of horns for beginners. One teacher (Pruzin, 1977) noted that the argument about the single F horn having a more characteristic horn tone lacked validity. He pointed out that very few beginners achieve what is called a "characteristic" horn tone in the early stages of development.

A more detailed argument was given by Nadaf (1968), who advocated the use of a single B flat horn for beginners on the basis that most professional horn players rely on the B flat horn or the B flat side of a double horn for most of their playing. He posed this question, "Why do we teachers ask our beginning youngsters to start their musical experiences by learning to play on an instrument that is obsolete, at least in practical use among professional hornists?" He explained that weaknesses of the single F horn were inaccuracy, fuzzy attacks in mid and high registers, and considerable resistance in the high register requiring great strength to endure prolonged playing. These difficulties are greatly reduced by the B flat horn because the proximity of the "bad" notes in the harmonic series is a perfect fourth higher for the B flat horn than the F horn.

One writer (Magnell, 1962) stated that it was interesting to note that professional horn players advocate the use of single F horns for beginners while music educators advocate B flat horns. He suggested that a horn section be made up of all double horns. He presented an alternative option by placing the first and third players on B flat horns and the second and fourth players on F horns.

A suitable mouthpiece can be described as having a medium sized cup diameter, medium sized cup volume, a medium sized backbore, and a medium sized rim (Farkas, 1956). Several examples of a medium sized mouthpiece include the Holton-Farkas MC model, the Bach number 7, and the Conn number 7. The various parts of the mouthpiece, the physical properties of mouthpiece, and the resultant playing characteristics are explained by Farkas (1956, p. 4).

Tuning the Horn

A review of the literature pertaining to tuning the horn shows that most authorities are in agreement as to the correct procedure for tuning the horn (Seiffert, 1974, Rumery, 1973, Yaw, 1967, Silliman, 1958). The intonation of the valve slides are not considered until the open horn is tuned. The player of a single F horn should tune the open C's, E's, and G's. Once the open horn is tuned, the second and first valves should be tuned to F sharp (concert B) and F (concert B flat) respectively. Finally, tune A flat (concert D flat), fingered second and third valves, by adjusting the third valve slide only.

When tuning a double horn that has no separate slide for the B flat horn (the most common type), the open B flat horn should be tuned first to a third spaced C (concert E). Any slide adjustments should

be made with the main tuning slide, which is the slide nearest to the leadpipe. Once this is tuned, the player should tune the open F side to the open B flat side by playing the same written C (concert F) and adjusting one of the open F tuning slides. Tuning the rest of the slides on the F side of the double horn, is similar to the procedure used for tuning the single F horn. The slides of the B flat side of the double horn are tuned to the B, B flat, and A flat (concert E, E flat, and D flat), using the second, first, and second and third valve combinations respectively.

Articulation

One of the most beautiful characteristics of the horn is its bel canto or singing style. Legato playing is one of the most important factors in making the horn sing, and should be taught to beginners before other types of articulation (Weger, 1961).

Legato passages are notated with a slur.



The initial note is started with the tongue. The note following the initial note is played without being tongued. More specifically, the air stream remains steady and is not interrupted by the tongue. If the lip vibration stops, even for an instant, during the transition from note to note, the legato quality will be impaired, if not destroyed. Farkas (1956) pointed out that the slur should result from the proper use of the embouchure, not from a shove of air. He added that the tongue is responsible for aiding in smooth slurs. The use of the vowels "oo-ee" are utilized in making an upward slur and the vowels "ee-oo" are used to assist a downward slur. Because of the

many different degrees of intensities of "oo" and "ee," a series of notes can be slurred upwards or downwards. Howe (1966) advocates the use of the letter "H" as an aid to slurring. The initial pitch is pronounced with a "Toe" articulation and the slurred pitch is articulated "Hoo." The "H" brings the back of the tongue upward and increases the intensity of the air stream without making a large thrust of air from the diaphragm.

In addition to the tongue being an aid to smooth slurs, the tongue is also used to form the varying levels of vowel intensities needed to produce a single note at different dynamic levels (Fox, 1971a). The position of the tongue changes throughout an entire crescendo-diminuendo. A louder note requires a lower tongue position and a larger oral cavity. Although this difference is barely perceptible in the upper register of the horn, it is quite evident in the lower register.

Legato tonguing is usually notated in this manner:



Although legato tonguing is not always notated as such, it is constantly needed when playing melodic passages that incorporate slurred and tongued notes. The same vowels that are used for slurred notes are also utilized for legato tonguing, but the articulation "D" is added. The resulting syllables are "Doo-Dee" for an ascending passage and "Dee-Doo" for a descending passage (Farkas, 1956).

Tonguing presents a problem for young brass players. In some cases, this problem can be attributed to the fact that the word "attack" has been given to the process by which a note is started or tongued. Teachers should instruct students to think of the tongue not

as going to the contact point, but rather as getting away (Haddad, 1968). Schmoll (1960) also expressed concern about the way tonguing was being taught. The tongue acts as a valve that controls the passage of air into the horn. Another prominent horn player and teacher noted the obstacle that the tongue presented to young horn students (Orval, 1977). He emphasized that the word "attack" should be removed from the teaching vocabulary on the basis that it invokes a psychological fear in students.

Most horn teachers advocate placing the tip of the tongue behind the upper teeth, in the same position that they would if they were to articulate the letter "T." A contrasting opinion was offered by Pottag (1947). He advocated placing the tip of the tongue between the teeth.


The use of syllables is widely used by teachers to assist students in the tonguing process (McKee, 1962). The syllables "taw," "too," and "tee" are used for tonguing in the low, middle, and high registers respectively. When articulating the syllable "taw," the embouchure muscles are more relaxed, the lip aperture is larger, and the lower jaw is automatically thrust downward, which is an essential factor when playing in the low register. The syllable "too" requires a firmer set of embouchure muscles, a smaller aperture, and a higher jaw position. When articulating the syllable "tee," the embouchure muscles are firm, the aperture is small, the teeth are even, the tongue is in the rear of the upper teeth ready to release a jet of air at high pressure, and the mouth cavity is now small enough to restrict

the air stream and help produce the high air pressure needed in the high register.

Young students should be required to practice all types of articulations on the mouthpiece alone (Howe, 1966). Mouthpiece practice benefits staccato and marcato articulating, especially in the low register. Students should be instructed not to end the sound with the tongue (Haddad, 1968).

Range and Endurance

Unlike a young pianist, young students who play brass instruments do not have complete access to the entire range of their instrument. Being able to facilitate playing in the practical range of the horn is an aquired skill.

It seems that many students are obsessed with extending their upper range with little or no emphasis on their low register. The range development of the young student should be from  (Pottag, 1973).

Most authorities agree that the key to extending the high register on the horn is to develop good playing habits in the low register (Erlenbach, 1972, Fox, 1971, Silliman, 1962, Farkas, 1956). Because clean clear attacks are particularly difficult to obtain in the low register, practice in the low register can serve as a vehicle to improve accurate attacks over the rest of the range of the instrument. The low register can be played well only with good breath support and a relaxed but firm embouchure. These two factors must be achieved before attempting to play well in the high register.

Several methods of improving the high register include practicing long tones, practicing lip slurs, and practicing on the mouthpiece alone. Because the notes speak with less resistance on the mouthpiece, practice as such presents a more gradual approach to playing the same notes on the horn. Fox (1971b) presented a detailed method for extending the high register. He pointed out that the embouchure consists of two major muscles; the corner pair or the smiling muscles and the middle pair, the pucker muscles. Too many young horn players use the corner muscles and excessive pressure to obtain high notes. The correct way is to use the muscles which are closer to the vibrating medium, the middle pair. Fox's method requires utilizing lip slurs to extend the range into the high register:

Start with the "C" that is one octave below the written "C" of the Siegfried Call (third space C). Using only the open "F" horn, slur C-D-E-F#-E-D-C two times. Starting on the same "C," add the next natural overtone progressively. This should be worked up for the whole octave to high "C." There are nine natural overtones in the complete octave, counting both the beginning and ending "C"'s. All the notes must be played in a controlled, steady tempo. It must be done accurately. Try to make the transition from note to note as smooth as possible, the closer they are to the glissando effect, the better. Consciously try to lip up each note with the buzzing area inside the mouthpiece. Avoid relying on the corner muscles for each minute note change.

Students who rely on the corner muscles for note changes ultimately resort to heavy mouthpiece pressure when they need to play in the extreme high register. This reliance on excessive mouthpiece pressure makes playing sound labored, reduces flexibility, hardens the tone, and decreases endurance by at least half (Farkas, 1957). A

telltale sign of a student who uses excess mouthpiece pressure is the impression of a mouthpiece rim left on the lips after playing. Everyone uses some pressure to a certain degree. The slight reddening of the lips in the mouthpiece area is quite permissible because it results from stimulated blood circulation.

One of the secrets of endurance is to relieve the pressure of the mouthpiece against the lips at every opportunity (Silliman, 1964). Mueller (1968) stated that endurance, like any other technical aspect of playing a brass instrument, must be practiced. He maintained that endurance should not be practiced when the lips are fresh, but rather at the end of the practice session. He advocated practicing long, slow etudes with moderate volume and range demands. He added that players should terminate the practice session when the lips still feel good; after a warm down routine consisting of soft sustained notes in the low register.

Transposition

The ability to transpose is a necessity for the horn player (Farkas, 1956). Although many published editions contain horn parts that have been transposed to F horn, there still remains an abundant amount of literature that will require transposing by the horn player.

Two methods of teaching transposition that are advocated by most professional horn players and teachers are transposition by interval method and transposition by clef method. Transposition by interval requires the horn player to play everything on the page a predetermined interval away from the written pitch. This interval corresponds to the relationship between the key of the horn part and

an E. In most cases the direction of transposition is determined by the interval nearer the E. For example, a part written for horn in d is transposed down a minor third; not up a major sixth. For intervals of a fourth and fifth (horn in C and B flat), the direction of transposition is down unless specified by the composer (horn in C alto or B flat alto). Horn in B (natural) is always transposed down (Farkas, 1956). Transposition by clef is primarily used for transposing in the keys of C, B flat and B natural. An E clef on the third line (baritone clef) is utilized to transpose horn parts in C. A C clef of the second line (mezzo-soprano clef) is used to transpose horn parts written in B and B flat (see Farkas, 1956, p. 73).

Diagnosing Performance Problems

There are two basic approaches to teaching (Kohut, 1973). The first is teaching through demonstration, whereas students learn by imitating the teacher. The second is analytical teaching, whereas individual performance results are analyzed and explained by the teacher. A simple method of diagnosing performance problems was outlined by Kohut (1985). Kohut explained that the teacher should begin by listening to the student's performance, initially concentrating on musical aspects and then concentrating on technical aspects. After the teacher has listened long enough to make a valid evaluation of the student's performance, one or two of the student's principal strengths should be praised. Next, the teacher should identify the student's principal performance problem within a musical context. The teacher should demonstrate the correct way and the incorrect way, having the student then try to imitate the correct way.

Kohut adds that if this method does not solve the problem, then the teacher must apply logical deduction and the process of elimination as methods for diagnosis and solution of performance problems. Teachers should first focus on conception of musical phrasing and expression and the elements of artistic performance--tone quality, intonation, and articulation. Only then should technical aspects such as breathing, embouchure, and fingering be considered. These technical aspects are the means toward achieving the musical aspects. Teachers should not allow the means to become ends in themselves (Kohut, 1985).

Accurate performance evaluation must be given from the very first lessons (Kinyon, 1982). Very young instrumentalists need almost daily supervised practice, because there is a critical factor between success and failure. This factor between success and failure is being able to stop bad performance practices before they become bad performance habits. A knowledge beforehand of problems that beginning brass players experience is an important aid to performance evaluation. Kinyon listed seven problems that frequent young brass players: (1) puffing cheeks, not focusing the air stream, (2) clenching their teeth, (3) not getting enough upper lip in the mouthpiece, (4) holding the lips too far apart, (5) pinching their lips tightly together, (6) not blowing with enough force, and (7) blocking the air with the tongue or teeth. These problems serve as checkpoints for the teacher when the teacher observes a problem with a student's tone.

Winter (1969) used checkpoints to detect problems that teachers encounter and also provided solutions to these problems. One of these

checkpoints is a tight throat. The student with a tight throat is easy to detect because his tone is thin and weak. Although the student appears to be putting enough air through the instrument, he produces little for his efforts. The solution Winter provides is to have the student sing his part, using vowels to help open the throat.

Air pockets in the player's cheeks or lips were another of Winter's checkpoints. Air pockets limit the function of the embouchure muscles. The solution for this problem is having the student practice in front of a mirror and concentrate on not letting pockets of air develop between the cheeks and gums.

A third checkpoint described by Winter was mouthpiece pressure. He stated that mouthpiece pressure usually begins with an attempt to increase the upper limits of the range. Pressure actually proves to be helpful in obtaining high notes until fatigue sets in. As was mentioned previously (Farkas, 1957), excessive mouthpiece pressure greatly reduces endurance and, in some cases, can cause permanent damage. The mouthpiece acts as a tourniquet, cutting off the blood supply to the delicate muscles of the embouchure. Winter listed the following signs which may indicate that a student is playing with too much mouthpiece pressure on the lips: (1) The student demonstrates a lack of normal endurance. (2) There is excessive marking of the lip when the mouthpiece is removed. In extreme cases the lip will show white for an instant. (3) The student has a poor high register and poor control during very soft playing. (4) The student has a "buried" look about the mouthpiece. This is not noticeable of students with thin lips. (5) The lip stops vibrating during slurred passages.

Farkas (1956) gave a few tips to help eliminate the habit of using excessive pressure. He advocated placing the horn on a shelf or table of height which enables the student to blow into the horn without holding it. Play long open notes without touching or moving the horn. This exercise may be very frustrating at first, but with persistence, the student can extend his/her range into the high register without moving the horn. Another suggestion given by Farkas was to practice part of the day without using the fingerhook for the little finger. Although this does not altogether prevent pressure, it does remind the student when pressure occurs by putting unusual strain on the left hand. A final tip to help avoid bad mouthpiece pressure is to insist that the student play with a relaxed biceps muscle at all times. The left biceps muscle is the culprit for all mouthpiece pressure problems.

Mutes and Terminology

There has been much confusion concerning the terminology used for muting and stopping the horn. This confusion is evident primarily because the terminology is frequently written in any of four different languages, German, French, Italian and English. Much of this confusion was cleared up by Johnson (1980). Johnson pointed out the differences between the two mutes, the transposing and the non-transposing mutes, and he translated much of the foreign terminology to English. He added that there were three important factors that affect the tone quality of a muted horn. The material used to make the mute and the size of the side corks affect the quality of the tone. Another factor is determined by the player.

When the horn is muted, it presents more resistance, thus requiring more breath support from the player. Johnson also offered a suggestion for music educators that would enable young students to play muted passages in the low register more readily. The tone quality of muted passages in the low register is often tubby and entirely unfocused. Students should be ready to pull their mutes out slightly when they reach notes that do not respond well.

Stopping the horn presents more of a problem than muting the horn. Stopped horn is usually performed by hand muting or by using a brass stopped mute. This mute is also called a transposing mute. Whether the horn player chooses to use the hand or the brass mute to play a stopped passage, the written parts will have to be transposed by the player. What physically happens when the horn is played stopped has been debated for quite some time, and as of yet, no definitive conclusion has been reached (Johnson, 1980, Leuba, 1975, Mansur, 1975, Merewether, 1975, Aebi, 1974, Henderson, 1973, Howe, 1973, Seiffert, 1972). Most authorities agree that the insertion of the hand causes the length of tubing to be shortened, thus raising the pitch of the F horn by one half step. It is important to note that handstopping the horn raises the B-flat horn more than a half step and no suitable fingerings will work to bring the pitch back to the original. There are, however, alternate fingerings which are possible for stopped notes in the upper register of the horn (Johnson, 1980 p. 33).

Historical Background

The history of the horn and horn playing has been documented in several sources. Two of the most comprehensive of these sources are the books by Bruchle and Janetzky (1976) and Fitzpatrick (1970). The Bruchle and Janetzky text is a pictorial history of the horn and it represents a monumental collection of photographs of horns, paintings, sculptures, concert programs, books, and manuscripts. Whereas the Pictorial History traces the history of the horn, the Fitzpatrick text gives a detailed description of the birth of horn technique and the early horn virtuoso players.

Another text worthy of mention is The French Horn, by Morley-Pegge (1973). This text presents the ancestry of both the horn and its technique. Texts by Tuckwell (1983), Gregory (1961), and a dissertation by Brown (1978) all contain excellent chapters about the history of the horn.

There is an almost unlimited number of articles pertaining to the history of the horn. Such a complete survey is out of the scope of this study. There are, however, several articles which are worthy of mention. Probably one of the most thorough of these is the article which appears in the New Grove Dictionary of Music and Musicians (Morley-Pegge, Hawkins, and Merewether, 1980). This article covers the history of the horn from its primitive forms to the modern double and triple horns. Schweikert, who is probably one of the foremost authorities on the history of the horn player in the United States, made an important contribution to the literature in his article about America's first important hornist (1971). In this article, Schweikert

documented the performances of early professional horn players. Another important source of historical information about the horn is the indexed bibliography of periodical articles by Agrell (1976, and 1979). Many of the articles in Agrell's bibliography appear in The Horn Call, the Journal of the International Horn Society. This Journal is recommended as a major source for locating any number of a large variety of articles pertaining to the horn and horn playing.

Literature

The most comprehensive source containing a list of horn literature and publishers is the Index of French Horn Music (Wilkins, 1978). This index and its supplements list works for horn and every combination of instruments with horn from horn methods and solos to horn with ten or more brass. The index also contains listings for horn and orchestra, horn and band, and vocal and choral music with horn.

Another source of horn literature is the Brass Players Guide (1987). This music catalogue is published by Robert King Music Sales, Incorporated and is revised annually. It contains listings of music available from King for all brass instruments and brass instrument combinations.

Brass Music Guide: Solo and Study Material in Print (Anderson and Campbell, 1984) is a extensive source of solo and study material for all brass instruments. Part One of the Guide lists etudes, excerpts, methods, and special studies for each brass instrument. The second part lists concertos and concertinos, sonatas and sonatinas, solos with band accompaniment, solos with orchestral accompaniment,

solos with piano accompaniment, and unaccompanied solos for each brass instrument. This is followed by a composer's index of all the repertoire included in the volume.

Although a comprehensive annotated list of horn literature is not available in a single source at this time, it would be a welcome addition to the literature available to music teachers. There are, however, several articles that have been published that contain a selected or partial listing of annotated music for horn. One such graded list was presented by Thomson (1962). This listing contains music for solo horn, ensembles, instructional materials, method books, orchestral excerpts, and small ensembles with horn. Thomson gives the composer, publisher, key, and range of each piece in this listing. Another author (Bergstone, 1973) listed solos, solo collections, method books, orchestral excerpts, and small ensembles with horn. In addition to giving the composer and publisher for each piece, this listing grades each piece as easy, medium, or difficult. A graded list of brass quintet repertoire was written by Kinney (1980). Kinney's list gives the title, composer, and publisher of each piece which has been classified in one of five grade classifications from easy to difficult.

A different approach to presenting articles about horn literature was taken by Hill (1979) and Klausmeier (1977). Hill chose to classify each piece for horn and piano by period. His categories include early music (Baroque, pre-Mozart), the Classical period (generally through the hand-horn period), the Romantic period (nineteenth century, or in that style), Post Romantic (late nineteenth

and early conservative twentieth century styles), conservative contemporary (neo-classic, quartal, etc.), and contemporary (newer techniques and effects through spacial and graphic notation, etc.). Klausmeier's article reviewed what she believed to be the top beginning horn method books available.

An evaluation of new music for horn is available in the "Music Reviews" of the Horn Call. These articles present discussions by major horn players and teachers about solo and ensemble music for the horn.

Seating the Horn(s) in Various Ensembles

The importance of correctly locating the horn section in an ensemble cannot be overemphasized (Norem, 1962). Because the bell of the horn points behind the player and to the right, the location of the horn section greatly effects the accoustical projection of these instruments and consequently the balance of the entire ensemble. Instrumental conductors should be aware of the advantages and disadvantages of each of the different seating possibilities available.

Many authorities advocate placing the horns in the center of the band, behind the woodwinds and adjacent to the saxes, which relate in tonality to the horn (Otto, 1971). The horns are often required to blend with the saxophones and lower woodwinds in certain passages. Placing the horn close to these instruments, which usually fill in the middle textures of the ensemble, helps to clear up many balance problems associated with these middle voices. Another suggestion is to place the horns to the right hand side of the conductor (Thomson,

1985). This seating is primarily used to tone down a section that plays with a particularly bright sound. The bells of the section are directed away from the audience.

The value of chamber music in the public school band program has been emphasized by several sources (Robinson, 1975, and Weerts, 1976). One author (Dackow, 1981) noted that the performance of chamber music represents the highest degree of sophistication in ensemble playing, and makes substantial technical demands on the individual players. The performance of chamber music requires each player to function as an individual, while at the same time contribute to a complex group sonority. Another author (Waln, 1962) even went as far as to say, "the training gained from playing in small ensembles is superior to that of large groups."

The horn lends itself to use in several chamber groups, the most popular being the woodwind quintet, the brass quintet, and the horn quartet. The instrumentation of a woodwind quintet consists of a flute, oboe, clarinet bassoon, and horn. The brass quintet utilizes two trumpets, a horn, trombone, and tuba. The horn quartet, though written for four horns, is frequently played by more than four horns with one or more of the parts being doubled.

Although there are several sources which address the problem of seating the horn section in larger ensembles, there are few sources which give seating arrangements for small chamber ensembles. The seating arrangement of the horn quartet usually presents no problems to conductors because the players are frequently arranged in an arc or

semicircle and appear in a similar position to their location in a large ensemble.

The largest problem facing brass quintets is the position of the horn (Kinney, 1980). Because the horn's bell points behind the player to the right, seating arrangements are determined by the accoustical projection of this instrument. In order to increase projection, the horn is positioned to the right of the ensemble (the audience's left). Decreasing projection of the horn may be a matter of moving the horn player to the other side of the ensemble.

Summary

A thorough review of the literature revealed that although there are several sources available which address the teaching of a college level horn techniques class in a heterogeneous setting, there is no method book available which approaches the instruction of a college level horn techniques class in a homogeneous setting. Research has shown that over a third of the colleges that offer these courses do so in a homogeneous setting (Huntley, 1975). Therefore a need exists for a method book which would fulfill the needs of the college horn techniques teacher. Such a method would serve: (1) as a text for a homogeneous class, (2) as a supplement to a text designed to teach horn in a heterogeneous setting, and (3) as a source book for horn students, horn teachers, and prospective and present instrumental music conductors. Although the method should emphasize teaching techniques, it should also provide students with musically stimulating playing examples.

Research of the competency-based approach to teaching music has been successfully applied to conducting (Madsen and Yarbrough, 1985), music therapy (Alley, 1980), music education (Rosenthal, 1985), and classroom skills and musicianship (Moore, 1963).

Thus, following a review of literature pertaining to performance or competency-based instruction and applications of this approach in music education, and the current method books for teaching brass and horn techniques, a college horn techniques book was written using the competency-based approach (see Appendix A). The book operationally defines cognitive, psychomotor, and pedagogical skills needed by prospective instrumental music educators to successfully teach and demonstrate horn techniques.

This method book was subsequently used in two horn techniques classes for undergraduate instrumental music educators at Louisiana State University School of Music. The first course was a pilot study; the second, benefited from improvements in both the text and the approach. The following chapter describes the approach in detail.

CHAPTER II

Procedures

Before the task of developing a competency-based approach to teaching horn techniques could be undertaken, specific cognitive, psychomotor, and pedagogical objectives had to be defined. Cognitive objectives were defined as abilities to recall important information about playing and teaching the horn. These abilities were determined from the review of literature pertaining to playing and teaching the horn and from the researcher's experience as a horn techniques class teacher. Cognitive objectives were assessed via four module quizzes and a comprehensive final exam (see Appendix C for copies of quizzes). Students were required to achieve an eighty percent criterion on each module quiz before being able to proceed to the next module. Achievement specifications for the cognitive final exam were also set at a minimum of eighty percent.

Psychomotor objectives were defined as abilities to demonstrate the fundamentals of playing the horn. These abilities included proper formation of the embouchure, proper breathing, buzzing with and without the mouthpiece, playing scales, arpeggios, and simple exercises and pieces on the horn.

Musical examples provided for demonstration of psychomotor abilities were chosen from different styles and periods and were considered to be both challenging and musically stimulating to college instrumental music majors. Representative composers of these musical examples included Lassus, Des Pres, Palestrina, Rameau, Mozart, Beethoven, Brahms, Schubert, Rossini, Haydn, Tchaikowsky, and Dvorak.

Psychomotor objectives were assessed by the instructor via classroom participation and a final playing exam at the end of the course. Students were heard individually by the instructor in ten minute time allocations. Test material consisted of scales (up to four sharps and flats, played one octave), a prepared selection determined by the instructor, and a prepared selection of each student's choice. Prepared selections were chosen from the music examples presented in the method book. Achievement specifications were set at a minimum of eighty percent. Scoring was determined as follows:

Scales--ten points

Prepared Selection (chosen by instructor)--ten points

Prepared Selection (chosen by each student)--ten points

Total possible points--thirty

Pedagogical objectives were defined as the ability to teach the horn. This included being able to examine and assess the achievement of pupils being taught by the prospective instrumental teacher in a microlesson. Pedagogical objectives were assessed by having each student teach a non brass player how to obtain a buzz and beginning tone on the horn. Additionally, each student was required to teach three ten-minute private microlessons to an intermediate level horn student in the local public school system. These microlessons were conducted after the six weeks period designated for class lecture and demonstration and were videotaped for observation at a later date. (For clarity, this study will refer to the college students who completed the horn techniques course as "students" and the

intermediate level horn students as "pupils"). Five pupils were solicited for this study with the help of their band directors. All pupils and students who participated in this study signed consent forms under the conditions that they could withdraw from the study at any time, that all names would be withheld, and the tapes would be erased after all observations made (see Appendix B).

Each student was assigned a pupil to teach on three separate occasions. Students were told that each lesson would be comprised of three parts: (1) present the original task (pretest), (2) present new task(s) (teaching), and (3) restate the original task (posttest). Students were instructed to pay close attention to errors in pitch, rhythm, tempo, articulation, phrasing, dynamics, and tone.

Music for the lessons was selected from the musical examples in the book (see Appendix A, College Horn Techniques, p. 73). Five pieces were selected with regards to difficulty, and style. Students were instructed to have each pupil play the legato exercise first. If the pupil played this first example in the pretest and posttest playings well enough to go on to another piece, each student was told to continue to another piece of greater difficulty. If the pupil had a very difficult time with the first piece and it seemed that the student and pupil were not getting anywhere, the student was instructed to continue to an easier piece. Students were cautioned not to try to work on all five pieces. The amount of music they were to work on depended on the performance ability of the pupil. All decisions concerning whether or not to continue to another piece were made by the student and not the researcher.

Development of Evaluation Forms

Three evaluation forms were developed for this study. One form was strictly an attitude evaluation form. The two remaining forms were designed to evaluate the videotaped lessons.

The performance evaluation form was an objective form used to evaluate the musical performance of the pupil. Different aspects of musical performance were divided into seven categories and were evaluated in fifteen second intervals for both the pretest and posttest. These categories included pitch, rhythm, tempo, articulation, phrasing, dynamics, and tone. Students were allowed ten seconds to observe behavior and five seconds to mark a category as being correct or incorrect. Correct and incorrect marks were then added up and recorded for the pretest and posttest. Each student was required to have a reliability observer and to participate as a reliability observer for each lesson (see Figure 1).

After performance evaluation forms were completed, students were told to evaluate their performance as teachers with the help of a pedagogical evaluation form. This objective form gave students an opportunity to score themselves in each of the three parts of the lesson. Students observed themselves performing the following pedagogical skills: (1) presenting tasks clearly, (2) giving reinforcement for correct responses, (3) analyzing incorrect responses, (4) presenting new tasks to modify incorrect responses, and (5) offering appropriate solutions for eliminating incorrect responses. These skills were scored from one to five (one being low and five being high) and added up by each student and a reliability

Figure 1. Performance Evaluation Form

NAME _____ DATE _____

SELECTION _____ RELIABILITY OBSERVER _____

PERFORMANCE EVALUATION

	Int.	Pitch	Rhythm	Tempo	Articulation	Phrasing	Dynamics	Tone
PRETEST	1	+	-	+	+	+	+	+
	2	+	+	+	+	+	+	+
	3	+	+	+	+	+	+	+
	4	+	+	+	+	+	+	+
	5	+	+	+	+	+	+	+
	6	+	+	+	+	+	+	+
	7	+	+	+	+	+	+	+
POSTTEST	8	+	+	+	+	+	+	+
	1	+	+	+	+	+	+	+
	2	+	+	+	+	+	+	+
	3	+	+	+	+	+	+	+
	4	+	+	+	+	+	+	+
	5	+	+	+	+	+	+	+
	6	+	+	+	+	+	+	+
	7	+	+	+	+	+	+	+
8	+	+	+	+	+	+	+	

Pretest:

Totals Pitch + - = % correct _____

Rhythm + - = % correct _____

Tempo + - = % correct _____

Articulation + - = % correct _____

Phrasing + - = % correct _____

Dynamics + - = % correct _____

Tone + - = % correct _____

Reliability Agreements - _____ Disagreements - _____

% Agreements - _____

Posttest:

Totals Pitch + - = % correct _____

Rhythm + - = % correct _____

Tempo + - = % correct _____

Articulation + - = % correct _____

Phrasing + - = % correct _____

Dynamics + - = % correct _____

Tone + - = % correct _____

Reliability Agreements - _____ Disagreements - _____

% Agreements - _____

observer. Each student was required to complete an evaluation form prior to each subsequent lesson with the intent that learning would take place and pedagogical skills would be improved in each subsequent lesson through observation (see Figure 2).

Reliability of the scores on the Performance Evaluation forms was determined by dividing the agreements by the sum of the agreements plus disagreements. The mean reliability score was .81. Reliability was calculated on the Pedagogical Evaluation forms by dividing the agreements by the sum of the agreements plus disagreements. The mean reliability score was .74.

An attitude evaluation form was developed to receive data about each student's attitude toward the book. Questions pertaining to the scope of the book and its presentation were scored on a scale from one to five. Students were also asked to rank the techniques class book with other techniques class books they may have used and write a few sentences about things they may have liked or disliked about the book (see Figure 3).

Development of the modules

Initial steps were undertaken to list objectives and group them as either cognitive, psychomotor, or pedagogical. These objectives were then grouped into four instructional modules. Once objectives were defined and grouped into modules, competencies were specified and criteria were set. Thus, the resulting instructional modules were formed.

Module 1 contained two objectives. The first objective was to learn specific techniques which would enable students to teach

Figure 2. Pedagogical Evaluation Form

Circle the number that best expresses your agreement or disagreement with each of the statements below (1 is low, 5 is high).

PRETEST (Present Original Task)

1. The original task was presented clearly. 1 2 3 4 5 NA
2. What was the most recurring incorrect response? (Refer to Performance Evaluation Form) _____
3. Student responses were correctly analyzed by the teacher. 1 2 3 4 5 NA
4. The teacher gave reinforcement for correct responses. 1 2 3 4 5 NA
5. The teacher offered appropriate solutions for eliminating incorrect responses. 1 2 3 4 5 NA

TEACHING (Present New Task(s))

6. The teacher presented new tasks clearly. 1 2 3 4 5 NA
7. New tasks were given to modify incorrect responses. 1 2 3 4 5 NA
8. New tasks were given to reinforce correct responses. 1 2 3 4 5 NA
9. The teacher avoided presenting too many new tasks. 1 2 3 4 5 NA
10. The teacher gave reinforcement for correct responses. 1 2 3 4 5 NA
11. Student responses were correctly analyzed by the teacher. 1 2 3 4 5 NA
12. The teacher offered appropriate solutions for eliminating incorrect responses. 1 2 3 4 5 NA

POSTTEST (Restate Original Task)

13. What was the most recurring incorrect response? (Refer to Performance Evaluation Form) _____
14. The teacher gave reinforcement for correct responses. 1 2 3 4 5 NA
15. The new task helped to eliminate problems found in the original student response. 1 2 3 4 5 NA
16. The teacher assigned new tasks for the student to work on for the next lesson which were appropriate solutions for eliminating the most frequent incorrect responses. 1 2 3 4 5 NA

SCORE

Add up all numerical values.

Your score _____ Reliability Observer's score _____

Your name _____ Reliability Observer's name _____

Figure 3. Attitude Evaluation Form

Circle the desired response from 1 through 5; 5 is high, 1 is low.

1. The method book demonstrates broad, accurate and up-to-date knowledge of subject matter.	1 2 3 4 5
2. The method relates the material of this course to practical application in a teaching environment.	1 2 3 4 5
3. Course objectives are reasonable in regard to time available, materials available, and student abilities.	1 2 3 4 5
4. The method presents information and/or skills which you believe important to professional training.	1 2 3 4 5
5. How well organized was the method book?	1 2 3 4 5
6. From your point of view, how adequately is instructional material covered?	1 2 3 4 5
7. Are the explanations of the different aspects of playing and teaching the horn clear and understandable?	1 2 3 4 5
8. How helpful is the method book in learning the subject matter?	1 2 3 4 5
9. How helpful were grade producing situation in gaining comprehension of course material?	1 2 3 4 5
10. In comparison with other minor instruments methods classes you have had, do you rate this method as being in the	1 2 3 4 5 NA
(1) bottom 10 % (2) bottom 30 % (3) average (4) top 30 % (5) top 10 % (NA) I have not taken any other minor instruments classes	
11. The musical examples presented in the method are stimulating and challenging.	1 2 3 4 5
12. In your opinion, the method effectively combined the cognitive, psychomotor, and pedagogical aspects of horn playing and teaching.	1 2 3 4 5
13. What things did you dislike about the method book?	
14. What things did you like about the method book?	
15. Would you recommend this method book to others having to take a horn techniques class?	YES/NO

beginning horn pupils the fundamentals of playing the horn. The second objective was to be able to successfully demonstrate these fundamentals to a horn pupil. The criteria which students would have to meet in order to successfully complete Module I were as follows: (1) students would have to be able to demonstrate the proper playing position (including right hand position in the bell), diaphragmatic breathing, function and formation of the embouchure, and correct fingerings for the practical range of the instrument; (2) students would be able to demonstrate acceptable knowledge of the subject matter by passing, with a score of 80 percent or better, an examination of the content; and (3) students would be able to demonstrate pedagogical abilities by teaching a non brass player how to obtain a buzz and beginning tone on the horn.

Module II contained four objectives. The first was to be able to select prospective horn students; the second, to be able to select the correct type and make of horn and mouthpiece for beginning, intermediate, and advanced students; the third was to be able to tune a horn effectively; and the final objective was to be able to demonstrate the fundamentals of playing the horn and musicianship to students. The criteria which students would have to meet in order to successfully complete Module II were as follows: (1) students would be able to demonstrate acceptable scales (up to four sharps and flats), long tones, and simple exercises and pieces on the horn; (2) students would be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 percent or better, an examination of the content.

Module III contained three objectives. The first objective was to learn specific techniques which would enable the student to successfully teach articulation and transposition to young horn students; the second, to learn specific techniques which would enable the student to successfully teach young horn students how to extend their range and increase their endurance; and the third objective was to be able to diagnose performance problems and offer suggestions for improved playing. The criteria which students would have to meet in order to complete Module III successfully were as follows: (1) students would divide into pairs and diagnose each other's performance problems, offering suggestions for improved playing; and (2) students would also be able to demonstrate acceptable knowledge of the subject matter by passing, with a score of 80 percent or better, an examination of the content.

Module IV contained two objectives. The first was to gain increased knowledge about miscellaneous aspects of horn teaching and playing such as mutes and terminology, historical background, literature, and seating the horn section in large ensembles and chamber ensembles; and the second, to be able to successfully teach beginning and intermediate level horn students. The criteria which students would have to meet in order to successfully complete Module IV were as follows: (1) students would be able to demonstrate acceptable knowledge of the subject matter by passing, with a score of 80 percent or better, an examination of the content; (2) students would be able to demonstrate acceptable knowledge of the subject matter by passing, with a score of 80 percent or better, a

comprehensive examination of the content in Modules I, II, III, and IV; (3) students would be able to demonstrate acceptable performance of specified fundamental exercises and pieces on the horn; and (4) students would be able to demonstrate acceptable teaching skills in three microteaching lessons.

Specific "enablers" were given for each module to aid students in achieving performance criteria. These enablers consisted largely of class lecture and demonstration. Additionally, role playing was conducted in Modules III and IV. Two evaluation forms were designed to assess the performances of both pupils and students. These forms would be used to observe a prerecorded videotaped microlesson, and to observe students' performance in role playing sessions in class. These forms would also be used to assess student competence in three microteaching lessons.

Applying the Competency-Based approach to a horn techniques class.

The College Horn Techniques text (see Appendix A) was used to teach two six-week horn techniques courses to instrumental music education majors at Louisiana State University School of Music. The classes, which were taught in a homogeneous setting, consisted of students who were in their second or third year of their degree program. The first course served as a pilot study. There were several revisions made to the design of the class following the pilot study. Most notably were a change in the pedagogical evaluation form (see Figure 4 for the original version of the form) and the addition of a prerecorded videotaped microlesson. The pedagogical evaluation form was changed to more accurately assign a score to the assessment.

Figure 4. Original Pedagogical Evaluation Form

Circle either Yes or No for each question below.

PRETEST (Present Original Task)

1. Was the original task presented clearly? Yes/No
2. What was the most recurring incorrect response? (Refer to Performance Evaluation Form) _____
3. Were student responses correctly analyzed by the teacher? Yes/No
4. Did the teacher give reinforcement for correct responses. Yes/No
5. Did the teacher offer appropriate solutions for eliminating incorrect responses? Yes/No

TEACHING (Present New Task(s))

6. Did the teacher present new tasks clearly? Yes/No
7. Were new tasks given to modify incorrect responses? Yes/No
8. Were new tasks given to reinforce correct responses? Yes/No
9. Did the teacher avoid presenting too many new tasks? Yes/No
10. Did the teacher give reinforcement for correct responses? Yes/No
11. Were student responses correctly analyzed by the teacher? Yes/No
12. Did the teacher offer appropriate solutions for eliminating incorrect responses? Yes/No

POSTTEST (Restate Original Task)

13. What was the most recurring incorrect response? (Refer to Performance Evaluation Form) _____
14. Did the teacher give reinforcement for correct responses? Yes/No
15. Did the new task help to eliminate problems found in the original student response? Yes/No
16. Did the teacher assign new tasks for the student to work on for the next lesson which were appropriate solutions for eliminating the most frequent incorrect responses? Yes/No

Score one point for each yes answer.

Your Score _____ Reliability Observer's Score _____

Your Name _____ Reliability Observer's Name _____

"Yes/No" answers were changed and students were able to score each question on a scale from one to five; one being the lowest possible score and five being the highest possible score. Because of an extremely low reliability score on the evaluations of the microlessons in the pilot study, a prerecorded videotaped lesson was added as an "enabler" to the class lecture and demonstration for Module III. This lesson was reviewed by students to teach them the fundamentals of observation and assessment. The data from the pilot study was not retained, thus, the remaining part of this study will deal with the data from the second class.

The second class had five students. Three of the students specialized in brass instruments. The two remaining students were percussionists and had no formal training on any wind instrument prior to this class. The first class period was designed to orient students to the competency-based approach. Course objectives were presented and specified criteria for completing course requirements were given at this time. Each student was assigned a school-owned instrument to use throughout the duration of the course. Additionally, students were given a syllabus containing grading procedures and a suggested time schedule for completing course requirements (see Appendix C for syllabus and Module Quizzes). Students were informed that they would teach three microlessons to an intermediate level horn pupil taken from the local school system. Classes then continued three days a week for the next six weeks. Upon completion of Module I, students were required to teach a non brass student how to obtain a buzz and acceptable tone on the horn. Course content and class lecture

emphasized teaching techniques. At least fifteen minutes of each class period was reserved for developing psychomotor skills.

Students began role playing in class during Module III by dividing into pairs and diagnosing each other's performance problems. They also observed a prerecorded videotaped microlesson and applied evaluation forms to this tape.

Upon completion of Module IV, students taught three microlessons to an intermediate level horn student. Fifteen minutes before microlessons were to take place, students set up videotape equipment to be used to record microlessons.

Videotapes were made using a Sony Trinitron Color Video Camera (model HVC-2800), a Sony camera adaptor cable (CMA-1010A), a Sony Electret Condenser Microphone (ECM-K100), a JVC Color Video Cassette Recorder (HR-2650U), a JVC AC power adaptor (AA P264), and a Challenger (DGM/H4) tripod.

CHAPTER III

Results

The purpose of this study was to develop a competency-based approach to teaching a college-level horn techniques course in a homogeneous setting. Five students were taught horn techniques using College Horn Techniques (see Appendix A). Students demonstrated the achievement of competency levels in three categories: cognitive, psychomotor, and pedagogical. All students met specified criteria within six weeks. All microlessons and observation forms were completed within four weeks after completing the course.

Data were collected from the scores of the four cognitive module quizzes, one cognitive final exam, a psychomotor performance exam, and two observation forms--Performance Evaluation form and Pedagogical Evaluation form. One other dependent variable was used--an Evaluation of College Horn Techniques was completed by each student to determine student attitude toward the text.

Student's module tests were analyzed for percentage of "correct" marks. All students were required to score 80 percent criterion before proceeding to the next module. All five students scored above 80 percent on their first module test and were allowed to proceed to Module II. The lowest score was 80 percent. The highest score was 92 percent. The mean score for all five students was 83 percent. One of the five students failed to score an 80 percent on the Module II quiz and was required to retake the quiz during the following class period. The highest score on the quiz was 100 percent, the lowest score was 75 percent, and the mean score was 88 percent. The student who had to

retake the quiz scored 100 percent on his second try and was then allowed to proceed to Module III. Three of the five students failed to score 80 percent on the third module quiz. The high score was 100 percent, the low score was 62 percent, and the mean score was 77 percent. All three of the retakes scored above an 80 percent during the next class period and were allowed to proceed to Module IV. All five students scored above 80 percent on the fourth module quiz. The high score was 100 percent, the low score was 87 percent, and the mean score was 95 percent. All five students scored above an 80 percent on the final comprehensive cognitive exam. The high score was 98 percent, the low score was 81 percent, and the mean score was 90 percent (see Table 1).

All five students achieved competency levels on the psychomotor final exam. The highest score was 97 percent. The lowest score was an 80 percent. The mean score was 88.5 percent.

Table 1
Percentages of Cognitive Competencies Achieved

Student	Module I	(Retake) II	(Retake) III	(Retake) IV	Final Comprehensive Exam
1	84	92	100	100	98
2	92	75 (100)	85	100	90
3	88	92	69 (100)	100	88
4	80	92	69 (92)	87	93
5	80	100	62 (92)	87	81
Mean Score	83	88 (100)	77 (94.6)	94.8	90

Achievement specifications for teaching a non brass player how to produce a buzz and beginning tone on the horn were set at "pass" or "fail." All five students were able to successfully perform the designated task and were given a "pass" grade.

Student and reliability observer scores from the Pedagogical Evaluation forms were totaled and averaged to determine if students met established competency levels in the microlessons. None of the five students achieved a competency level of 80 percent or better on the first videotape. The highest mean percentage score was 77.9 percent. The lowest mean percentage score was 62.1 percent. The mean percentage score of all five students on the first videotaped microlesson was 68 percent. The scores from the second videotaped microlesson showed some improvement. Only one of the five students scored a mean percentage score above 80 percent. The highest mean percentage score was 82.1 percent. The lowest mean percentage score was 75 percent. The mean percentage score of all five students on the second videotaped microlesson was 77.5 percent, which was nearly ten percentage points higher than the mean percentage score of the first microlesson. All five students scored a mean percentage score above 80 percent on the final videotaped microlesson. The highest mean percentage score was 91.5 percent. The lowest mean percentage score was 80.0 percent. The mean percentage score of all five students on the final videotaped microlesson was 84.0 percent (see Table 2).

Table 2
Mean Percentages of Pedagogical Competencies Achieved

Student	Established Criteria	Baseline Competency (First Videotape)	Competency Level Achieved (Final Videotape)
A	80%	62.1%	80.0%
B	80%	70.0%	82.3%
C	80%	64.3%	83.0%
D	80%	65.7%	83.1%
E	80%	77.9%	91.5%

Mean percentages of correct pupils' responses on the Performance Evaluation forms were calculated in each category of musical performance for pretests and posttests. Pretest scores were then subtracted from posttest scores to determine if any gains or losses were made between tests. Mean scores for the first microlesson showed the highest gains made in tempo (+22.2), followed by phrasing (+14.8), rhythm (+11.7), dynamics (+11.6), and tone (+2.5). A loss occurred in pitch (-15.5) and articulation (-20.9).

The highest gains for the second microlesson were also made in tempo (+40.2). Other gains occurred in rhythm (+35.6), phrasing (+24), dynamics (+13.8), articulation (+7.5), and pitch (+4.3). The only percentage loss between pretest and posttest in this microlesson occurred in tone (-1.2).

Mean scores for the third microlesson showed the highest gains in articulation (+26.3), followed by rhythm (+22.3), tempo (+14.3), pitch

Table 3

Mean Percentages of Correct Pupils' Responses and Gains From Pretests and Posttests

Category	Microlesson 1			Microlesson 2			Microlesson 3		
	Pretest	Posttest	Gain/Loss	Pretest	Posttest	Gain/Loss	Pretest	Posttest	Gain/Loss
Pitch	43.8	28.3	-15.5	42.9	47.2	+4.3	25.9	34.6	+8.7
Rhythm	31.1	42.8	+11.7	27.9	63.5	+35.6	47.1	69.4	+22.3
Tempo	48.3	71.5	+22.2	31.4	71.6	+40.2	47.6	61.9	+14.3
Articulation	81.3	60.4	-20.9	61.9	69.4	+7.5	53.6	79.9	+26.3
Phrasing	57.5	72.3	+14.8	54.6	78.6	+24.0	86.7	82.5	-4.2
Dynamics	8.0	19.6	+11.6	31.6	45.4	+13.8	30.0	25.8	-4.2
Tone	58.6	61.1	+2.5	44.5	43.3	-1.2	64.5	67.0	+2.5

(+8.7), and tone (+2.5). Losses were observed in both phrasing (-4.2) and dynamics (-4.2) (see Table 3).

Mean percentage of correct pupils' responses from the pretest of the first microlesson were compared to the mean percentage of correct responses from the posttest of the third microlesson. The largest gains were made in rhythm (+38.3), followed by phrasing (+25.0), dynamics (+17.8), tempo (+13.6), and tone (+8.4). Losses were observed in articulation (-1.4) and pitch (-9.2) (see Table 4).

Scores from the Attitude Evaluation Form were totaled and given percentages.

Table 4
Mean Percentage of Pupils' Gains From Pre First Microlesson to Post Third Microlesson

Category	Pre First	Post Third	Gain/Loss
Pitch	43.8	34.6	-9.2
Rhythm	31.1	69.4	+38.3
Tempo	48.3	61.9	+13.6
Articulation	81.3	79.9	-1.4
Phrasing	57.5	82.5	+25.0
Dynamics	8.0	25.8	+17.8
Tone	58.6	67.0	+8.4

Student attitude toward the text was generally favorable. The text received favorable percentage scores ranging from 80 percent to 95 percent. The mean percentage score was 90 percent.

Item thirteen on the evaluation form asked students to list anything that they disliked about the text. The following are the student's answers to item thirteen:

Some sections might be difficult to grasp based only on the information in the text (ie formation of embouchure).

Needs more illustrations of embouchure [and] faulty playing habits.

Item fourteen asked students to list things they especially liked about the text. These comments were as follows:

Topics were covered in as concise a manner as possible without digressing into unnecessary information.

I liked the organized presentation of the material.

It was concise and informative.

Presents basics clearly and in an understandable format.

It was quite well organized.

Item fifteen asked students if they would recommend this text to others having to take a horn techniques class. All five students responded with a "yes" answer.

CHAPTER IV

Discussion

Results from this study indicated that College Horn Techniques was an effective text for teaching horn techniques to instrumental music education majors. Moreover, results showed that the competency-based approach was an effective method of teaching horn techniques. Data showed that students did efficiently change their teaching skills by observing themselves via videotape and by taking data through systematic observation.

Although the scope of this study was to determine if self assessment and systematic evaluation would effectively change student/pupil behavior, it was interesting to observe the effect this approach had on pupil behavior. The data indicated that pupils actually realized a loss in pitch accuracy from the pretest of microlesson one to the posttest of the final microlesson. Thus, the data would seem to confirm what many horn teachers already know; that pitch accuracy is the most difficult musical aspect that young horn students will have to learn. Additionally, the data seems to suggest that rhythmic accuracy is the easiest musical aspect that young students will have to acquire. Unfortunately, there were too many variables left uncontrolled in this study to make such assumptions with confidence. It may be that students were able to detect errors in rhythmic accuracy more readily than errors in pitch accuracy, and thus spent more time trying to improve rhythmic deficiencies. Data from the first two microlessons would seem to confirm this because

pretest scores were at least ten percentage points lower in rhythmic accuracy than in pitch accuracy.

A comparison of College Horn Techniques with other leading method books available for a heterogeneous brass class shows that College Horn Techniques is more comprehensive than the methods currently being used to teach horn techniques classes. Learning to Teach Through Playing (Mueller, 1968), which was found to be the most widely used method book available (Huntley, 1975) lacks information pertaining to selection of students, proper care and maintenance procedures, makes and models of horns, and tuning the horn. These topics, which are considered essential to teaching the horn, are covered thoroughly in College Horn Techniques. Five other method books available for use in a brass techniques class, Guide to Teaching Brass (Hunt, 1968), Brass Ensemble Method (Hunt, 1968), Playing and Teaching Brass Instruments (Winslow and Green, 1961), The Brass Instruments (Winter, 1969), and Brass Ensemble Method for Music Educators (Zorn, 1977), all lack important information that is considered essential to teaching horn effectively. Common topics omitted from these books include information about muting, stopped horn, transposition, literature, and types and models of horns. More importantly, however, is the fact that although these method books contain accurate information about cognitive and psychomotor concepts of the horn, they lack pedagogical considerations that music educators may face on a daily basis. College Horn Techniques fills this important void with a large section on diagnosing performance problems. Moreover, the competency-based

design of the book and teaching method recommended requires students to investigate and demonstrate teaching techniques which may provide them with the first "hands on" teaching experience of their teacher training program.

College Horn Techniques may also serve as a supplement to a brass class taught in a heterogeneous setting or as a source book for horn students, horn teachers, and prospective or present instrumental music teachers. The method also demonstrated its effective use for teaching a course which may not provide a sufficient amount of class time on each instrument. This study was completed in ten weeks. Class time was limited to three one-hour classes per week for a six week period. Four additional weeks were used to teach microlessons and assess student performance via evaluation forms.

Results from this study and previous research in competency-based instruction indicated that this approach would be an effective method of teaching other secondary instrument courses, either in a homogeneous or a heterogeneous setting. Additional research updating the data found in Huntley's survey of 1976 is needed to determine how these classes are presently being taught and what is the current ratio of homogeneous class settings to heterogeneous class settings. A replication of this study in a heterogeneous class setting may reveal more statistically significant student gains because of a larger number of subjects. Another suggestion for additional research is to mix verbal "observe" and "record" cues into the videotape sound track. This would eliminate some of the guesswork of knowing exactly when to

begin and end timed intervals during repeated observations of the same tape, thus improving observer reliability.

The importance of obtaining input from existing instrumental educators cannot be overemphasized. The data provided by these teachers would help researchers pinpoint deficiencies in teacher training programs. Data may be obtained via a survey. Teachers would be asked to identify gaps in their knowledge of a particular instrument or weakness in their teaching ability that they feel could be attributed to inadequate training on that particular instrument. Thus, criteria could be set in future instrumental techniques courses that would strengthen competence levels for that particular instrument.

The results of the study are meaningful not only in the fact that they represent supportive data for previous research in behavioral assessment through self-observation, but that this methodology has a place in applied musical areas. Traditionally, applied instruction is given through the advice and guidance of a distinguished artist-performer. In far too many instances, these great performers are not proficient at teaching their craft. Additional research examining competency-based methodology should continue in applied musical areas.

APPENDIX A

COLLEGE HORN TECHNIQUES

A Competency-Based Approach for Developing Cognitive,
Pedagogical, and Psychomotor Skills
Used in Instrumental Teaching

by

Kevin M. Andry

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INTRODUCTION

College Horn Techniques was developed to fill a need for a method to teach horn techniques in a homogeneous class. Although this book was designed for use in a homogeneous setting, its use as a supplementary text in a heterogeneous class would prove to be quite beneficial.

Unlike traditional techniques courses, which emphasize course completion as a sufficient condition for passing the class, this method emphasizes demonstrated performance of specific cognitive, psychomotor, and pedagogical skills as the main criteria for passing the class. This competency-based approach to teaching horn techniques is intended to develop specifically described knowledge, skills, and behaviors that will enable a teacher to meet performance criteria as an instrumental music teacher.

Upon completion of all required competencies, each student will assess College Horn Techniques by completing an attitude evaluation form. This allows each student to give feedback and offer input for future classes.

Module 1

Objectives:

1. To learn specific techniques which will enable students to teach beginning horn students the fundamentals of playing the horn.
2. To be able to successfully demonstrate the fundamentals of playing the horn to a beginning horn student.

Competencies:

1. Students will be able to demonstrate the following skills:
 - a. proper playing position (including r/h position in bell)
 - b. diaphragmatic breathing
 - c. function and formation of the embouchure
 - d. correct fingerings (practical range)
2. Students will be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 % or better, an inclass examination of the content in Module I.
3. Teach a non brass player how to obtain a buzz and beginning tone on the horn.

Enablers:

1. Class lecture--demonstration

Correct Breathing

Although the horn is considered a wind instrument, many students fail to realize the amount of wind needed to produce and maintain a quality horn tone. A quality horn tone can only be produced by proper inhalation and exhalation. The correct procedure for proper breathing is called diaphragmatic breathing. The diaphragm muscle, as the name implies, has much to do with this breathing process. There is, however, another important set of muscles which are crucial to proper breathing, the intercostal muscles. These muscles control the expanding and contracting of the lower ribs.

The correct inhalation procedure results in the diaphragm expanding downward, and the intercostals expanding the ribs outward. Exhalation is the process by which these muscles return to their original position in a controlled manner. For a more descriptive and anatomical description of diaphragmatic breathing, see Philip Farkas' chapter on Breath Control in his book, The Art of Brass Playing.

The explanation of the mechanics of diaphragmatic breathing can prove to be quite confusing to very young students. Many teachers confuse the matter even more by additionally presenting the student with too much information. It is important to get the students to relax and to remember that breathing is something that occurs naturally, that they have been breathing correctly since birth, and that they must learn to expand this natural process. The only difference between natural breathing and the breath control required to play the horn, is that now they will have to inhale vast quantities of air quickly and exhale the air in a controlled process.

The following explanation eliminates much of the technical terminology which confuses young students. Explain to the student that the largest expansion will take place in the lower chest and abdomen. The student should think of filling his lungs with air much in the same way he would fill a glass with water--from the bottom to the top. Have the student inhale as if he were going to yell at someone across a field. Make sure the shoulders remain relaxed and the throat remains open. Now have the student inhale again and place the thumbs and fingers of both hands around his body at the lowest rib. Have him note where expansion takes place. Have the student cough while his fingers are still around his body. The student should now have an understanding as to which muscles are being used during the inhaling and exhaling process. Now have the student inhale quickly and exhale a steady stream of air for four seconds, making sure all air is exhaled within the four second time period. Have the student practice this simple exercise and gradually add more time to the exhalation process. This will aid in sustaining the air stream.

Certain areas to watch:

- ___ Make sure the shoulders are not raised during the inhalation.
- ___ The largest expansion should be around the lower chest and abdomen
- ___ Inhalation should take place through the mouth, not through the nose.
- ___ Avoid any tension in the shoulders, arms, chest, or throat.

Embouchure

What do learning to ride a bicycle and learning to produce a tone on the horn have in common? Both are motor skills which are learned best through the nonverbal process of imitation. In both cases, the student must first develop a proper mental image of the end product. The young child learning to ride a bicycle initially develops a mental image by observing someone else rideing a bicycle. This focus is on the total process, not on its individual parts. Once this image is realized, the child then learns through trial-and-error experimentation how to ride the bicycle. This process may be enhanced by having someone around to give positive reinforcement and occasionally diagnose performance problems and offer solutions to these problems. Too much verbal interference, however, may frustrate the child and hinder the learning process.

The imitative method is also a viable approach to teaching a young student how to produce a tone on the horn. The student develops a mental image through visual and aural stimuli presented by the teacher via a demonstration. The focus should be on the total process, the gestalt, and not on its individual parts. Once the mental image is realized, the student learns through trial-and-error experimentation and lots of positive reinforcement from the teacher. Young students do not need to know the intricate details of how their body functions during performance. The teacher, however, does need to know and understand this information as an aid to an accurate diagnosis of performance problems.

The two most basic sound producing elements of an instrument are the vibrating mechanism and the element that sets that mechanism in motion. The reed and air, or breath are these elements in a woodwind instrument. The lips and the air, or breath are the sound producing elements on a horn or any other brass instrument. The vibrating medium (the lips) is set in motion by the steady stream of air.

The correct formation of the lips should be what Philip Farkas calls the "puckered smile" (1956). This position is easily explained to students by having them pronounce the syllable "em." At this point the upper and lower teeth should be apart and the lips should be fairly even. The next step is to firm the corners of the mouth, pucker the lips slightly, and draw the chin muscles downward. Once the basic muscles of the embouchure can be formed, students should try to establish a buzz on the mouthpiece. Most beginning students find it difficult to establish a buzz without the aid of a mouthpiece. The mouthpiece placement for the horn is with $\frac{2}{3}$ upper lip and $\frac{1}{3}$ lower lip within the rim of the mouthpiece. When teaching this to beginners, have the student position the mouthpiece to his bottom lip as if he were going to sip water out of it and then bring it up to his top lip. This position can be checked by using a mouthpiece rim. If no mouthpiece rim is available, the ring on the second valve slide can be substituted for one (see illustration 1).

Illustration 1. Mouthpiece Placement on Lips



To produce the buzz on the mouthpiece, have the student inhale a full breath of air, moisten his lips, form the embouchure, and buzz. Moist lips allow the lips to vibrate more readily than dry lips, and additionally aid in tone production and flexibility. If the above procedures were done correctly, the lips should vibrate. The opening between the vibrating lips is called the aperture. If the lips do not vibrate, have the student pretend to spit a hair off the tip of the tongue. This method frequently works when all others fail. The only drawback with using this method, however, is that the student may think that the tone is produced by the tongue and not by the air stream. Remember, it is important to offer lots of positive reinforcement and avoid presenting the student with too much information.

Once a good buzz is obtained on the mouthpiece, students should be encouraged to practice buzzing without the mouthpiece. Although it may take a few weeks for students to learn to buzz without the mouthpiece, it is one of the more accurate methods of making sure the embouchure muscles are functioning in a correct manner. The teacher

should observe the following checkpoints to determine if the buzz is being obtained properly:

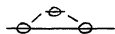
- ___ No pockets of air between the cheeks and the teeth or between the teeth and lips.
- ___ The teeth should be kept apart at all times.
- ___ The chin should be pointed downward.
- ___ The corners should be firm with no air escaping.
- ___ The teeth should be parallel with each other. Check the air stream with your hand. If the air stream is moving straight forward, the lips and teeth are even; if it goes down toward the chin, move the jaw forward and downward, pointing the chin.

Once a single tone can be sustained on a mouthpiece, the student is ready to produce various pitches on the mouthpiece. This is where the student first learns the function and importance of the aperture. A higher note will require a smaller aperture, and a faster velocity of air stream. A lower note requires a larger aperture, slower velocity of air speed, and larger volumes of air.

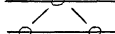
When teaching this to young students, explain that the aperture size can be varied by relaxing or contracting the muscles within the mouthpiece. One good method of pointing out these muscles is to have the student place the eraser end of a pencil in the aperture, but not between the teeth. The muscles which keep the pencil from falling out are the ones which control the aperture.

Buzz multiple tones:

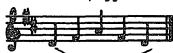
1. Buzzing higher



3. Buzz glissandos



5. Buzz arpeggios



2. Buzzing lower



4. Buzz scales



It is strongly suggested to follow the above procedures when starting beginners. Many students want to jump right in and start playing "songs" on their instrument without first mastering the basic fundamentals of correctly producing a tone. It is the responsibility of the teacher to make this early part of learning fun and exciting.

Playing Position

Most authorities agree that beginners should sit while playing in order to get the correct hand and lip position. Students should sit forward and erect in the chair with shoulders relaxed, and the weight of the upper body slightly forward. Both feet should be flat on the floor. The horn's valves are operated by the fingers of the left hand. Most single horns are equipped with both a thumb grip and a little finger grip. Double horns substitute the thumb grip with the thumb valve or trigger. The rim of the bell should rest on the outside of the right thigh without pointing the bell into the body or clothing. This method puts most of the weight of the horn on the player's right thigh and gives the whole body a more relaxed attitude.

The right hand position is crucial to horn playing. First, and most obviously, the right hand helps to hold the horn. Second, the placement of the right hand in the bell helps establish the characteristic horn tone. Third, most horns are pitched up to a quarter tone sharp by the manufacturer, consequently the insertion of the hand in the bell helps compensate this pitch discrepancy. The right hand is also used to adjust pitch while the horn is being played. The pitch can be lowered by slightly closing the opening of the bell and can be raised by a slight opening of the hand in the bell. Fourth, the hand is used to direct the sound away from the body and towards the floor. Finally, the right hand is utilized to produce special effects such as stopped horn, echo horn, and vibrato.

The right hand position is governed by three main considerations: (1) the size of the hand, (2) how it is held in the bell, and (3) how far it is inserted into the bell. The right hand is held flat with the fingers together and slightly cupped in the same way that the hand would be held while giving a hand shake or while swimming. The thumb should lie along the edge of the first finger. Insert the hand with the little finger nearest the ground, making sure that only the backs of the fingers, the knuckles, and the top of the thumb touch metal. The palm of the hand should be able to pivot open and closed by keeping the backs of the fingers against the bell and swinging the palm inward at the knuckles.

The distance which the hand is inserted is decided by judgment. A good rule of thumb is to insert the hand until the knuckle of the thumb, which is resting on the edge of the fingers, touches metal.

Note that a hand that is inserted in too far will cause the tone to be dark and muffled. A hand that is not inserted far enough will produce a bright tone with pitch problems.

It is very important that the student hold the horn in a manner that brings the mouthpiece correctly to the lips, or embouchure. If the student has to bend his body in an awkward position to reach the mouthpiece, his breathing will suffer and he may develop a poor embouchure. A problem can possibly arise with very small students when they hold the horn in the proper playing position and the mouthpiece strikes them somewhere in the vicinity of the forehead. This problem can be cured by having the student move his right foot back until his leg drops and the mouthpiece meets the lips. Once a comfortable position is located, it must be maintained in order to keep a relaxed playing position that will not restrict breathing and cause embouchure problems.

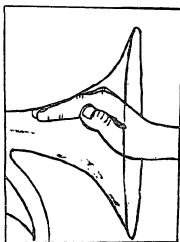
Students should be required to practice while standing when they are old and strong enough to do so. Standing promotes better deep breathing, helps to eliminate nerve problems, eliminates the awkward feeling caused by a chair of the wrong height, and demonstrates showmanship during solo playing. The only major difference in the right hand position when standing is that the hand will not be held as vertical as when the horn was held on the thigh. This compensates for the weight of the horn now having to be held with the knuckles of the thumb and index finger. When this position is imitated in a sitting position, the rim of the bell rests entirely off the leg, thus improving projection.

Illustrations 2 and 3 demonstrate the correct playing position while sitting, the correct playing position while standing, and the correct right hand position in the bell.

Illustration 2. Correct Playing Positions Seated and Standing



Illustration 3. Correct Hand Position



the other valves have the same effect on the B flat fundamental as they had on the F fundamental. The horn player need not concern himself about transposing fingerings from the F to the B flat side. He merely memorizes the fingerings and learns to use both sides of the horn to his advantage. The following diagram illustrates the function of the valves on the horn.

F Horn



2nd horn
horn

open

The image shows a handwritten musical score for a 2nd horn part. It consists of six staves of music, each with a treble clef and a key signature of one flat (B-flat). The notes are written in a simple, handwritten style. The first staff is labeled 'open' and the second staff is labeled '2'. The third staff is labeled '1'. The fourth staff is labeled '1-2 (3)'. The fifth staff is labeled '2-3'. The sixth staff is labeled '1-3'. The music is written in a single system, with each staff containing a series of notes and rests.

The following fingering chart gives the preferred and alternate fingerings for the F, the B flat, and the F, B flat double horn.

F Horn

F Horn

F Horn

F Horn

F Horn

When teaching double horn fingerings it is important to note that there is no set rule which governs where to switch from the F horn to the B flat horn. A general rule of thumb which is accepted by many horn players and teachers is diagramed as follows.



This trill normally would have to be lip trilled on the F horn with a one and three finger combination. A lip trill is a method of trilling on a brass instrument by keeping the same valve combination or slide position and trilling from one note to the other by no other means than the lip. This technique is quite difficult and can be done by advanced players only. In this case the trill can be executed easily on the B flat side of the horn by fingering the B first valve and the A open.

Another fingering problem which involves young players on a single F horn is illustrated in the following:



Because all three notes are fingered open on the F horn, the player would have to slur all three notes by the use of embouchure and breath. By using the first valve as an alternate fingering for the D, the horn player can place the note more accurately without sliding around in the harmonic series.

Horn Maintenance

Proper care and maintenance of the horn is probably one of the more important topics covered in this course. An instrumental program that stresses instrument care and maintenance will reap many rewards because of the money it saves on instrument repairs and overhauls. Teachers must make students aware that taking care of instruments is more than just avoiding dents and scratches. The following is an outline of the correct procedures for repairing and maintaining the horn.

- I. Getting Students to take care of instruments.
 - A. Hold a care and maintenance seminar at the beginning of each school year and teach proper care and maintenance techniques.
 - B. Hold inspections throughout the year to check instruments. Use some sort of merit or credit system as positive reinforcement for those students who keep their instruments in top working condition.
 - C. The following requirements should be observed by all students
 1. Clean hands and teeth before playing the horn
 2. Store the instrument properly
 3. Take care to avoid dents and scratches
 4. Avoid exposing the instrument to extreme heat or cold, dust and dirt, or other possible sources of damage
- II. Lubrication
 - A. Rotary valves must be kept lubricated at all times.
 - B. There are three places that require lubrication on each valve.
 1. Put one or two drops of a commercial valve oil or kerosine on the rotors after unscrewing the caps. This must be done once or twice weekly, depending on how fast the lubricant evaporates.
 2. Put a drop of a heavier household oil or key oil on the rotor located on the underside of the valve in the little space between the axle and its bearing. This can be done about once a week because the heavier oil will not evaporate as quickly as valve oil.
 3. Once a week, pull thumb slide or first valve slide and drop ten to fifteen drops of commercial valve oil or kerosine down the slide and work rotors. This lubricates the inside of the rotors.
 - C. Lubricating slides
 1. Do not use vaseline on the slides. Vaseline melts at a relatively low temperature and makes slides so slippery that slides may wander from their original setting. The vaseline may also work its way down into the rotors and cause the valves to be very sluggish.
 2. Use a commercial product designed not to melt at low temperatures. Farkas suggests the use of small amounts of gun grease, but he warns, "Use any grease sparingly, so that none will work into the tubes and thus eventually into the valves" (Farkas, 1956)
 - D. Stuck slides or valves
 1. Apply penetrating oil to stuck slides. Allow to sit overnight and then try to remove the slide carefully by hand. Do not use any mechanical means. Repeat this process two or three times on a stubborn slide and if it still cannot be removed, seek professional help.
 2. For sluggish or stuck valves, use pure odorless kerosene. Remove all slides leading to rotory valves. Hold the horn bell up and empty a full dropper of kerosene down into each valve. Continue to hold the bell up and work the valves until they move freely, then empty the kerosene as you would water. Note: for extremely sluggish valves the

kerosene can be allowed to sit in the valve for several hours.

3. The problem of noisy valves can be remedied by putting a drop of a heavy oil (sewing machine oil or household oil) on the bearing. Do not use heavy oil on the interior of the valves for they will gum up.
- III. Replacing strings and bumper pads.
- A. Replacing bumper pads
 1. Older horns used corks for bumper pads, but corks deteriorate too quickly. Today's manufacturers use a neoprene rubber pad that lasts longer than cork, but still needs to be replaced occasionally. When these pads do deteriorate, the valve becomes disaligned with the ports (the tube openings in the valve casings). These pads can be obtained in strips, which can be cut to fit the bumper stop on the bottom of the valve casing. When the pads are in place, take off the valve cap and observe whether the little notches on the rotor and inner valve cap line up perfectly with the valve both closed and open (see illus. 4). The pads can be trimmed with a small razor blade if they are a bit too large.
 - B. Replacing strings
 1. Keep a supply of pre-cut strings on hand. A few yards of 40 pound test-strength nylon or linen fishing line will be enough to last for years. Plastic lines stretch and narrower lines will have a tendency to cut into valve posts.
 2. Thread the string as in Illustration 5 by first tying a knot in one end and slipping the string through the hole in the valve string on the end away from the screw. Continue by threading the string around the screw on the stop arm and around the valve post. Slip the string through the remaining hole in the valve stem and around the screw. Secure both ends by tightening the screw on the valve stem. The position of the valve key can be adjusted to a comfortable position by holding the valve in position and tightening the screw on the stop arm.
- IV. Cleaning the Inside of the Horn
- A. Run a flexible cleaning brush through the leadpipe at least every two weeks. These brushes can be obtained at any local music store and although they are usually made for the trumpet on cornet, they work quite well on the horn.
 - B. Remove the mouthpiece and the tuning slide closest to the mouthpiece end of the horn. Drop a few drops of valve oil down the leadpipe to lubricate it and run the brush through the leadpipe.
 - C. If this procedure is repeated every two weeks, it is not necessary to clean the tubing beyond the leadpipe.
 - D. Clean the mouthpiece weekly with a mouthpiece brush.
- V. Repair Kit
- A. Students should be required to carry a simple repair kit with their horns at all times. It is important to develop good habits early.

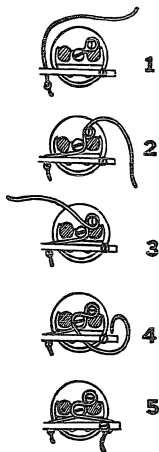
- B. The following items should be carried in a small cloth bag or another suitable container:
1. A bottle of valve oil
 2. Tiny jar of slide grease
 3. A few pre-cut rubber pads (supplied by the conductor)
 4. A few pre-cut strings (also supplied by the conductor)
 5. Small screwdriver

Illustration 4. Valve Alignment

correct



incorrect

Illustration 5. Restraining Strings

Module II

Objectives:

1. To be able to select prospective horn students.
2. To be able to select the correct type and make of horn and mouthpiece for beginning, intermediate, and advanced students.
3. To be able to effectively tune a horn.
4. To be able to demonstrate fundamentals of playing the horn and musicianship to students.

Competencies:

1. Students will be able to demonstrate acceptable scales (up to four sharps and flats), long tones, and simple exercises and pieces on the horn.
2. Students will be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 % or better, an inclass examination of the content in Module II.

Enablers:

1. Class lecture--demonstration

Selection of Students

Because of the difficulties inherent of the horn, some teachers advocate starting beginners on other instruments and switching them over to the horn after they have learned the basic fundamentals of playing on the easier instrument. Still, there are other teachers who have had much success starting students on the horn from the very beginning. Some of the reasons for their success can be attributed to the fact that they follow certain guidelines when selecting their beginning horn students.

The first of these important qualities that a knowledgeable teacher will look for is the student's desire to play the horn. A student will probably be less likely to discontinue the study of an instrument he sincerely wants to learn to play. A second quality to look for in beginners is a good ear. This is absolutely essential because the horn is a very difficult instrument to play because its tessitura is high on the harmonic series. Notes having the same fingerings are closer together, consequently accuracy and control of pitch is difficult. This is one factor why horn students generally progress slower than students on other instruments. Therefore the horn player needs to have a good ear to "place" his notes correctly.

A third quality to look for is a background in music. Students with a musical background can spend more time learning where to "place" their notes without having to spend as much time on the fundamentals of music instruction such as note identification and rhythmic principles. A good elementary general music program is extremely important to help develop an instrumental program in upper

grades. A fourth quality a knowledgeable teacher looks for is a student with an average or above average intelligence. Because of the inherent difficulties of the horn, it is important to select students who will not be held back because of any learning disabilities.

There are several physical qualities to look for when selecting a beginning horn student. Although having thin lips is not considered to be an absolute necessity, it is advantageous to select students with good teeth formation and average to thinner-than-average lips. Students should also have good finger coordination in the left hand, since the left hand will do all the fingering on the instrument. The student should also have at least a medium sized body frame with arms that are long enough to reach into the bell and assume the correct right hand position. When teaching smaller students, a teacher must experiment with different playing positions until he finds one that is comfortable for the student and will not cause him to play with a poor embouchure. A saxophone neck strap can be utilized to assist very young students who have a problem holding the horn. If a student is too small to reach around the bell and assume the correct right hand position, it is advisable to let him play with an incorrect right hand position until he is old and strong enough to hold it correctly. As a last resort, it is far better to have the student play out of tune with the rest of the ensemble and develop a good embouchure than it is to have the student play with the proper right hand position and develop a poor embouchure with improper breathing habits. In most cases the instrument can be tuned to near correct pitch by adjusting the tuning slides.

If a teacher feels he must start his students on an instrument other than horn with the intent to change to horn, he should start them on an alto horn or melophone with an adaptor for a horn mouthpiece. Other instruments considered to be acceptable instruments on which to start beginning young students are the treble clef baritone and the trumpet. The baritone is preferred because its timbre and range are closer to the horn than the trumpet.

Selecting a Horn

(Types, Makes, and Models of Horns and Mouthpieces)

There has been much debate concerning the recommendation of a beginning model horn for young students. The three designs that are more frequently utilized are the single F horn, an F, B flat double horn, and a single B flat horn. The most ideal situation would be to start the beginner on the F, B flat double horn. The double horn is used by more advanced horn players because it combines the characteristic sound of the F horn with the improved accuracy of the B flat horn in the upper range. Teachers must insist that students use both sides of the horn correctly. The double horn has no merit if played like a single horn! Many teachers recommend starting beginners on a single F model because the double horn is too large and bulky to be handled by very young beginners. Advocates of the single F horn insist that it helps to develop the student's ear and it produces a more characteristic horn tone than the single B flat horn. The F horn also requires the student to develop a good embouchure to execute the lip changes which produce the notes unaided by valves. The student

should switch to the double horn when he becomes more mature and is strong enough to handle the larger instrument. Some teachers recommend starting students on the single B flat horn because of its improved accuracy in the middle and upper registers. Advocates of the B flat horn suggest placing their first and third (high parts) horn players on single B flat horns and their second and fourth (low parts) horn players on single F horns. This situation tends to discourage the first and third players from practicing in the low register, while it also discourages the second and fourth horn players from practicing in the high register.

The following is a current list of American and foreign manufacturers of horns. Most manufacturers produce both student and professional model horns. The more popular manufacturers of student models are Conn, Holton, King, and Yamaha.

Current Manufacturers of Horns

American

Adkinson	Holton
Bach	King
E.K. Blessing	Lawson
Conn	Lewis

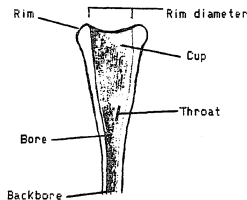
Foreign manufacturers

Alexander (Germany)	Mirafone (Germany)
Finke (Germany)	Paxman (England)
Knopf (Holland)	Selmer (France)
Kruspe (Germany)	Yamaha (Japan)

Many students spend a large amount of time and money searching for the "miracle mouthpiece" that almost plays by itself. Who can blame them? It is generally agreed that, aside from the musician, the mouthpiece is the most important element in the production of a good tone. The responsibility for making sure the beginning student is equipped with a suitable mouthpiece falls on the students' first instrumental music instructor. A suitable mouthpiece can be described as having a medium sized cup diameter, a medium sized cup volume, a medium sized backbore with a medium sized rim. Every horn manufacturer makes a medium sized mouthpiece. The Holton-Farkas MC model, the Bach number 7, and the Conn number 7 are several examples of a normal sized mouthpiece.

Two of the more popular companies that make custom mouthpieces for professional musicians and the very serious student are Schilke Music Products, Inc. (Chicago) and Giardinelli (New York). There are many elements to consider when choosing a custom mouthpiece. Illustration 6 shows the location of each of these important elements:

Illustration 6. Elements of a Mouthpiece



The diameter of the rim has an effect on the ability to play in different ranges. A smaller diameter assists in playing in the high register while a larger diameter aids playing in the low register. A wide, cushioned rim improves endurance but makes pitch and articulation accuracy more difficult. A rounder inner rim aids production of smooth slurs and greater flexibility, but usually with less precision. A sharper inner rim can cause more abrupt slurs but usually improves accuracy. Note: Students who use excessive mouthpiece pressure or students who wear braces should use a mouthpiece with a wide cushioned rim and a rounded inner rim to aid their endurance.

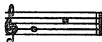
The cup size generally effects the tone and resonance. A larger cup volume produces a darker, rounder tone but with less resonance in the high register. A shallower cup provides more resonance in the upper register and produces a brighter tone. A larger backbore results in a bigger sound and gives more resonance in the upper register, but if it is too large, the tone tends to become airy. The large bore aids in tone production in the low register. A small bore generally produces a small, pure tone.

Tuning the Horn

Because no brass instrument has perfect intonation, every manufacturer of brass instruments designs instruments with adjustable slides so the instrument can be tuned accordingly. It is safe to say that no brass instrument can be tuned to perfect tempered intonation. Therefore, brass players must have flexible intonation. They must be able to adjust the pitch within a fraction of a second without

adjusting any slides. Trombone players can achieve this with slight adjustments of the slide. All other brass players adjust their intonation by making a slight adjustment of the embouchure or by using an alternate fingering. Horn players have an added advantage because they can alter the pitch by making slight adjustments with the right hand in the bell of the instrument. In order to adjust the pitch while playing, the horn player must close his right hand slightly in the bell to flatten the pitch, and open it slightly to raise the pitch.

Each slide on the horn must be adjusted accordingly to place the pitch of the horn somewhere in the proximity of an acceptable tempered scale. The intonation of the valve slides are not even considered until the open horn is tuned. On the single F horn the open G and C (concert C and E) are tuned first.





This can easily be done with today's modern electric tuners. Pull the main tuning slide out to lower the pitch and push it in to raise the pitch. Once the open horn is tuned, continue tuning the F horn by tuning the second valve to E sharp (concert B) and the first valve to E (concert B flat).




The third valve is used mostly in combination with the other valves. Some horn players advocate using the third valve alone as a substitute fingering for all first and second valve fingerings. Theoretically, the second valve lowers the pitch of the F horn one half step, the first valve lowers the pitch a whole step, and the

third valve lowers the pitch one and a half steps. Therefore, the pitch of the first and second valve combination should equal the pitch of the third valve. In actuality, the one and two combination is higher than the third valve. Although the first and second valve combination is a little sharp, most teachers and performers prefer this combination to the third valve alone. This allows more facility during fast passages.

The next step is to tune the third valve. Play B sharp (concert C sharp)  with the second and third valve. Do not readjust the second valve.

The procedure for tuning the double horn is similar to that for single F horns. The top row of slides affects the F side of the horn and the bottom row of slides affects the B flat side. Some model double horns have both F and B flat tuning slides while other models have an F tuning slide but no B flat tuning slide. If the horn has no B flat tuning slide, tune the B flat side first with the main tuning slide (usually the slide nearest the mouthpiece which affects the pitch of both sides of the instrument). Because the F horn was tuned to the sixth partial, the B flat side will also be tuned to the sixth partial. Play E (concert E)  open on the B flat

horn, adjusting the main tuning slide or the B flat slide (on horns with B flat tuners) until the pitch is true. Now tune the B (concert E)  on the B flat side by adjusting the second

valve slide, remembering that the B flat slides are the bottom set of slides. Continue to tune the B flat side by adjusting the first valve slide while playing a B flat (concert E flat)



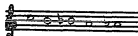
and

adjusting the third valve slide while playing a B sharp (concert E sharp)



with a second and third valve combination.

Once all the slides are tuned on the B flat side of the double horn, the F side should be tuned. The same procedure for tuning the single F horn is used except that the open B will be adjusted by an F tuning slide and not the main tuning slide. Compare the intonation of the B flat and F horn by playing on both sides of the horn, making slight adjustments where needed. Slight adjustments of pitch can be made by opening or closing the right hand in the bell. Close the hand to lower the pitch and open the hand to raise the pitch. This technique is especially beneficial when playing valve combinations which are inherently sharp (1-2, 1-3, and 1-2-3).



Module III

Objectives:

1. To learn specific techniques which will enable the student to successfully teach articulation and transposition to young horn students.
2. To learn specific techniques which will enable the student to successfully teach young horn students how to extend their range and increase their endurance.
3. To be able to diagnose performance problems and offer suggestions for improved playing.

Competencies:

1. Students will divide into pairs and diagnose each other's performance problems, offering suggestions for improved playing.
2. Students will be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 % or better, an inclass examination of the content in Module III.

Enablers:

1. Class lecture and demonstration
2. Role playing in class
3. Observe a prerecorded videotaped microlesson and apply evaluation forms

Directions for Assessing Prerecorded Videotape

Two evaluation forms were developed to help evaluate student performance and to help sharpen teaching skills via self-assessment. In this module, students will use these forms to assess a prerecorded videotape of a microlesson. This microlesson is divided into three parts: (1) pretest (presentation of original task), (2) teaching (presentation of new tasks), and (3) posttest (restating original task). Beginning with the Performance Evaluation form (see Figure 1, p. 52), students will observe the tape and concentrate on seven aspects of musical performance. These aspects include pitch, rhythm, tempo, articulation, phrasing, dynamics, and tone. Observations will be made by students in a series of fifteen second time intervals. Students will have ten seconds to observe behavior and five seconds to mark a category as being correct (+) or incorrect (-). All correct and incorrect marks will be added up and recorded for the pretest and posttest. Students will then view the tape once more and evaluate the teacher in all three parts of the tape using the Pedagogical Evaluation form (see Figure 2, p. 55).

Articulation

One of the most beautiful characteristics of the horn is its bel canto or singing style. Legato playing is one of the most important factors in making the horn sing.

Legato passages are notated with a slur.



The initial note is started with the tongue. The note following the initial note is played without being tongued. More specifically, the air stream

remains steady and is not interrupted by the tongue. If the lip vibration stops, even for an instant, during the transition from note to note, the legato quality will be impaired, if not destroyed.

Syllables are used to aid in producing smooth slurs. The vowels "oo-hee" are utilized in making an upward slur and the vowels "ee-hoo" are used to assist a downward slur. Because of the many different degrees of intensities of "hoo" and "hee," a series of notes can be slurred upwards or downwards. The "H" brings the back of the tongue upward and increases the intensity of the air stream without making a large thrust of air from the diaphragm.

Legato tonguing is usually notated in this manner:



Although legato tonguing is not always notated as such, it is constantly needed when playing melodic passages that incorporate slurred and tongued notes. The same vowels that are used for slurred notes are also utilized for legato tonguing, but the articulation "D" is added. The resulting syllables are "Doo-Dee" for an ascending passage and "Dee-Doo" for a descending passage.

Tonguing presents problems for young brass players. In some cases, this problem can be attributed to the fact that the word "attack" has been given to the process by which a note is started or tongued. It is advantageous for teachers to teach students to think of the tongue not as going to the contact point, but rather as getting away. The tongue merely acts as a valve that controls the passage of air into the horn.

Most teachers advocate placing the tip of the tongue behind the upper teeth, in the same position that they would if they were to

articulate the letter "T." Here, again, as in legato playing, the utilization of syllables assists the tonguing process. The syllables "toh," "tah," and "tee" are used for tonguing in the low, middle, and high registers respectively. When articulating the syllable "toh," the embouchure muscles are more relaxed, the lip aperture is larger, and the lower jaw is automatically thrust downward, which is an essential factor when playing in the low register. The syllable "tah" requires a firmer set of embouchure muscles, a smaller aperture, and a higher jaw position. When articulating the syllable "tee," the embouchure muscles are firm, the aperture is small, the teeth are even, the tongue is in the rear of the upper teeth ready to release a jet of air at high pressure, and the mouth cavity is now small enough to restrict the air stream and help produce the high air pressure needed in the high register. Figure 5 shows the different syllables and their respective ranges.

Figure 5. Syllable Used in Tonguing

	legato tonguing	normal tonguing
low register	doh	toh
middle register	dah	tah
high register	dee	tee

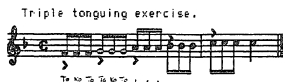
During their course of study on the horn, students will need to learn how to double and triple tongue. The syllables "ta-ka" or "too-ka" are utilized to teach double tonguing on the horn. Because the syllable that begins with the "T" will speak more clearly than the

syllable that begins with the "K," it is advisable to have the students practice slowly with a metronome, accenting all the syllables beginning with the "K." This method is gradually sped up and the accent is removed.

Triple tonguing can be taught via one of two patterns of syllables: "ta-ta-ka, ta-ta-ka, ta-ta-ka" or "ta-ka-ta, ta-ka-ta, ta-ka-ta." In order to achieve a triplet pulse, it is advisable to accent the first of the three syllables.



Repeat this exercise, gradually speeding up the tempo.



Range and Endurance

Unlike a young pianist, young students who play brass instruments do not have complete access to the entire range of their instrument. Being able to facilitate playing in the practical range of the horn is an acquired skill.

It seems that many horn students are obsessed with extending their upper register with little or no emphasis on their low register. Actually, the key to extending the high register on the horn is to develop good playing habits in the low register. The low register can be played well only with good breath support and a relaxed but firm

embouchure. These two factors must be achieved before attempting to play well in the high register. Additionally, clean clear attacks are particularly difficult to obtain in the low register. Thus practice in the low register can serve as a vehicle to improve good breath support, embouchure formation, and accurate attacks over the entire range of the instrument.

Two means of extending range, both in the upper and lower registers, include practicing on the mouthpiece alone and practicing lip slurs. Because notes speak with less resistance on a mouthpiece, practice on a mouthpiece alone presents a more gradual approach to playing the same notes on the horn. Practicing lip slurs by utilizing the natural harmonic series is an efficient method of extending range in either direction. By eliminating articulation all together, one can concentrate on the function of the muscles within the mouthpiece that control the aperture. The following exercise is designed to extend the range in the high register. Practice it in front of a mirror.

Using only the open F horn, slur the third spaced C to a fourth line D (up and down).



Continuing on the same C, add

the next natural overtone progressively. This should be worked up as high as possible without using any mouthpiece pressure and by making as little movement as possible with the muscles at the corners of the lips. Consciously try to lip up each note with the buzzing area inside the mouthpiece. All the notes must be played in a controlled, steady tempo. It must be done accurately, trying to make the transition from note to note as smooth as possible.



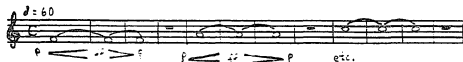
Students who rely on the corner muscles for note changes ultimately resort to heavy mouthpiece pressure when they need to play in the extreme high register. This reliance on excessive mouthpiece pressure makes playing sound labored, reduces flexibility, hardens the tone, and decreases endurance by at least half. A telltale sign of a student who uses excess mouthpiece pressure is the distinct impression of a mouthpiece rim left on the lips when the mouthpiece is removed. Everyone uses some pressure to a certain degree. The slight reddening of the lips in the mouthpiece area is quite permissible because it results from stimulated blood circulation. If the corners of the mouth ache from playing, or the muscles around the dimples ache, the player is utilizing the correct muscles for playing.

One of the secrets of improving endurance is to relieve the pressure of the mouthpiece against the lips at every opportunity. One of the best exercises for horn players to practice which will increase endurance is long tones. Long tones are part of a daily warm up routine that should be required of students, even at a very early stage in their development. This warm up routine should also include scales, for finger dexterity, and lip slurs, for lip flexibility. Another method of increasing endurance is by practicing long, slow etudes with moderate volume and range demands. It is advantageous to practice endurance at the end of a practice session, rather than at the beginning, when the player is fresh. Players should end the practice session when the lips still feel good, and should follow a

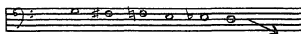
long practice session with a warm down routine consisting of soft sustained notes in the low register.

Philip Farkas' book, The Art of French Horn Playing (Wind Music, Inc.) and Milan Yancich's A Practical Guide to French Horn Playing (Wind Music, Inc.) are two very good books that contain a variety of exercises designed to increase range and endurance. Although the exercises contained in these texts are designed for more advanced players, a little modification on the teacher's part can provide even very young students with a proper routine for building and maintaining a strong embouchure (see illustration 7).

Illustration 7. Modified long tone and warm down exercises



Long tone exercise



Warm down exercise

Transposition

There was once a time when it was safe to say that all horn players would have to do some transposing during their course of study through high school. The high school band horn player occasionally encountered parts written for horn in E flat. The high school orchestral horn player, on the other hand, could encounter several different transpositions throughout the course of one concert.

Although many publishers have published editions which contain transposed parts for horn in F, there still exist, even in band literature, many editions that require transposing on the part of the horn player. It is advisable that the high school instrumental conductor teach transpositions to his students or else be prepared to transpose the parts himself and provide transposed copies to his students.

One of the easiest methods of teaching transposition is by the interval method. Because the parts must be transposed to the key of E, the horn player must first determine the interval between the key to be transposed and E. The following formula may be helpful in determining the required transposition of any key:

(Key of horn part) is a (N) above/below F. Therefore play everything a (N) above/below where written.

$N = \text{interval}$

For example, for horn in G think, "A G is a major second above an E. Therefore, play everything a major second above where written." A common transposition in the band literature is for horn in E flat. Applying the formula to this transposition results in the following: E flat is a major second below an E. Therefore play everything a major second below where written.

An easier method would be not to think of the intervals as a major second, or a minor second, etc., but as a second, or a third, etc., and transpose the Key signature to correspond to the same transposed interval. In the above example, a Key signature of C would

be transposed down a major second to the Key of B flat. Therefore, mentally adjust the key signature and play everything down a second.

It is important to note that some Keys are transposed downward, some are transposed upward, and, as in the cases of horn in B flat and in C, the transposition can go either direction, depending on the intent of the composer. Horn in B flat, horn in C, and their respective counterparts, horn in B flat basso and horn in C basso are always transposed down. The composer indicates an upward transposition by writing "horn in B flat alto or horn in C alto." Table 5 may be very useful in determining the proper transpositions of all the different keys.

Diagnosing Performance Problems

There are two basic approaches to teaching. The first is teaching through demonstration, whereas students learn by imitating the teacher (playing by rote). The second is analytical teaching, whereas individual performance results are analyzed and explained by the teacher. The ideal teacher not only diagnoses performance problems and offers suggestions for improvement, but also goes one step further by teaching students how to evaluate their own playing through self evaluation methods. Self evaluation should be taught in the initial lessons and should be used as a model for student practice at home. The first steps to evaluation should be done by having the students evaluate demonstrations by the teacher. These observations should be done both aurally and visually. Students should be taught what to look for and what to listen for through correct and incorrect

Table 5.
Horn Transpositions

	English	French	German	transposition	
Horn in	E	Mi	E	down a minor 2d	very common
	E flat	Mi be'mol	Es	down a major 2d	very common
	D	Re	D	down a minor 3d	fairly common
	D flat	Re be'mol	Des	down a major 3d	very rare
	C (C basso)	Ut	C (tief)	down a perfect 4th	common
	C alto		C hoch	up a perfect 5th	rare
	B	Si	H	down a dim. 5th	seldom
	B flat (B flat basso)	Si be'mol (B tief)	B (B tief)	down a perfect 5th	fairly common
	B flat alto		B hoch	up a perfect 4th	fairly common
	F sharp	Fa di'ese	Fis	up a minor 2d	almost never
	G	Sol	G	up a major 2d	fairly common
	A flat	La be'mol	As	up a minor 3d	rare
	A	La	A	up a major 3d	fairly common

demonstrations of tone production, embouchure formation, posture, and playing position. By learning to evaluate teacher demonstrations, students learn to evaluate their own playing. This method of self evaluation should be applied to home practice sessions by instructing students to practice in front of a mirror and to tape-record and evaluate their playing.

A knowledge beforehand of problems with tone production that beginning brass players experience is an important aid to performance evaluation. The following list of checkpoints describes problems that frequent young brass players: (1) puffing cheeks, not focusing the air stream, (2) clenching their teeth, (3) pinching their lips tightly together, (4) holding the lips too far apart, (5) not blowing with enough force, and (6) playing with excess mouthpiece pressure.

Most problems with tone production can be solved by correcting one of these problems. Allowing air pockets to form in the cheeks or lips is easily detected by the teacher and means that the correct embouchure muscles are not being used. The solution to this problem is having the student practice in front of a mirror and concentrate on not letting pockets of air develop between the cheeks and gums. If a student's tone sounds very airy, thin, and has a buzzy quality to it, there is a good chance that the student is clenching his or her teeth. This problem is best corrected by a demonstration by the teacher. The teacher should first play for the student with the teeth closed, and then play with a correct embouchure. Next, it is advisable for the teacher to have the student imitate what the teacher just did by playing both ways. Now that the student knows what a correct tone and an incorrect tone sounds like, the teacher should instruct the student to practice long tones, keeping the teeth apart. Teachers should note that just as the position of the tongue does not remain the same in different registers, the space between the teeth also changes for different registers. The lower one plays, the larger the space

between the teeth will be. Conversely, the higher one plays, the smaller the space will be.

One of the most frustrating problems that the teacher can encounter is the student whose lips just do not seem to vibrate. This common problem can be caused by several reasons. The student could be playing with the lips pinched tightly together, or, the opposite, the student could be keeping the lips too open. Playing with pinched lips does not allow the air to flow freely between the lips. Playing with the lips too open allows the air to pass freely, but the lips do not vibrate. The symptoms for both problems seem to be the same. The lips do not vibrate correctly or do not vibrate at all. The teacher is able to discriminate between the two problems by being able to hear the air passing through the horn of the student who plays with the lips too open. The manner of correcting both problems is the same. Students should be instructed to practice on the mouthpiece alone until the buzz is improved. The teacher should also explain the function of the embouchure to the student and stress that although the lip corners should remain firm, the center of the lips should remain relaxed and flexible so they may vibrate. If the student can correctly form the embouchure but still produces a weak tone, the teacher should check to make sure that the student is blowing with enough force. Students do not realize the amount of air required to fill the horn. Students should be encouraged to listen to more advanced horn players by attending concerts, listening to recordings, and if possible, sitting behind a mature horn section during a

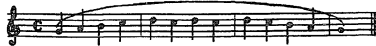
rehearsal. This will not only help them understand the amount of air needed to play the horn, but will also provide them with motivation.

Probably one of the most common problems that faces all horn players is excessive mouthpiece pressure. Mouthpiece pressure usually begins with an attempt to increase the upper limits of the range. Pressure actually proves to be helpful in obtaining high notes until fatigue sets in. Using excess mouthpiece pressure on the lips leaves less surface area to vibrate. This smaller surface area vibrates at a higher frequency, thus aiding in producing high tones. However, excessive mouthpiece pressure greatly reduces endurance and, in some cases, can cause permanent damage. The mouthpiece acts as a tourniquet, cutting off the blood supply to the delicate muscles of the embouchure. It can also cause scar tissue to build up on the lips over a period of years. An accumulation of scar tissue may lead to a total loss of lip sensitivity if drastic measures are not taken to eliminate the pressure problem.

There are several symptoms that help a teacher determine if student is playing with too much pressure. The student may demonstrate a lack of normal endurance. There is excessive marking of the lip when the mouthpiece is removed and, in extreme cases, the lip will show white for an instant. The student has a poor high register and poor control during very soft playing. The student has a "buried" look about the mouthpiece. This is not noticeable of students with thin lips. Another sign that a student may be using too much mouthpiece pressure is the lack of lip vibration during slurred passages.

Although excessive mouthpiece pressure is a common problem with young horn players, many teachers either fail to recognize the problem or fail to offer suggestions to help eliminate the pressure problem. Eliminating mouthpiece pressure is usually a long frustrating experience for both teachers and students. Some instrumental conductors who do recognize the pressure problem seldom want to sacrifice accuracy in their horn sections to enable horn players to learn to play without using excess mouthpiece pressure. One remedy for this problem is to encourage students to practice part of the day without using the fingerhook for the little finger. Although this does not altogether prevent pressure, it does remind students when pressure occurs by putting unusual strain on the left hand. Another more drastic measure is to have the student place the horn on a shelf or table of height which enables the student to blow into the horn without holding it. Play long open notes without touching or moving the horn. This exercise may be very frustrating at first, but with persistence, the student can extend the range into the high register without moving the horn. Relieving mouthpiece pressure is simply a matter of getting the correct muscles to work properly. Because the left biceps muscle is the culprit for all mouthpiece pressure problems, teachers must insist that students play with a relaxed biceps muscle at all times. The following exercise can be given to students to help develop the embouchure muscles, thus eliminating the need for the biceps muscle.

Have the student buzz the following pitches without the mouthpiece (this may take a few weeks for a student with a pressure problem).



The student should concentrate on focusing the buzz during the entire passage. Now have the student buzz the same pitches while gently placing the mouthpiece on the lips. The mouthpiece should be held at the shank with the thumb and index finger to avoid any pressure at all. Continue the pattern up into the high register until the first bit of pressure is needed. This pattern should be repeated daily, gradually extending the range into the high register without the use of pressure.

Another error that frequents young horn students is stopping the note with the tongue (commonly called the "tut" ending). This error is easily detected by the teacher because all notes sound like they end with a "t." Have the student say "tah" and notice what causes the sound to stop. The diaphragm plays a major role in the release of a pitch, while the glottis plays a very minor role in the release of a pitch. Students should rely primarily on the diaphragm to end notes. Releasing with the diaphragm results in playing with a more resonant tone quality. Students should be encouraged to practice attacks and releases as part of their daily warm up routine.

Pitch accuracy is another performance problem that frequents students and professional horn players. In the case of the young student, many times the problem lies in the student's underdeveloped ear. Because the horn plays relatively high in the natural harmonic

series, it is easy for the young student to finger the right note but play the wrong harmonic. Many times the notes immediately following the initial miss are also played incorrectly. A simple remedy is to have the student sing the part and concentrate on each interval. This is where the possession of a good ear really proves to be advantageous to the horn player. Students should be told to hear the pitch before attempting to play it and set the lips in the exact spot where they think the note lies. Ultimately, accuracy can only be improved by conscientious practice by the student. The following exercise is an aid to practicing accuracy by practicing attacks and releases. Students should discipline their concentration by trying at first to get through each line without any missed pitches. When students can play one line without any errors, they should push for playing two lines in a row without any errors. When students become more advanced and mature, they can then implement Farkas' method of penalizing themselves for a missed note. This method requires the player to go back to the beginning and do it over again if a note is missed, but only after continuing to the end. This requires the mental tension to be evident at both the beginning and at the end of the exercise.

Another key to diagnosing performance problems is by evaluating the relative frequency of missed pitches. Were the missed pitches located in a specific part of the phrase? Young horn players are notorious for missing the first note or the last note of a phrase. These errors usually represent a lack of concentration on the player's part. Were the pitches missed because of range problems? Many brass players miss the highest note or notes of a phrase. Most interesting

are those who hit the highest note accurately but miss the note immediately following the highest note of the phrase. Young students sometimes let down on their concentration after hitting the high note, consequently missing the note following the high note.

Teachers may find that students put up a mental barrier and consistently miss certain passages. By applying the theory of generalization to teaching, that is, by proceeding from the known to the unknown, a teacher may break down these mental barriers. A simple example is breaking a difficult passage down into something that the student is familiar with, such as a scale, arpeggio, or even an interval. By practicing the specific scale, arpeggio, or interval, the student will usually learn to facilitate the difficult passage.

Finally, it is beyond the scope of this book to present every problem that a student or teacher may ever encounter in the teaching process. For a more detailed description of error detection and correction procedures, see Chapter Eight of Daniel Kohut's Musical Performance, published by Prentice-Hall, Inc.

Module IV

Objectives:

1. Increased Knowledge about miscellaneous aspects of horn teaching and playing such as mutes and terminology, historical background, literature, and seating the horn section in large ensembles and chamber ensembles.
2. To be able to successfully teach beginning and intermediate level horn students.

Competencies:

1. Students will be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 % or better, an inclass examination of the content in Module IV.
2. Students will be able to demonstrate acceptable knowledge of the subject matter by passing, with 80 % or better, an inclass comprehensive examination of the content in Modules I, II, III, and IV.
3. Students will be able to demonstrate acceptable performance of specified fundamental exercises and pieces on the horn.
4. Students will be able to demonstrate acceptable teaching skills in three microteaching lessons.

Enablers:

1. Class lecture--demonstration
2. Role playing in class
3. Apply the pedagogical evaluation form and the performance evaluation form to each videotaped microlesson

Directions for Assessing Microlessons

One of the criteria for completing this Module is to demonstrate acceptable teaching skills in three microteaching lessons. Each student will be assigned a horn pupil from one of the local public middle schools, and will teach this pupil in three separate, ten minute, microlessons. Each lesson will be divided into three parts: (1) pretest (present original task), (2) teaching (present new tasks), and (3) posttest (restate original task). All lessons will be videotaped for observation at a later time. Students will apply the Performance Evaluation form and the Pedagogical Evaluation form in the same manner as in Module Three. After each microlesson, students will pinpoint areas in their teaching that need improvement and will concentrate on those areas during the next microlesson.

Mutes and Terminology

The terminology concerning muting the horn has always proved to be confusing to young horn players and their conductors. This confusion is primarily because the terminology can be written in different languages. Most frequently used are English, Italian, French, and German. To add to this confusion, there is more than one type of mute commonly found in horn playing.

The first kind of mute is the nontransposing mute, or straight mute. As the name implies, the use of this mute requires no transposition on the part of the horn player. Most nontransposing mutes are made of fiber and wood or molded plastic. Some are manufactured with special tuning devices and adjustable corks. Corks create a space between the mute and the bell of the horn. This space affects the tone quality. It is usually not necessary for a conductor to purchase mutes with adjustable corks. Such fine gradations in tone quality are not usually necessary, except in professional ensembles and advanced solo performances. Instrumental conductors should also be aware that a mute has an effect on the response of the horn. When the horn is muted, more resistance will be encountered by the player. Therefore the player must compensate for this by using more breath support. This means that a muted mezzo forte may require as much air as an open forte.

Another technical problem which more often affects young players is the use of the mute in the low register. The tone quality is usually tubby and unfocused. Students should pull the mute out slightly but continue to hold the mute in the bell. There are times

when a composer does not allow the horn player enough time to get the mute in or out of the bell. Many horn players advocate tying a loop of string on a screw eye and attaching the screw eye to the bottom of the mute. Some mute manufacturers provide strings or straps on their mutes. This allows the horn player to make quick changes from open to muted sections (see Illustration 8).

The other mute that is used by horn players is the transposing mute or "stop" mute (see Illustration 9). This mute is made of brass with a sheet of cork wrapped around the wide end where contact is made with the horn. Most horn players, however, do not use the brass mute for stopped passages except in certain cases, but instead will use their hand to close the bell. There has been much controversy about what actually physically happens when the horn is played hand stopped or is played with the stop mute. For the purposes of this method it is best explained by saying that the insertion of the hand or mute cuts off a part of the vibrating air column, thus producing a higher pitch. The resulting pitch is approximately one half step higher (semi-tone) than the original pitch on the F horn or the F side of a double horn. On the B flat horn or the B flat side of a double horn, the pitch is raised slightly more than a half step.

There are four essential points to remember when hand stopping the horn. The first point is the hand position. The hand is held in the normal position except that the heel of the hand swings in to close the bell. It is important to keep the thumb knuckle out. If the thumb knuckle is tucked in, the resulting pitch is higher than a half step and the horn player can not use suitable fingerings to play

the notes properly in tune. The second point to remember is that the written pitches must be transposed down one half step. This compensates for the rise in pitch when the hand or transposing mute is inserted in the bell. The third point to remember is to use only the F side of the horn. It was mentioned earlier that stopping the horn raises the B flat side of the horn more than a half step, thus leaving no suitable fingerings which will work to bring the pitch back to its original. There are, however alternate fingerings which can be used on the B flat side of the horn to play stopped notes in the upper register. These are outlined in Illustration 10.

The fourth point to remember concerning hand stopping is that because of the added resistance in the bell, the horn player must blow with a greater amount of force when playing stopped horn. These four steps which comprise the procedure for playing hand stopped are also utilized when playing with a brass mute except that the mute is inserted in the bell instead of the right hand. Because of the difficulty of playing stopped horn in the low register, most horn players use the brass mute to stop notes in this register. The brass mute is also used when a composer specifies muted and stopped at the same time or stopped and brassy at the same time.

Terminology concerning muted and stopped playing has not always been carefully used. A composer may notate a part as being played stopped with a very soft dynamic marking. The tone color that he actually desires may be that of another effect called echo horn. Echo horn is achieved by closing the hand in the bell enough to flatten the

original pitch one half step. The heel of the hand does not seal the end of the bell off completely as in hand stopping. The horn player must transpose the pitches up a half step and can use either the F or B flat horn.

Illustration 8. Non-transposing Mute

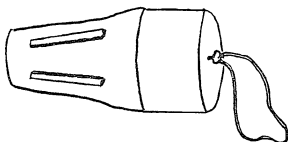


Illustration 9. Brass Mute, Stopped Mute, or Transposing Mute

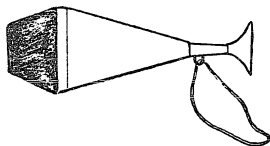


Illustration 10. Alternate Fingerings For High Register Stopped Notes

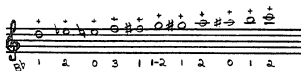


Illustration 11 helps to explain the terminology utilized by composers to indicate stopped and muted horn parts.

Illustration 11. Commonly Used Terms for Hand-Stopping and Muting the Horn

<u>English</u>	<u>Italian</u>	<u>French</u>	<u>German</u>
<u>Hand-Stopping:</u>			
stopped	chiuso	bouche'	gestopft
stopped sound	suono chiuso	sons bouches	
+	+	+	+
<u>Open</u> (resume normal hand position):			
open	aperto	ouvert	offen
o	o	o	o
<u>Brassy</u> (whether open, muted or stopped):			
brassy		cuivre'	schmetternd
		sons cuivres	blechern
<u>Echo</u> (terminology least certain):			
echo	eco	en echo	Echoton
	come un eco	cons d echo	
		sons voiles	
<u>Muted:</u>			
muted	con sordino	avec sourdine	gedampft
take mute	mette il sordino	mettez la sourdine	Dampfer nehmen
mute	sordino	sourdine	(mit) Dampfer
<u>Open:</u>			
open	aperto	ouvert	offen
without mute	senza sordino	enlevez la sourdine	Dampfer weg
remove mute	via sordino	otez la sourdine	ohne Dampfer
		sans sourdine	

Historical Background

Although the ancestry of the orchestral horn can be traced to the French hunting fields during the reign of Louis XIV, the concert horn player and horn technique originated in Bohemia (Austria). Rare paintings and woodcuts show that more primitive examples of horns were being used during biblical times. Early examples include the Jewish shofar, or ram's horn (ca 350 B.C.) and the Roman cornu (used with trumpets for battle). Oliphant horns were made of ivory tusks and were highly decorative and ornamented. Sebastian Virdung's Musica Getutsch (1588) contains woodcuts of a primitive horn that does not resemble the circular horns of the 17th century.

The first inclusion of horns in a musical score was in Cavalli's Le Nozze di Teti e di Peleo (The Marriage of Thetis and Peleus). This was first performed in Italy in 1639. The French ballet d'cour had become popular in Italy and many of the Italians were including ballet scenes in their operas. Because the Italians did not have their own ballet troupes, they imported their dancers from France. It is assumed that "French" horn players traveled with the ballet troupes and that is how Cavalli and others who followed him were first introduced to the French cor di chasse (It. corni da caccia). When Cardinal Mazarin brought Italian opera to France in the mid 17th century, he brought Cavalli's Le Nozze with him and it was first performed in Paris in 1654. The horns were used in a fanfare entitled "Chiamata alla Caccia" (Call to the hunt).

In 1680, Count Anton von Spork traveled to Paris and was so impressed by the hunting horns in the hunting livery of Louis XIV, he

had two of his servants trained in France to play horns and then returned them, and two cor di chasse to his estate in Bohemia. These first Bohemian horn players and their students became so accomplished on their instrument, that whenever the French needed horn players, they sent for players from Bohemia.

The first inclusion of horns as an integral part of the orchestra was in 1705, in Reinhard Keiser's opera Octavia. Keiser's use of "horn fifths," (the harmonic progression of a major third to an open perfect fifth to a major sixth or the reverse progression) which were characteristic of the hunting horn style, set a precedent for the composers who followed him.

As the horn evolved as an instrument, so did horn technique. The invention of crooks (slides) during the early eighteenth century enabled the horn to play in different keys without changing horns. While experimenting with hand muting, Anton Joseph Hampel, a member of the Dresden opera orchestra, introduced the hand horn technique in the middle of the eighteenth century. This enabled the horn player to play the notes between the "gaps" of the natural harmonic series by manipulating the hand in the bell of the horn. The early nineteenth century marks the addition of valves on the horn (Stoetz and Bluhm were early manufacturers). Today's modern double horn is the product of the invention of the early double horn by Kruspe around the turn of the twentieth century.

Composers who expanded the horn section from two horns to four horns, did so by placing the first two horns in one key and the other two horns in a different key. This scoring technique created two

pairs of horns. Horns one and three were high horn specialists, while horns two and four were low horn specialists. This method of scoring for horns has survived to this day in band and orchestra literature.

EVOLUTION OF THE HORN:

Early signal horns (used during battle or hunt, ca 350 B.C.)
 Natural horns (used first in opera 1639, later in symphony)
 Invention of crooks (ca 1718, horns can play in different keys without changing instruments)
 Hand horn technique (ca 1760, Hampel)
 Valved horn (1815)
 Modern double valved horn (early 1900's)

Sources: (primary)

E.L.Gerber, Historische-biographisches Lexicon, 1792 and 1812.
 (sections are found in Fitzpatrick's appendix).

(secondary)

Robin Gregory, The Horn.

Horace Fitzpatrick, The Horn and Horn Playing in the Austro Bohemian Tradition.

Reginald Morley-Pegge, The French Horn.

Bruchle and Janetzky, Pictorial History of the Horn.

Horn Literature

The following lists are by no means complete, since such a compilation would fill up an entire book. These lists represent works from the most standard repertoire and works which have been reviewed by the author. It is important to note that beginning class method books favor the clarinet and cornet players in both range and key signatures. Beginning horn students may have problems trying to keep up with the other instruments in the ensemble. Teachers should plan to use supplementary method books which review and reinforce learning steps already accomplished for these individuals. The method books

listed in the easy category below represent an adequate supply of supplementary materials.

Partial Listing of Graded Horn Repertoire

Easy to Medium

Album for Horn and Piano (Onozo & Kovacs)	Belwin Mills
Bach, J.S., Siciliana (From 2d Flute Sonata)	Kendor
Bach, J.S., Siciliano, (Agounoff)	Edition Musicus
Bakaleinikoff, Canzona	Belwin Mills
Bakaleinikoff, Cavatina	Belwin Mills
Beethoven, Adagio Cantabile (Andraud)	Southern
Chopin, Nocturne (Andraud)	Southern
Concert and Contest Collection for Horn (Voxman)	Rubank
Gliere, R., Intermezzo, Op. 35 no. 11	Leeds
Eighteen Concert Pieces, (Clifford Page)	Oliver Ditson
Gluck, "Ode! Mio Dolce Ardor"	Henri Elkan
Gluck, Melody, from Orfeo (Kuyper)	Kendor
Grazioli, Adagio (Raynolds)	Southern
Maganini, O., Peaceful Land	Edition Musicus
Mozart, Adagio (from Clarinet Concerto) (Kuyper)	Kendor
Ployhar, J., Intrepido	Belwin Mills
Saint-Saens, Romance Op. 36, (Voxman)	Rubank
Schubert, Die Liebe Fanbe (Eger)	Associated
Soloist Folio for Horn and Piano	Rubank

Medium to Difficult

Akimenko, F., Melody	Leeds
Arnold, M., Fantasy for Horn	Faber
Beethoven, Sonata in F Major, Op. 17	International
Bernstein, Elegy for Mippy	Schirmer
Charbrier, Larghetto	Costallat
Contemporary French Recital Pieces,	International
Corelli, A., Sonata in d min.	Camara
Corelli, A., Sonata in F Maj. (Solodouiew)	Edition Musicus
Corelli, A., Sonata in g min. (Solodouiew)	Edition Musicus
Corelli, A., Suite in B Flat Maj. (Maganini)	Edition Musicus
Danzi, Sonata in E Flat Major, op. 28 (Chambers)	International
Dukas, Villanelle, (Chambers)	International
Glazunow, Reverie, Op. 24	Cundy-Bettoney
Gounod, Six Melodies for Horn and Piano, in D Major	McCoy
Haydn, J., Concerti No.'s I and II, D Major	Boosey & Hawkes
Mozart, Four Horn Concertos and Concert Rondo	Schirmer
Purcell, Concerto for Horn and Orchestra in D Major	Billaudot
Read, G., Poem, Op. 31	Fischer
Ravel, Pavanne (Maganini)	Edition Musicus

Robert Schumann Album (Reynolds)
 Senaillé, Sarabande and Allemande (Eger)
 Strauss, Franz Concerto in E Flat Major, Op. 8
 Telemann, Adagio and Presto (Chidester)

Schirmer
 International
 Schirmer
 Southern

Difficult

Arutunian, Concerto
 Atterberg, Concerto
 Bassett, L., Sonata for Horn and Piano
 Beversdorf, Sonata
 Bozza, E., Chant Lointain
 Bozza, E., En Forêt
 Bozza, E., Sur les Cimes
 Goedicke, A., Concerto, Op. 40
 Handel, Sonata No. 3 (Reynolds)
 Haydn, Concertino in D Major (Tuckwell)
 Heiden, B., Sonata for Horn and Piano
 Hindemith, Sonata for Alto Horn and Klavier
 Hindemith, Sonata
 Jacob, Concerto
 Madsen, T., Sonate
 Solos for the Horn Player, Edited by Mason Jones
 Reynolds, V., Partita for Horn and Piano
 Rosetti, F.A., Concerto in e flat Maj. (Chambers)
 Rosetti, F.A., Concerto in d min.
 Rosetti, F.A., Concerto in E Maj.
 Rossini, G.A., Prelude, Theme and Variations (Eger)
 Rossini, G.A., Introduction, Andante
 Saint-Saëns, Morceau Du Concert
 Sanders, R., Sonata in B flat
 Schumann, Adagio and Allegro, Op. 70
 Strauss, R., Concerto, Op. 11
 Strauss, R., Concerto No. 2 in E Flat Major
 Weber, C.M., Concertino, Op. 45 (Tuckwell)
 Wilder, A., Sonatas Nos. 1 & 2
 Wilder, A., Sonata No. 3
 Wilder, A., Suite

International
 Breitkopf
 King
 Southern
 Leduc
 Leduc
 Leduc
 International
 Southern
 Schirmer
 Associated
 Schott
 Schott
 Williams
 Musikk-Huset
 Schirmer
 Southern
 International
 Benjamin
 Benjamin
 International
 Choudens
 International
 King
 International
 Fischer
 Boosey & Hawkes
 Schirmer
 Carl Fischer
 Fox
 Carl Fischer

Partial Listing of Ensemble Music

Woodwind Quintet:

Easy to Medium

Cohen, Quinten No. 2
 Ward, Little Dance Suite

Belwin
 Belwin

Medium to Difficult

Andraud (ed.), Twenty-Two Quintets
 Arnold, Three Shanties
 Barthe, Passacaille
 Danzi, Quintet in E minor

Southern
 Paterson
 Rubank
 Associated

Difficult

Hindemith, Kleine Kammermusik
Milhaud, Chimney of King Rene

Associated
Southern

Brass Quintet:

Easy to Medium

Bach, J.S. If thou be Near (Beeler)
Purcell, Music for Queen Mary
Uber, Greensleeves
Uber, Battle Hymn of the Republic

Rubank
King
Edition Musicus
Brod

Medium to Difficult

Anonymous, Sonata from Die Bankelsangerlieder
Bach, Contrapunctus IX
Frackenhohl, Pop Suite
Mouret, Rondeau
Pezel, Sonata No. 5 (Menken)
Purcell, Trumpet Voluntary
Rosenthal, Little Brown Jug
Schmutz, Prelude and Gavotte
Susato, Renaissance Dances

King
Kendor
Kendor
King
Boosey & Hawkes
King
Western Int.
FitzSimons
Chester

Difficult

Arnold, Quintet for Brass
Bozza, Sonatine
Renwick, Dance for Brass Quintet

Fischer

Tromba

Partial Listing of Horn Methods, Studies, and Etudes

Easy

Clevenger, D., Mc. Dunn, M., and Rusch, H., The Dale Clevenger French
Horn Methods, Kjos Music Co.

Hill, D. and Froseth, J., Introducing the French Horn, G.I.A.
Publications

Ployhar, J., French Horn Student, Belwin Mills

Pottag-Hovey, French Horn Method--Book I, Belwin Edition

Rubank, Method for Horn--Book I, (Gower-Voxman), Rubank, Inc.

Yancich, M., Method for French Horn, Book I, Wind Music

Easy to Medium

Gallay, Thirty Studies, Op. 13, International

Gallay, Twelve Studies, (Chambers), International

Kopprasch, 60 Selected Studies, Vols. I and II, (Chambers), Fischer

Maxime-Alphonse, 200 Modern French Horn Etudes, Vols, I, II, & III, Alphonse-Leduc

Mueller, 22 Etudes, (Pottag), Belwin, Inc.

Ployhar, French Horn Student--Levels II and III, Belwin Mills

Yancich, M., Method for French Horn, Book II, Wind Music

Medium to Difficult

Bach, Suites by J.S. Bach for Violoncello Alone, (Hoss), Southern Music

Maxime-Alphonse, 200 Modern French Horn Etudes, Vols, IV, V, & VI, Alphonse-Leduc

Reynolds, V., 48 Etudes for French Horn, Schirmer

Progressive and Technical Etudes, Books I and II, Compiled and Edited by Pottag and Andraud, Southern

Partial Bibliography of Books About the Horn

Bruchle, Bernhard and Janetzky, Kurtl Kulturgeschichte des Horns Ein Bildsachbuch, A Pictorial History of the Horn. English version by Cecilia Baumann. Tutsing: Schneider, 1976.

Farkas, Philip. A Photographic Study of 40 Virtuoso Horn Players' Embouchures. Bloomington, Indiana: Wind Music, Inc., 1970.

_____. The Art of French Horn Playing. Evanston, IL: Summy-Birchard Publishing Co., 1956.

Fitzpatrick, Horace. The Horn and Horn Playing and the Austro-Bohemian Tradition From 1680-1830. London: Oxford University Press, 1970.

Fox, Fred. Essentials of Brass Playing. Pittsburg, PA: Volkwein Bros., Inc. 1974.

Gregory, Robin. The Horn. 2d ed. London: Faber and Faber, 1969.

Morley-Pegge, R. The French Horn. Some Notes on the Evolution of the Instrument and of its Technique. New York: W.W. Norton and Company Inc., 1973.

Tuckwell, Barry. Horn. London and Sydney: Mac Donald and Co., 1983.

Three of the most comprehensive sources available that contain music for horn are The Brass Players Guide, published by Robert King Music Sales, Inc., The Index of French Horn Music, published by The Music Register (available through King), and Anderson and Campbell's Brass Music Guide: Solo and Study Material in Print (1985 Edition), published by The Instrumentalist Company. The King publication is a comprehensive source that lists music for all brass instruments and brass instrument combinations. The Index lists works for solo horn and every combination of instruments with horn. The Anderson and Campbell guide lists solo and study material for all the brass instruments.

Seating the Horn in Different Ensembles

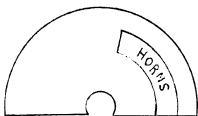
Large ensembles:

The most important rule to remember when seating the horn section in large ensembles is to position the section so they can all hear the principal horn player's sound. Because all players sit with the bell on their right side, the principal horn should sit to the left of the section (conductor's right). The only case when the principal is not positioned to the extreme left is when an assistant principal is used. In this case the assistant sits to the left of the principal, leaving the first and second horn players sitting adjacent to each other to aid in the playing of exposed horn duets or trios. Illustration 12 gives possible seating positions for the horn section in a band or orchestra.

Illustration 12. Seating plans for band or orchestra.

band

orchestra



Chamber ensembles:

The value of chamber music in the public school curriculum cannot be overemphasized. The performance of chamber music requires each player to function as a soloist, while at the same time contribute to a complex group sonority. Ensemble playing should not be limited to

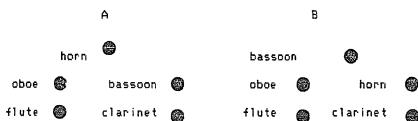
only the more advanced players, for even the last chair clarinet player can benefit from chamber music experience.

The horn has the distinct advantage of being a contributing member of both woodwind and brass ensembles, the most popular being the woodwind quintets, brass quintets, and horn quartets. The instrumentation of a woodwind quintet consists of a flute, oboe, clarinet bassoon, and horn. The brass quintet utilizes two trumpets, a horn, trombone, and tuba. The horn quartet, though written for four horns, is frequently played by more than four horns with one or more of the parts being doubled. The members of the horn quartet are usually seated in a semicircle, much like the position of the section in a large ensemble (band or orchestra). As long as the first horn or horns are placed in a position where they can easily be heard by the rest of the ensemble, the seating arrangement of the horn quartet is not that critical.

The largest seating problem to overcome with the remaining two ensembles is the location of the horn. Balance becomes a problem for young horn players in either ensemble. This problem can be solved by locating the horn in a position that will either enhance or diminish the accoustical projection of the instrument. The horn tends to overbalance the rest of the section in a woodwind quintet. Therefore it is necessary to position the horn so that the bell is facing away from the audience. Illustration 13 shows the two most preferred seating arrangements for a woodwind quintet. Seating A is the traditional method, with the horn positioned in the middle. This seating method presents a problem in a concert hall where the horn is

playing into a solid wall and is seated close to this wall. The projection is enhanced by the sound reflected off the wall. Seating B positions the bass instrument, which is usually the bassoon, in the middle of the group with the horn off to the right. This seating tends to cut down the accoustical projection of the horn.

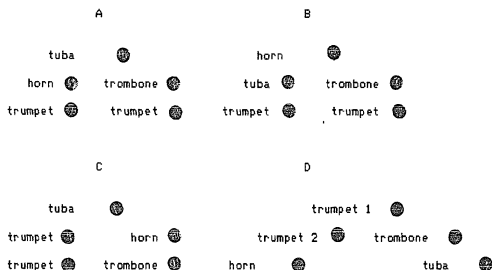
Illustration 13. Seating Plans for Woodwind Quintet



The brass quintet presents the opposite balance problem than that of the woodwind quintet. The horn usually does not project enough. Illustration 14 shows four different seating arrangements of the brass quintet. Seating A is the traditional position, with the horn off to the left side and the bass instrument, the tuba, in the center. Seating B is similar, with the exception of the horn and tuba. Here the horn can improve projection by sitting in the rear of the ensemble and playing into the rear wall. If the rear wall happens to be a long distance from the horn player or if it is a curtain, then the projection will be diminished. Seating C is for the rare situation when the horn player is the strongest player in the group and has trouble not overbalancing the rest of the ensemble. Seating D is the preferred solution by this author for several reasons. This seating

arrangement makes the brass quintet more accessible to the audience. In all the other seating arrangements, the members of the quintet look like they are playing to each other. Ultimately, they sometimes sound as though they were only playing for each other. In seating D, they are playing toward the audience. Furthermore, if all the members are standing, except the tuba, the possibilities for showmanship is increased even more. Balance problems with the horn can be overcome simply by directing the bell toward the audience if needed.

Illustration 14. Seating Plans for Brass Quintet



Instructions for Videotaped Teaching Sessions

- A. Introduce yourself and find out student's name, grade, etc.
- B. Explain to the student what you are going to do.
- C. Talk through the first excerpt (1) going through the name and composer of the piece, time signatures, key signatures, style, and articulation. Do not assume that they will know everything. You are to establish a tempo for the student, though you need not count off for the student.
- D. Have the student play through the excerpt without stopping (if possible).
- E. Once the student is finished, you will respond by: 1) giving positive reinforcement, 2) going over needs for improvement. You may need to extract a measure or two and have the student practice a difficult part.
- F. Now have the student play the entire excerpt again, concentrating on the parts that you pointed out.
- G. If the student's response showed marked improvement and was acceptable, go on the exercise 2 and repeat steps C through F.
- H. If the student has no trouble playing excerpts 1 and 2, move on to excerpt A (advanced) and repeat steps C through F.
- I. If the student has trouble with excerpts 1 and 2 and it seems that the music is just too difficult, use excerpt E (easy) and repeat steps C through F.
- J. Remember that you only have ten minutes, so use them to your advantage. When you are finished, hand the student a copy of the excerpts you worked on today and tell him to practice the parts that gave him or her trouble. You will be back next Monday or Tuesday.

Thirds



Fourth's



Fifths

145



Sixths



Sevenths



Two Legato Studies

Theme From Symphony No. 1

Allegro Moderato

Brahms

Theme From The New World Symphony

Andante

Dvorak



Staccatto Study

Tambourin

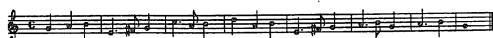
Rameau



C Major Theme

Andante

Schubert



Overture to Semiramide

Andante

Rossini



Missa ad fugam: Benedictus

Des Pres



Missa Super Frere Thibault: Benedictus

Lassus



Capriccio Italien

140

Tchaikovsky



Haydn Theme

150

Haydn



Trios

Theme From Second Movement, Symphony No. 7

Allegretto

Beethoven



Magnificat Tertii Tonii Et Misericordia

152

Palestrina





Quartet

154

Adagio, from the Clarinet Concerto

Mozart

The image displays a musical score for a quartet, specifically an Adagio from the Clarinet Concerto by Wolfgang Amadeus Mozart. The score is presented in three systems, each containing four staves. The first two staves of each system are in treble clef, and the last two are in bass clef. The music is written in a 3/4 time signature. The notation includes various musical symbols such as notes, rests, and slurs, indicating a slow, expressive tempo. The score is printed in black ink on a white background.



APPENDIX B

Dr. Hoover
East Baton Rouge School Board
P.O. Box 2950
Baton Rouge, LA 70821

Dear Dr. Hoover:

I would like to request your assistance in obtaining data to be used in my research for my doctoral dissertation in music education at Louisiana State University. The topic of my research is the development of a method book to teach a horn methods class in a homogeneous setting. Part of my methodology requires that I videotape the instrumental education students in MUS 2300 this semester in a one-on-one teaching situation and have them evaluate their performance as teachers. Data will be collected from three separate ten minute taping sessions per student. I have solicited the assistance of two local band directors and have their permission to tape some of their intermediate horn students during their regular band hour. I ask that you please forward a letter to the principals of McKinley and Istrouma Middle Magnet Schools giving me permission carry out this study.

The information gathered from this study will be treated collectively and no individual or institution's name will be revealed.

Thank you very much for your valuable assistance in this project. If you have any questions please feel free to contact me at home, 769-5914.

Respectfully yours,

Kevin M. Andry

Dear Student:

I would like to request your assistance in obtaining data to be used in my research for my doctoral dissertation in music education at Louisiana State University. The topic of my research is the development of a method book to teach a horn methods class to college music education students. The method book that I designed was used to teach a horn methods class to five music education majors at Louisiana State University. Part of their class requirements includes a teaching session with a horn student taken from the local school system. I have recently obtained permission from the East Baton Rouge School Board, your principal, and your band director to use you as a participant in this study.

The study consists of three separate, ten minute private "lessons" which will be given during your regular band hour. These "lessons" will be videotaped for evaluation at a later time by the students in my class. My students will be evaluated on their performance as teachers. You are not being graded or judged in any way.

Please read and sign the enclosed form. If you have any questions, I will be more than happy to answer them before the study. I think you will find this an interesting and challenging experience.

Thank you very much for your valuable assistance in this project. Your participation is essential to its success.

Sincerely yours,

Kevin M. Andry

EXPERIMENT SIGN-UP FORM

My signature, on this sheet, by which I volunteer to participate in the experiment on the evaluation of pedagogical competencies of college students who have completed a competency-based college horn methods course

conducted by _____, experimenter, indicates that I understand that all subjects in the project are volunteers, that I can withdraw at any time from the experiment, that I have been or will be informed as to the nature of the experiment, that the data I provide will be anonymous and my identity will not be revealed without my permission, and that my performance in this experiment may be used for additional approved projects. Finally, I shall be given an opportunity to ask questions prior to the start of the experiment and after my participation is complete.

Subject's Signature

Parent's Signature

Principal's Signature

APPENDIX C

MUSIC 2300
Horn Techniques

Kevin Andry

Syllabus

Unlike traditional techniques courses, which emphasize course completion as a sufficient condition for passing the class, this method emphasizes demonstrated performance of specific cognitive, psychomotor, and pedagogical skills as the main criteria for passing the class. This competency-based approach to teaching horn techniques is intended to develop specifically described knowledge, skills, and behaviors that will enable a teacher to meet performance criteria as an instrumental music teacher.

The following syllabus gives suggested dates for completing specific competencies. Students are reminded that all criteria except the three microlessons must be met before completion of the six-week course.

Week 1		
Monday	Module I	Breathing, Embouchure
Wednesday		Playing Position, Fingerings
Friday		Horn Maintenance
Week 2		
Monday	Take Module I quiz, teach non brass student how to obtain buzz	
Wednesday	Module II	Selection of Students, Selecting a Horn
Friday		Tuning the Horn
Week 3		
Monday	Take Module II Quiz	
Wednesday	Module III	Articulation, Range and Endurance
Friday		Transposition
Week 4		
Monday		Diagnosing Performance Problems
Wednesday	Use evaluation forms on prerecorded videotape	
Friday	Take Module III Quiz	
Week 5		
Monday	Module IV	Mutes and Terminology
Wednesday		Historical Background, Horn Literature
Friday		Seating the Horn in Different Ensembles
Week 6		
Monday	Take Module IV Quiz, make appointment to take playing exam	
Wednesday	Catch up day--prepare for teaching microlessons	
Friday	Take Final Written Exam, make appointment for teaching first microlesson	

Name _____

Date _____

1. Mark the preferred fingerings for the following notes played on a double horn: (indicate B flat fingering with a I)
2. List four major uses of the right hand in the bell.
3. The preferred proportion of lip placement on the horn is _____.
a) 1/2 upper lip to 1/2 lower lip. b) 2/3 upper lip to 1/3 lower lip. c) 1/3 upper lip to 2/3 lower lip.
4. Which of the following notes will require the largest lip aperture?

a) _____ b) _____ c) _____
5. Dry lips vibrate easier than moist lips. True or False (circle one)
6. Other than a commercial slide grease, which of these is recommended as a slide lubricant? _____ a) household oil. b) gun grease. c) cold cream. d) vaseline. e) kerosene.
7. List the three places that require lubrication on a valve and give the type of lubricant recommended for each place.
8. Give two examples of breathing exercises which will aid in increasing the lung capacity of beginning students.

Score _____

Achieved 80% criterion _____

Proctor _____

Recycle Module No. 1 _____

Name _____

Date _____

1. List the names of three current U.S. manufacturers of student model horns, and one foreign manufacturer of student model horns.
2. List four features that you would look for in a prospective beginning horn student.
3. In order to improve endurance, one would select a mouthpiece with a ____ a) shallower cup. b) thicker, more rounded rim. c) deeper cup. d) thinner, sharper rim. e) none of the above.
4. What kind of mouthpiece is recommended for the horn? ____ a) one with a shallow cup. b) one with a small bore. c) a normal medium sized mouthpiece. d) one with a thicker, more rounded rim. e) all of the above.
5. The main tuning slide is the slide closest to the mouthpiece. True or False (circle one).
6. The main tuning slide always effects the tuning of both sides of a double horn. True or False (circle one).

Score _____

Achieved 80% criterion _____

Proctor _____

Recycle Module No. 2 _____

Name _____

Date _____

1. Indicate which syllables are used in each of the three registers for each specific articulation.

Register	Staccato	Legato
Low		
Middle		
High		

2. What syllables are used to teach double tonguing to young students?
3. In order to increase the upper range on the horn, students should ____ a. practice in the low register. b. practice lip slurs. c. practice on the mouthpiece alone. d. all of the above. e. none of the above.
4. One of the secrets to improving endurance is to ____ a. practice on the mouthpiece alone. b. relieve mouthpiece pressure. c. practice in the extreme upper register. d. all of the above. e. none of the above.
5. Give the transpositions for these common transpositions for horn found in band and orchestra literature:

E flat--

Mi--

Ut--

B (German)--

Score _____

Achieved 80% criterion _____

Proctor _____

Recycle Module No. 3 _____

Name _____

Date _____

1. In a typical band or orchestral score, which horn players are considered the high horn players? _____
2. Number the following aspects of the evolution of the horn in the proper sequence.
____ Invention of crooks
____ hand horn technique
____ natural horn
____ valved horn
____ double horn
3. Give the four steps one should follow to play stopped horn.
4. Gestopft means ____ a. Bells up b. muted c. stopped d. open
e. brassy
5. When seating the horn section in a band or orchestra, it is important to position the first horn player to the right of the horn section (the conductor's left). True or False (circle one)
6. Outline a seating diagram for: 1) a woodwind quintet and 2) a brass quintet.

1

2

Score _____

Achieved 80% criterion _____

Proctor _____

Recycle Module No. 4 _____

NAME _____ DATE _____

I. Translate these terms into English.

Bouche'
Con Sordino
Gestopft
Senza Sordino

II. Short discussion.

1. Explain how to play stopped horn.
2. List the three places that require lubrication on a valve and give the type of lubricant recommended for each place.
3. List the names of three current U.S. manufacturers of student model horns and one foreign manufacturer of student model horns.
4. Explain to a student how to transpose a horn part written in E-flat.
5. How would you tune the horn, without adjusting your embouchure or slides?

6. Indicate which syllables are used in each of the three registers for each specific articulation.
- | | staccato | legato |
|-----------------|----------|--------|
| low register | | |
| middle register | | |
| high register | | |
7. Number the following aspects of the evolution of the horn in the proper sequence.
- ___ invention of crooks
 - ___ hand horn technique
 - ___ natural horn
 - ___ valved horn
 - ___ double horn
8. List three major uses for the right hand in the bell.
9. The preferred proportion of lip placement on the horn is ___ 1/2 upper lip to 1/2 lower lip. b) 2/3 upper lip to 1/3 lower lip. c) 1/3 upper lip to 2/3 lower lip.
10. List four features that you would look for in a prospective beginning horn student.
11. In a typical band or orchestral score, which horn players are considered the high horn players? _____
- III. Discuss the function and formation of the embouchure (mouthpiece placement, lip aperture, wet vs. dry lips).

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VITA

Kevin Michael Andry was born 26 June, 1959 into a musical and artistic family. He studied art at an early age with his father, Bert E. Andry, an artist and interior designer. At the age of five, he began formal piano lessons with his mother, Loretta M. Andry, a very successful music teacher. Upon graduation from Thibodaux High School in 1977, Andry attended Loyola University in New Orleans and received a Bachelors of Music Degree in French horn performance in 1982. Andry received a Graduate Teaching and Performing Assistantship in 1982 at Louisiana State University and began work on a Masters degree which he completed in 1984.

Active as a performer, Andry has been a member of the horn section of the Baton Rouge Symphony Orchestra since 1983. He has also been a member of the Baton Rouge Opera Orchestra, the Baton Rouge Gilbert and Sullivan Society Orchestra, and has performed as "extra horn" with the New Orleans Philharmonic Symphony Orchestra and the New Orleans Pops Orchestra.

As a teacher, Andry has taught applied piano, horn, and trumpet since he was in high school. Andry taught applied horn, horn techniques, and music appreciation as a graduate assistant at Louisiana State University. He has taught instrumental music on the elementary and junior high levels and has taught general music classes to elementary students.

Andry is a member of numerous professional organizations including The International Horn Society, Pi Kappa Lambda National

Music Honor Society, The College Music Society, Music Educators National Conference, and Louisiana Music Educators Association.

Andry has kept up his interest in art and is active as a game bird carver. He has won several top awards in local, state, and regional shows.

In 1984 he married the former Lisa Marie Vitale. They have one daughter, Danielle, born in 1986.

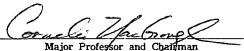
DOCTORAL EXAMINATION AND DISSERTATION REPORT

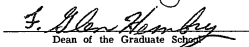
Candidate: Kevin Michael Andry

Major Field: Music

Title of Dissertation: The Development of a Competency-Based Approach for Teaching
a College Level French Horn Techniques Course in a
Homogeneous Setting.

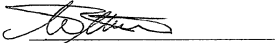
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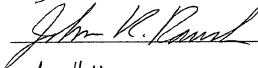

Major Professor and Chairman

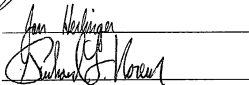

Dean of the Graduate School

EXAMINING COMMITTEE:











Date of Examination: _____

July 19, 1988