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THE DEVELOPMENT AND EVALUATION OF SELECTED
INSTRUCTIONAL MATERIALS FOR TEACHING
PERCUSSION INSTRUMENTS IN THE
BEGINNING BAND CLASS.

The University of North Carolina at
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THE DEVELOPMENT AND EVALUATION OF SELECTED
INSTRUCTIONAL MATERIALS FOR TEACHING
PERCUSSION INSTRUMENTS IN THE
BEGINNING BAND CLASS

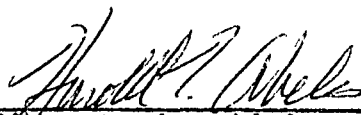
by

Andrew Conrath Preston

A Dissertation Submitted to
the Faculty of the Graduate School at
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Doctor of Education

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PRESTON, ANDREW CONRATH. The Development and Evaluation of Selected Instructional Materials for Teaching Percussion Instruments in the Beginning Band Class. (1975) Directed by: Dr. Harold F. Abeles. Pp. 106.

The purposes of the study were to investigate the current status of beginning percussionists in selected schools in Eastern North Carolina; to develop a book which would supplement the beginning snare drum method often found in the public schools; and to examine experimentally the effect of: 1) this book, 2) piano background, 3) the student's sex, and 4) instrument grouping on the musical development of these beginning percussionists.

Documentation indicates the need for a supplementary book to parallel the basic drum method book used in the beginning band class. From the beginning, this book should call for a variety of commonly used percussion instruments and a variety of techniques for playing them. Through the use of such a supplemental book, young drummers may better prepare to play the band and orchestra literature and the growing body of percussion ensemble materials. The book Flexible Percussion Ensembles was written by the author to meet these needs of the beginning percussionist.

The research disclosed several factors which may influence the success of beginning instrumentalists, including piano background, sex and class grouping, and method of instruction. An experimental study was designed to examine the effect of the book Flexible Percussion Ensembles and to test the beginning percussionists's ability

to acquire skill on a new percussion instrument. Two tests were employed in the study: 1) the Colwell Music Achievement Test - II and 2) a Skills Test written by the author.

The design of the experimental study was a four-dimensional factorial design. Analysis of covariance was utilized to allow for pre-experimental differences among the subjects. The study involved 134 subjects in eleven schools in six North Carolina cities. The experimental groups utilized the author's supplementary textbook along with their regular method book, while the control groups continued their instruction with the regular method book only.

The .05 level of confidence was adopted. Percussionists using Flexible Percussion Ensembles scored significantly higher than the non-band control group on the MAT-II; both experimental and control group percussionists scored significantly higher than the non-band group on the Skills Test; and students with a background in piano scored significantly higher than those without on the Skills Test.

The author indicates several questions which might be answered in further research including: Why does the sex of the percussionist not seem to be a factor in achievement?; What is the effect of I.Q. scores on the achievement of percussionists?; and Does there exist a unique set of personality characteristics common to percussionists?

The book, Flexible Percussion Ensembles, which involves the beginning percussionist with simple mallet keyboard concepts including scales, stickwork, melodic notation, and rolls, as well as preparatory tympani concepts including tuning, hand position, damping and the basic percussive stroke, seems to be one approach to improve on the limited skills and concepts included in beginning band method books.

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CHAPTER I

INTRODUCTION AND PROBLEM

The growth of school band programs in the United States since 1920 shows that instrumental class instruction has been quite effective. In the percussion section, however, goals and methods for achieving these goals have been quite limited. Faulman states:

. . . if the past is indicative of the future we shall continue to find a very small percentage of our public schools offering only half a percussion education to percussionists.¹

The beginning percussionist has many of the same problems to solve and goals to be reached as others in the beginning band class. Colwell lists several basic goals for instrumental music instruction.² He includes good tone, correct notes, technical skill, knowledge of musical symbols and terms, awareness of the style and form of the music, control of tone quality and intonation, and ability to follow the conductor intelligently. These same goals would seem to be reasonable for the beginning percussionist.

¹Roger Faulman, "Start Mallets from the Beginning," Percussionist, VII (Oct., 1969), 13.

²Richard J. Colwell, The Teaching of Instrumental Music (New York: Appleton-Century-Crofts, 1969), p. 19.

There are many instruction books available for the beginning percussionist. These appear to be designed, primarily, for a one-to-one private teacher relationship.³ A large number of today's percussionists, however, seem to be the product of school instrumental music classes. Instruction books generally used with beginning band or orchestra students do not seem to serve the needs of the beginning percussionist to the degree that is necessary.⁴

Frock describes percussion education and materials:

It has been the practice of most school instrumental teachers to concentrate on snare drum when teaching the percussion sections of their bands or orchestras. . . . Numerous beginning snare drum texts and solos are merely collections of assorted rudiments.⁵

Jacob also finds fault in percussion teaching which does not utilize the entire range of percussion instruments: those with definite pitch such as bells and tympani, as well as those of indefinite pitch, such as bass drum and triangle.⁶

³A list of commonly accepted method books is given in the Bibliography.

⁴A short inventory of beginning class method books is given by Emil A. Holz and Roger E. Jacobi, Teaching Band Instruments to Beginners (Englewood Cliffs, N.J.: Prentice-Hall, 1966), p. 13.

⁵George Frock, "The Need for Thorough Percussion Education," Southwestern Musician -- Texas Music Educator, XXXV (Sept., 1966), 28.

⁶George F. Jacob, "Our Complete School Percussionists," School Musician Director and Teacher, (May, 1970), 45.

Olson finds:

The percussion parts in beginning method books are not challenging to students of high capability when compared with the much more intricate and varied learnings involved in playing a wind or string instrument on the same level of difficulty. Talented students can progress much more rapidly in the reading and playing of rhythms than is provided for in a band class method. The learning challenge can be increased if a drum method is used, but that instruction is concentrated so exclusively on exercises for the development of snare drum technique that the student's need for an aesthetically satisfying musical experience is often neglected. The materials do not provide satisfactory opportunities to apply these techniques in a musical ensemble as they are acquired.⁷

In a study reported in Percussionist, Keezer states: ". . . the situation still exists, far too frequently, wherein the beginning percussion student is given an introduction only to the snare drum."⁸ This is in agreement with Griggs, who feels that music educators should stop treating drummers as though they needed only rhythms, and recognize that they also need scales, techniques for interpretation, and knowledge of other fundamentals of music.⁹

Combs has stated another criticism of current method books: discussing their emphasis on the "Thirteen

⁷Rees Olson, "A Beginning Percussion Class," Instrumentalist, XXIII (Sept., 1968), 88.

⁸Ronald Keezer, "Experiments in Elementary Percussion Education," Percussionist, VI (Dec., 1968), 38.

⁹Roy A. Griggs, "The Neglected Percussionist," Music Educators Journal, LX (Jan., 1974), 58.

Essential Rudiments" as an end rather than as a means to develop the technique necessary for musical percussion performance.¹⁰ The Percussive Arts Society is inviting suggestions for upgrading all levels of percussion playing, with particular emphasis on updating the "Thirteen Essential Rudiments."¹¹

While most teachers agree on the value of certain common rhythm and sticking exercises, the day has passed when the ability to play the traditional rudimental solo The Connecticut Halftime will qualify a student as an advanced percussionist. Colwell has stated the problem:

In spite of their ancient age the percussion instruments have not been quite respectable until recently. They have had no literature of their own, no good texts or methods books, and no systematic approach for learning the necessary techniques . . .

Most percussionists do not develop real musical skills; they do not have melodic lines to follow or harmonic parts to fit into. They should be able to count accurately, but many cannot. An added deterrent to musical growth is the tendency toward specialization. Snare drummers play only snare drums, the timpanist plays only timpani, and so forth. This makes the student desultory and unoccupied. If he were expected to play all of the percussion instruments, he would have occasional melodic parts (in addition to the rhythmic), he could double on instruments in the same composition, and he might even practice to improve his skill in using sticks and mallets.¹²

¹⁰F. Michael Combs, "Selecting a Snare Drum Method Book," Instrumentalist, XXVII (Dec., 1972), 50.

¹¹Ron Fink, "The 42 Standard Rudiments? or 'To Revise or Not to Revise'," Percussive Notes, X (Winter, 1972), 12.

¹²Colwell, Instrumental Music, p. 323.

A shortcoming, then, seems to be not a lack of method books, but a narrow emphasis at the beginning level of instruction resulting in the utilization of only one percussion instrument. Cleino points out the limitations of this approach: "The poor achievement in school percussion sections results from poor materials and methods used in the instruction of young drummers. . ."¹³ Such an approach neither challenges the potential percussionist nor adequately prepares him for the diversified performance expected of him at the junior high or senior high school level.

There does not seem to be a single, complete and comprehensive method book or instruction text for the school percussionist. In practice the teacher is expected to supply his own materials, ideas and instructional methodology on the half-dozen or more percussion instruments, or be content to teach snare drum alone. As the "Report of the Committee on Improving Elementary Percussion Education" of the Percussive Arts Society states:

We further recognize the need for more quality literature in all areas, but in particular for keyboard

¹³E. H. Cleino, "An Ensemble Method for Teaching Percussion Instruments" (unpublished Ed.D. dissertation, George Peabody College for Teachers, 1958), p. 5.

percussion instruments and in better basic methods for all percussion instruments.¹⁴

Stanley discusses the need for a well-rounded percussionist to be able to play all percussion instruments:

. . . the trends exhibited by contemporary composers of band and orchestra music . . . the growth and prosperity of the percussion ensemble . . . serious solo repertoire . . . these factors indicate a need for a well-planned method of instruction and training of young percussion students.

Unfortunately, most of today's beginning percussionists are exposed to the same methods and procedures that have been employed for the past 30 years. These methods and procedures, outdated as they are, do little more than teach a student some of the basic fundamentals of rhythmic structure and how to play some of the snare drum rudiments . . . Little, if any, attention is given to the mallet instruments and timpani . . .¹⁵

The element of boredom in the elementary school drummer is discussed by Elias:

The use of method books as a basis (but only as a portion) of the lesson makes the nine and ten-year-olds feel that they are having fun . . . The importance of taking advantage of the student's musical knowledge, and knowing how to use it, can be seen when one takes a fifth-grader and starts him in an elementary drum method book. If one follows most of these method books exclusively, he will find that the student will lose interest and the excitement of learning about music. With a completely academic approach many of these young people find music too much work.¹⁶

¹⁴William J. Schinstine et al., "Report of the Committee on Improving Elementary Percussion Education of the Percussive Arts Society," Percussionist, VII (Dec., 1969), 66.

¹⁵Donald Stanley, "Training Today's Percussionist," Instrumentalist, XXIII (Feb., 1969), 65.

¹⁶Sheldon Elias, "Percussion Education in the Fifth and Sixth Grades," Percussionist, IX (Fall, 1971), 7.

Boredom may be a factor leading to discipline problems often encountered in the percussion section. Jackson's opinion is representative of the consensus of researchers:

. . . without a doubt the percussion section is the most neglected. Also it is invariably the section that creates the more serious discipline problems, probably because of the fact that the music does not require as much of it as the other sections.¹⁷

Several authors have proposed methods of instruction which they feel would help correct the problem of the limited scope of beginning percussion instruction.

Pimental cautions:

. . . no beginning music student should work exclusively on an instrument that deals primarily with rhythmic function. . . The usual habit of starting the percussion student on the snare drum may be the most efficient way to get him in band, but is not the ideal situation for his musical development. A good background for future percussionists is in traditional keyboard instruction (piano, organ, accordin) which emphasizes melodic and harmonic training as well as contrapuntal possibilities; many marimba technics are transferable to other percussion instruments; the the marimba has a wide pitch range encompassing both the treble and bass clefs. In my experience, students who first began training on the marimba were able to proceed into other areas of percussion, make unusually rapid progress, and exhibit a high level of all-around musicianship.¹⁸

¹⁷Harold J. Jackson, "An Instructional Method for Individual or Group Development of Snare Drummers" (unpublished D.Mus.Ed. dissertation, University of Oklahoma, 1968), p. 16.

¹⁸Linda Pimental, "The Marimba Bar," Percussive Notes, XII (Fall, 1973), 32.

Pearl suggests that a beginning percussion class deal with the problems encountered when percussionists are integrated with wind instrument beginners.¹⁹ Pizer is in agreement with this approach:

. . . Percussionists could be combined with the brass if absolutely nothing else is possible. It would be better, however, no matter how few percussionists there are, to meet them separately. With percussionists, one lesson could be devoted to work on the practice pad and the technic class devoted to the other percussion instruments concentrating at the outset on the keyboard percussion.²⁰

In an article, "Start Mallets From the Beginning," Faulman comments on instruction for the percussionist in school instrumental classes:

. . . in most high school bands and orchestras the person selected to play the mallet parts (if played at all) is anyone in the organization with keyboard experience. This is not only unfair, but to a great number of conscientious students a strong feeling of inferiority is initiated.²¹

Reporting on a survey he made, Mueller finds: ". . . a great deal of our newer music contains parts for xylophone and the other mallet instruments, but 94% of our percussion students cannot play their instruments."²² This may

¹⁹Jesse Pearl, "The Beginning Percussion Class," Instrumentalist, XXI (Oct., 1966), 73.

²⁰Russell A. Pizer, Administering the Elementary Band: Teaching Beginning Instrumentalists and Developing A Band Support Program (West Nyack, N.Y.: Parker Publishing Co., 1971), p. 95.

²¹Faulman, "Start Mallets," 13.

²²Kenneth A. Mueller, "Percussion Instruction in Wisconsin High Schools," Percussive Notes, VI (Spring, 1968), 5.

serve to reinforce these feelings of inferiority.

Commenting on the problem from the standpoint of a college teacher, Longyear states:

It is regrettable that so many students with a desire to major in percussion enter colleges and conservatories with insufficient preparation. The incoming freshman may know his 26 "standard" rudiments and may have had some experience with a trap set or with the timpani, but often he has had no piano, has never touched the bells or xylophone, cannot read treble clef, reads bass clef with extreme difficulty, knows few, if any, scales or key-signatures, and is quite hazy about the correct techniques of playing the accessory instruments such as the cymbals, the tambourine, or the bass drum. . . The student should be encouraged to pick out familiar tunes by ear. After he has mastered his scales he should be able to play tunes in any key. This will improve his ear and tonal memory . . .²³

In this regard Cirone mentions that it is a difficult task for a student to begin the mallet instruments and tympani as late as high school, if he intends to enter college as a music major with percussion emphasis.²⁴

Baldwin concurs with those who would begin the percussion instruction with melodic instruments and proposes a "mallets-before-membranes" approach to comprehensive beginning percussion instruction.²⁵

²³Rey M. Longyear, "Starting Percussion Students on Mallet Instruments," Instrumentalist, XVI (Oct., 1961), 65.

²⁴Anthony Cirone, "School Directors and Their Percussion Sections," Instrumentalist, XXIII (June, 1969), 80.

²⁵John Baldwin, "Proposals for Beginning Percussion Instruction Based on Qualitative Analyses of Instructional Trends and Existing Materials--Abstract," (1965), Percussionist, X (Summer, 1973), 135.

Hong asks:

Is it feasible for all beginning students to start on either a wind or string instrument for a period of six to twelve weeks, and then let those who wish to play percussion switch to drums? By playing another instrument first, [they] will be taught two important concepts:

- A. To listen to sounds, blends, tonal-relationships, and to learn to read notes.
- B. To realize that notes have definite value.²⁶

The documentation quoted above seems to indicate the need for a supplementary book to parallel the basic method book used in the beginning class. Such a supplementary book should, from the beginning, call for a variety of commonly used percussion instruments and a variety of techniques used for playing those instruments. It should be written to be used individually or in beginning classes. That is to say, a single player should be called on to play more than one instrument for each exercise, and several players should combine to form a percussion ensemble. The rhythms, meters, keys and other musical concepts should closely parallel the concepts found in whatever first year method book is selected.

Through the use of such a supplemental book, young drummers may better prepare to play the band and orchestra literature and the growing body of percussion ensemble materials. At the same time, the beginning percussionist

²⁶Sherman Hong, "Percussion Research: A Conscientious Endeavor," Percussionist, IV (May, 1967), 189.

may be challenged to grow musically, rather than becoming, as Colwell says, "desultory."²⁷ The current investigation will examine the effect of such a book on percussionists in beginning band classes in selected North Carolina schools. The book, Flexible Percussion Ensembles, was begun in June of 1973 following several months of bibliographic research on the subject of elementary percussion education. The textbook may be found as Appendix A.

This book was written to meet the needs which have been reported in this chapter. Several concepts were emphasized which, in the opinion of the researcher, were found to be lacking or inadequately covered in band method books. The textbook was based on the author's years of experience as a teacher of beginning instrumentalists in Florida, Virginia and North Carolina, and his playing experience with symphony orchestras and professional bands. The Index of Terms and Concepts may be seen in Appendix A.

From the several concepts felt to be inadequately presented in presently used method books, the most important concept to the writer was the percussive stroke, which is discussed several times in the text. One explanation given was to play as though you were pulling the tone out of the instrument, rather than hitting down into it. The writer felt that the lack of understanding of

²⁷Colwell, Instrumental Music, p. 323.

this technique often marred the performance of young percussionists.

Other concepts common to all percussion instruments which were emphasized included the wrist and hand positions, the height of the stick movement on rolls, alternate sticking and other stickwork possibilities, the matched grip, and exploration of different striking areas and different mallets to find new tonal possibilities. The art work (for example, Figures 1, 2, and 3 in Chapter III) clarifies the explanation of these concepts.

Several concepts were specifically intended for a particular percussion instrument. Tympani tuning is discussed on several pages of the text. Damping the tone of the tympani to prevent the sound from carrying over into a rest is also discussed. The coordination involved in playing the drum set is dealt with on several pages.

Ear training is discussed not only in reference to the tuning of the tympani, but also in reference to the final note (home tone) in a melody. The student is encouraged to find "by ear" the completion of a scale, and to improvise a melody for one exercise.

The first version of Flexible Percussion Ensembles was completed during the Winter of 1973 and utilized on a trial basis with a class of young percussionists during the Spring of 1974. This first version and the subsequent refined version are discussed in Chapter III.

CHAPTER II

RELATED RESEARCH

As we have seen, research in instrumental instruction discloses several areas which should be considered in an investigation of the needs of the beginning percussion student. The outcome of many studies indicates the need for further research. Studies have covered such diverse but related topics as visualization of musical notation, melodic and harmonic understandings, relationship between intelligence and instrumental performance, and sex differences.

One factor examined by Stecklein and Aliferis, which has influenced achievement in music skills, is prior study of the piano.²⁸ Elliott found that "pianists on the average possess a greater ability than do nonpianists to visualize music notation perceived aurally."²⁹ How a background in piano affects beginning band members

²⁸John Stecklein and James Aliferis, "The Relationship of Instrument to Music Achievement Test Scores," Journal of Research in Music Education, V, (Spring, 1957), 11-13.

²⁹Charles A. Elliott, "Effect of Vocalization on the Sense of Pitch of Beginning Band Class Students," Journal of Research in Music Education, XXII (Summer, 1974), 128.

has not been sufficiently investigated to generalize to percussionists at the beginning level.

Stecklein and Aliferis also found that among students taking the Aliferis Music Achievement Test³⁰ the lowest scores in the melodic test and the harmonic test were by percussion students, percussion students did not have the highest scores on the rhythm test, and the percussion students had the lowest scores in overall achievement. These findings have been corroborated in other research and attested to by directors of high school instrumental groups.³¹

Factors related to these low scores by percussionists need further examination. The suggestion has been made that students who show promising musical aptitude are counseled into wind or string instruments, leaving those with lower ability to play the percussion instruments. Similarly, I.Q. scores have often been used as a way of guiding students with higher I.Q. scores into the "more difficult" wind or string instruments. A study by King found a correlation between low I.Q. scores and

³⁰James Aliferis, Aliferis Music Achievement Test (College Entrance Level) (Minneapolis, Minn.: University of Minnesota Press, 1954).

³¹Stecklein and Aliferis, "The Relationship," 11-13.

low scores on a music reading test.³²

An area which has been thoroughly investigated is the relationship of Intelligence Quotient to music achievement. Puopolo found that ". . . with programed practice, students of below average I.Q. benefit significantly more in performance achievement than do those of above-average I.Q."³³ Noble reported that pupils with high I.Q.'s achieved higher performance scores with traditional methods of instruction while those with middle and low I.Q.'s gained more through the concept method.³⁴

Both McCarthy and Hufstader have recently utilized intelligence test scores as one basis for their findings with beginning instrumentalists.³⁵ Intelligence is mentioned by Holz and Jacobi, along with aptitude and

³²Harry A. King, "A Study of the Relationship of Music Reading and I.Q. Scores," Journal of Research in Music Education, I (Spring, 1955), 37.

³³Vito Puopolo, "The Development and Experimental Application of Self-Instructional Practice Materials for Beginning Instrumentalists," Journal of Research in Music Education, XIX (Fall, 1971), 348.

³⁴Robert F. Noble, "Effects of a Concept Teaching Curriculum on Performance Achievement in Elementary School Beginning Bands," Journal of Research in Music Education, XIX (Summer, 1971), 214.

³⁵James F. McCarthy, "The Effect of Individualized Instruction on the Performance Achievement of Beginning Instrumentalists," Council for Research in Music Education, Bulletin No. 38 (Summer, 1974), 13; Ronald A. Hufstader, "Predicting Success in Beginning Instrumental Music Through Use of Selected Tests," Journal of Research in Music Education, XXII (Spring, 1974), 56.

interest, as a means of screening applicants for the beginning band class.³⁶ They state that "Intelligence and interest are important in the study of music and can frequently overcome deficiencies in talent." Young found that the identification of students most likely to succeed is best facilitated by use of an aptitude test in conjunction with an achievement or intelligence test.³⁷

The sex of the student has an influence on musical achievement, but as Farnsworth has stated, "Far more basic data must be gathered before sex differences can be properly explained."³⁸ Several researchers--Siemens, McCarthy, Froseth, Sample and Hotchkiss, and Whellams--have felt that sex differences were of sufficient importance to include in recent studies dealing with music ability and instrumental instruction.³⁹ In each of these studies, sex differences were found to be significant. Froseth mentions

³⁶Holz and Jacobi, Teaching Band Instruments, p. 28.

³⁷William T. Young, "The Role of Musical Aptitude, Intelligence, and Academic Achievement in Predicting the Musical Attainment of Elementary Instrumental Music Students," Journal of Research in Music Education, XIX (Winter, 1971), 395.

³⁸Paul R. Farnsworth, The Social Psychology of Music (Ames, Iowa: Iowa State University Press, 1969), p. 161.

³⁹Margaret T. Siemens, "A Comparison of Orff and Traditional Instructional Methods in Music," Journal of Research in Music Education, XVII (Fall, 1969), 285; James F. McCarthy, "Effect of Individualized Instruction," 4; James O. Froseth, "Using MAP Scores in the Instruction

the "Empirical evidence that sex, maturation, and type of instrument chosen are factors influencing musical achievement of beginning students."⁴⁰ From the relative rarity of girls in the percussion sections of school bands, it may be seen that sex has been a factor in the selection of instruments.

Researchers examining the way a class is structured do not appear to have reached a consensus. Pizer advocates the homogeneous grouping of percussionists, grouping them with brass students if nothing else is possible.⁴¹ Heterogeneous classes were compared to private instruction by Shugert with the result that students taught privately scored higher on a performance test.⁴²

of Beginning Students in Instrumental Music," Journal of Research in Music Education, XIX (Spring, 1971), 99; Duane Sample and Sally M. Hotchkiss, "An Investigation of Relationships Between Personality Characteristics and Success in Instrumental Study," Journal of Research in Music Education, XIX (Fall, 1971), 311; Frederick S. Whellams, "Musical Abilities and Sex Differences in the Analysis of Aural-Musical Capacities," Journal of Research in Music Education, XXI (Spring, 1973), 31.

⁴⁰James O. Froseth, "Using MAP Scores," 99.

⁴¹Russell A. Pizer, Administering the Elementary Band, p. 95.

⁴²James M. Shugert, "An Experimental Investigation of Heterogeneous Class and Private Methods of Instruction with Beginning Instrumental Music Students," (unpublished Ed.D. dissertation, University of Illinois, 1969).

Several other methods of instruction have been examined-- Froseth studied individualizing of instruction; Puopolo developed programmed practice materials; Noble proposed concept teaching; while McCarthy found that students instructed individually within the heterogeneous classroom can attain a significantly higher level of performance achievement than students who receive instruction in an ensemble setting.⁴³

Individualized instruction may not be the only solution to the specialized training needed by the beginning percussionist. While it might not be practical to expect every elementary school to own a set of tympani, in nearly every school it is possible to find a triangle and a set of melody bells in addition to the percussionist's snare drum. Young percussionists can purchase a beginner's kit consisting of a small set of bells and a drum practice pad in the same case.⁴⁴

One such kit is discussed by Galm, who suggests the use of "Roto-Toms" as an inexpensive preparatory

⁴³James O. Froseth, "Individualizing Instruction in the Beginning Instrumental Music Class," Journal of Band Research, VIII (Fall, 1971), 18; Vito Puopolo, "Self-Instructional Practice Materials," 348; Robert F. Noble, "Effects of a Concept Teaching Curriculum on Performance Achievement in Elementary School Beginning Bands," Journal of Research in Music Education, XIX (Summer, 1971), 209; James F. McCarthy, "Effect of Individualized Instruction," 13.

⁴⁴Donald W. McCabe, ed., The ASBDA Curriculum Guide (Pittsburgh, Pa.: Volkwein Bros., 1973), p. 105.

instrument for the tympani. He quotes the following prices for a basic kit:

1 set of 2½ oct. rhythm bells	\$25.00
2 Roto-Toms - six inch and eight inch	28.00
1 pair of matched snare drum sticks	2.50
1 Remo Tunable Snare Drum Practice Pad	8.00
1 pair of bell mallets (hard rubber)	3.50
Total	\$66.00
Including the student model snare drum	80.00
Total	\$146.00 ⁴⁵

This would compare favorably with the expense of a student model clarinet or trombone, even at today's prices.

The foregoing research indicates several factors which may influence the success of beginning instrumentalists. These factors include piano background, I.Q. scores, sex, class grouping and method of instruction. An experimental study dealing specifically with percussionists might then consider all of these factors. The research has disclosed several suggestions for improving percussion education. Mueller seems to summarize these suggestions, stating that percussion education must " . . . take place in . . . snare drum, timpani and mallet percussion instruments . . . from the beginning, i.e., the time when your instrumental students begin playing."⁴⁶

⁴⁵John K. Galm, "The Percussion Instrument; Some Ideas on Teaching and Performance," (University of Colorado, 1970), p. 5. (Mimeographed.)

⁴⁶Kenneth A. Mueller, Teaching Total Percussion (West Nyack, N.Y.: Parker Publishing Co., 1972), p. 21-23.

CHAPTER III

MATERIALS AND METHODS

Purpose of the Investigation

In this study the book suggested in Chapter I was utilized experimentally in public school beginning band classes. The purpose of the investigation was to examine the effect of using the supplementary percussion textbook, and to test the beginning percussionist's ability to acquire skill on a new percussion instrument.

The percussion text, Flexible Percussion Ensembles, was written by the author to meet the needs of the beginning percussionist. These needs, as mentioned in Chapter I, are for materials to help develop melodic and harmonic skills and concepts in addition to the rhythmic skills and concepts which the beginning drummer generally possesses.

Two tests were given in this investigation. The Colwell Music Achievement Test - II⁴⁷ was given to measure the subjects' understanding of rhythmic and melodic concepts, and the author developed a skills test to measure the subjects' ability to utilize these concepts in sight-reading music on an unfamiliar percussion instrument. This test may be found as Appendix B.

⁴⁷Richard Colwell, Elementary Music Achievement Test (Chicago: Follett Publishing Co., 1965).

The first hypothesis to be examined was: Beginning students using the supplementary percussion textbook will show significantly higher scores on posttests of skills and musical achievement than students who have used only a standard beginning band method book.

The second hypothesis was: Students having had previous instruction on piano will score higher on the posttests of skills and musical achievement than those who have not had this background.

The third hypothesis was: Boys in the study will score higher on the posttests of skills and musical achievement than girls.

The fourth hypothesis was: Students playing percussion instruments will score higher on the posttests of skills and musical achievement than clarinet players in the same class. It was assumed that the population of clarinet players in the beginning band would approximate that of percussionists. For this reason clarinet players were chosen to represent the wind instrument players in this study.

Supplementary Method Book

Existing method books for percussion and wind instrument players were surveyed. The data suggested that wind instrumentalists are expected to develop skills beyond those which percussionists are expected to develop. For example, the wind instrumentalist is expected to learn

scales, fingerings for different notes, duration of notes, sharp and flat, and key signatures, none of which is mentioned in the majority of the beginning drum method books.

The author assembled a textbook which included pictures of the standard percussion instruments, diagrams and pictures of various handholds and techniques of percussion playing and exercises which would correlate with the typical band method etudes.

Stand back from the two tympani far enough so that you comfortably strike the heads in the area of best tone, 3 to 5 inches from the rim, between two tuning rods.

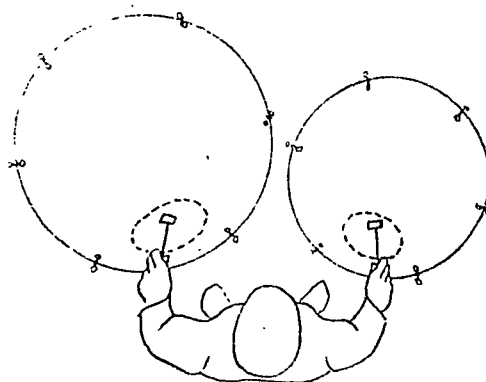


Fig. 1. Illustration from Textbook--Tympani.

The first half of the F major scale is given, can you find the rest of it?

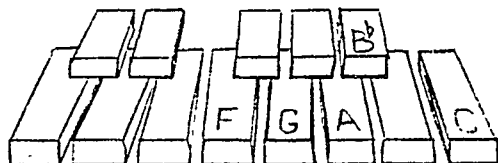


Fig. 2. Illustration from Textbook--Keyboard.

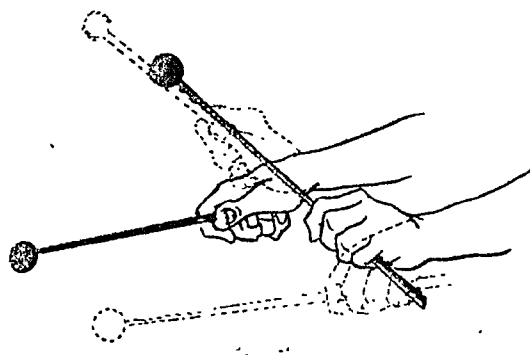


Fig. 3. Illustration from Textbook--Mallet Movement.

The book was written to be flexible enough to be used by one or more players, and allows such substitution as would be necessary in small classes with one or two percussionists or larger groups with five or more players.

The information gained from a survey of current instructional materials guided the design and led to the completion of a supplementary beginning percussion text which fills a definite need in the present pedagogical materials. This supplementary text is an attempt to provide the literature suggested by Olson, Keezer, Colwell, Schinstine et al., Stanley, Elias, Faulman, Longyear and Baldwin.⁴⁸

⁴⁸Olson, "Beginning Percussion Class," 88; Keezer, "Elementary Percussion Education," 38; Colwell, Instrumental Music, p. 323; Schinstine et al., "Improving Percussion Education," 66; Stanley, "Training Today's Percussionist," 65; Elias, "Percussion Education," 7; Faulman, "Start Mallets," 13; Longyear, "Starting Percussion Students," 65; Baldwin, "Beginning Percussion Instruction," 135.

Based on a literature search, conversations with band directors, examination of beginning band materials at one of North Carolina's largest band music dealers, and on past experience with beginning instrumental classes, ten method books by seven different publishers were selected:

1. Belwin Band Builder, Douglas and Weber
2. Easy Steps to the Band, Taylor
3. First Division Band Method, Weber
4. Hal Leonard Elementary Band Method, Rusch
5. Master Method for Band, Peters
6. The MPH Band Method, Kinyon
7. Prep - A Beginning Band Method, Prescott and Phillips
8. Silver Burdett Instrumental Series, Phillips, Feldstein and Rooker
9. SYB Junior Band Class Instructor, Smith, Yoder and Bachman.
10. Take One, Peters and Betton.⁴⁹

⁴⁹Wayne Douglas and Fred Weber, Belwin Band Builder (Rockville Centre, N.Y.: Belwin, Inc., 1953); Maurice D. Taylor, Easy Steps to the Band (New York: Mills Music, Inc., 1939); Fred Weber, First Division Band Method (Rockville Centre, N.Y.: Belwin, Inc., 1962); Harold W. Rusch, Hal Leonard Elementary Band Method (Winona, Minn.: Hal Leonard Music, Inc., 1961); Charles S. Peters, Master Method for Band (Park Ridge, Ill.: Neil A. Kjos Music Co., 1958); John Kinyon, The MPH Band Method (New York: M. Witmark & Sons, 1962); Gerald R. Prescott and June C. Phillips, Prep - A Beginning Band Method (Minneapolis, Minn.: Paul A. Schmitt Music Co., 1952); Harry I. Phillips, Saul Feldstein and Edgar Q. Rooker, Silver Burdett Instrumental Series (Morristown,

Items noted in examining these method books included the use of certain common folk tunes, the keys utilized for these tunes and the rhythm and meter notation employed. All of the books included musical examples with meter signatures of $\frac{4}{4}$, $\frac{3}{4}$, and $\frac{2}{4}$, while other signatures were found much less frequently. Note values seldom went beyond eighth notes to whole notes. The concert keys found in most of these examples were A flat, E flat, B flat and F Major, with D flat in one and C in two of the books only. The tunes in the supplementary percussion book have been selected and arranged in conformity with the limitations of pitch and rhythm which were common to the majority of these band method books. All of the selected tunes appear in two or more of the method books except "Minka," which was included to offer one piece in the minor mode, and "He's Got the Whole World in His Hand," which is a more recent folk-type song with an appealing rhythm. "Old MacDonald" and "Twinkle, Twinkle Little Star" were found the most frequently.

In the spring of 1974 a class of young percussionists was organized to read through this supplementary book. The students came from grades four through nine,

N.J.: Silver Burdett Co., 1968); Claude Smith, Paul Yoder and Harold Bachman, SYB Junior Band Class Instructor (Park Ridge, Ill.: Neil A. Kjos Music Co., 1955); Charles Peters and Matt Betton, Take One (Park Ridge, Ill.: Neil A. Kjos Music Co., 1972).

but the majority had been studying drums less than a year. The experience gained by the researcher with this group was of considerable benefit while planning the scope of skills and assessing the motivational qualities of the ensembles. The author completed Flexible Percussion Ensembles during the summer of 1974, and it was printed in quantity sufficient for testing during the 1974-'75 school year. This textbook may be found as Appendix A. A commercial artist was retained to assist with the necessary technical drawings.

Experimental Study

In order to have some measure of the effectiveness of this supplemental text book, an experimental study was designed in which students would use the book along with their regular method of instruction.

Random selection of classes from public schools in Cary, Elm City, Raleigh, Rocky Mount, Spring Hope, and Wilson, North Carolina were included in the sample. These six systems were accessible and of sufficient size to supply fourteen beginning instrumental classes.

The design of the experimental study was a four dimensional factorial design. Analysis of covariance was chosen to allow for pre-experimental differences. The four dimensions of the multivariate analysis of covariance design were: 1) the method utilized to teach beginning percussionists, with the supplementary textbook (P_x),

and without the supplementary text (P_c); 2) the grouping of instruments in the beginning class, homogeneous (G_s) and heterogeneous (G_g); 3) piano, any prior piano instruction (K_b) and no background in piano (K_1); and 4) sex, male (S_m) and female (S_f).

From the fourteen available beginning classes, half were selected at random to utilize the text, Flexible Percussion Ensembles, along with their regular beginning percussion method book; the others used only their regular method book. The symbols used to distinguish among subjects in the experimental design are: clarinetists in the experimental classes (C_x), clarinetists in the control groups (C_c) and a control class of non-band students selected from the participating schools (N).

Tests

To measure the effectiveness of the supplementary text, two posttests were given to each of the percussionists in the experimental as well as the control groups, the clarinet players in both groups, and students from one ordinary classroom in one of the participating schools.

The first dependent variable was a performance test designed to measure the degree to which a percussionist can successfully learn a skill in playing a new percussion instrument. The second dependent variable was a second administration of the Colwell MAT-II to measure the degree to which a percussionist has learned certain musical

concepts: major-minor mode discrimination, feeling for tonal center, and auditory-visual discrimination. These concepts seem particularly appropriate to preparatory study for tympani and mallet instruments.

The MAT-II was used as a covariate in this multivariate analysis of covariance design. Because of the several variables, those included in the design and many which are less tenable, the MAT-II was administered as a pretest as well as one of the posttests. With the use of the pretest in analysis of covariance, pre-experimental differences can be considered in the posttest of skills also, since the skills test is affected by the initial achievement level of the subject. McCarthy has stated: ". . . successful students tend to be successful regardless of their academic endeavor."⁵⁰

The author designed a posttest of skills to measure the degree to which a percussionist can successfully learn a skill in playing a new percussion instrument. The temple blocks were selected for this test, as they met two important requirements: 1) that the instrument demand melodic as well as rhythmic understanding and 2) that the instrument be unfamiliar to all the experimental subjects. Although specific pitches are not involved, notational problems of pitch (up and down, skips and steps, and

⁵⁰McCarthy, "Effect of Individualized Instruction," 15.

spatial organization) are inherent in reading music for temple blocks.

There are five blocks in a set used in today's music. They may all be set in a row like the naturals on a xylophone keyboard, or they may be stacked with two above three.

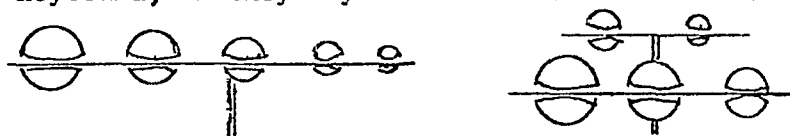


Fig. 4. Illustration from Skills Test Directions.

Each subject was given a page of instructions in playing this new instrument and six minutes to read the instructions and become familiar with the instrument. Then the subject was given thirty seconds to look over the skills test, to study the changes in pitch and the rhythmic problems. As each subject performed this test he was recorded on tape with a Sony TC-180AV Cassette Tape Recorder. Each subject was given four beats preparation at a tempo of 69 beats per minute.

The sight reading test was a musical exercise thirty-two measures in length, beginning quite simply with quarter note rhythms and single pitches. As the test progressed, a new problem in rhythm or a new note for the temple blocks was introduced approximately every two measures. For example, the quarter rest was introduced in measure two, and the second temple block was first scored in measure five. Eighth notes began in measure nine, and

the eighth rest was introduced in measure seventeen. In measure twenty-three all five tones were called for, and syncopation was introduced in measure twenty-five. Although limited to note and rest values which were common to the first year method books, it was found that the original version of the test became difficult too rapidly. The final version, used in this experimental study, followed the description given above.

Details of the administration of each skills test were made as similar as possible. The length of time for the explanation was the same, the students used the same temple blocks and mallets, the directions were read verbatim, and the tempo was indicated by an electric metronome.

TEMPLE BLOCKS
slowly

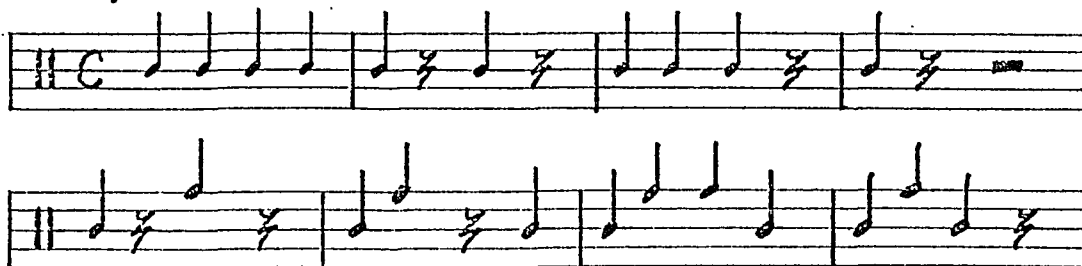


Fig. 5. Beginning of Skills Test.

Procedure for Evaluation of the Data

The scoring of the skills test was done independently by three professional percussionist-teachers, who knew neither the identity of the players, nor from which

group the player came (experimental or control). The judges were asked to place an 'M' in each measure in which an error in melody occurred, and an 'R' in each measure in which an error in rhythm occurred. When two consecutive measures were marked with an 'R' or an 'M' that measure number equaled the score for that component of the test. The total score for each subject was the sum of the 'R' plus the 'M' scores. For example, if, for one subject, a judge detected rhythmic errors in measures 3 and 4, and wrong notes in measures 9 and 10, his 'M' score would be 10, his 'R' score 4, and his total score would be 14.

Each of the judges' scores were converted to percentile, as was the total for the three judges. The inter-judge reliability of these ratings was examined.

The MAT-II took approximately fifty minutes to administer. The first fifteen minutes were spent distributing test blanks and pencils, filling in the blanks with the required information and giving preliminary instructions. The administration of the test itself, including directions, took approximately thirty-five minutes. The scoring was facilitated by a translucent template which indicated correct answers. Each correct answer in Part One (major-minor mode) and Part Two (tonal center) was worth one point. In Part Three (auditory-visual) each correct answer was worth two points. The score for MAT-II was the total number of points from the three parts.

The MAT-II scores for each part and for the total were converted to percentiles, using the tables of norms for sixth grade found in the MAT Interpretive Manual.⁵¹ The same norms were used for all students to facilitate comparison.

The MAT-II was administered under similar testing conditions in all schools. The recorded test was re-recorded onto cassette tape and played back on a Sony TC-180AV Cassette Recorder for uniformity among the different administrations. The students were in their usual band classroom at their regularly scheduled time and wrote on desks when these were available, or on notebooks. A log was kept of the administration of each test. No unexpected distractions or problems occurred. In most cases there was the usual amount of playground and hallway noise. Temperature, lighting and ventilation were all within acceptable limits.

The instrumental classes utilized in this study began instruction in September of 1974. By the second semester of the 1974-'75 school year these students had nearly completed their first year method book, and had become familiar with notation and rudimentary performance skills. The MAT-II pretest was administered to all subjects at the beginning of the experimental period.

⁵¹Richard Colwell, MAT--Music Achievement Tests 1 and 2--Interpretive Manual (Chicago: Follett Educational Corporation, 1969), pp. 128-130.

During the testing period the regular band teacher continued to serve as the instructor, and the normal school schedule was maintained. The percussionists in the experimental groups were given copies of Flexible Percussion Ensembles, with a minimum of explanation at the outset. The teachers were instructed in the use of the book and given suggestions for including work from this book in the percussionist's assignments. After about six weeks (the class hours being equal) all students were given the post-tests: the skills test and the MAT-II.

CHAPTER IV

RESULTS

The results of the data from this investigation have been analyzed utilizing a Multivariate Analysis of Covariance (MANCOVA) in a Statistical Analysis System (SAS), Regression Program.⁵² The computer at the North Carolina Research Triangle was used for this program, utilizing the terminal at the University of North Carolina at Greensboro.

Table 1 gives a list of symbols used in the analysis of the data.

Null Hypotheses

The four research hypotheses stated in Chapter III were restated as null hypotheses for the purpose of statistical analysis. The .05 level of confidence was used as the criterion for rejection of all null hypotheses. These were examined by using a multivariate analysis of covariance on the combined adjusted posttest scores. Univariate analysis of covariance was employed to examine each of the adjusted posttest scores (MAT-II and Skills Test) independently.

⁵²Anthony James Barr and James Howard Goodnight, Statistical Analysis System (SAS) Manual (Raleigh, N.C.: North Carolina State University, 1970).

TABLE 1
SYMBOLS USED IN ANALYSIS OF DATA

A	MAT-II, Pretest	
A ₁	MAT-II, part 1, major minor	} Covariates
A ₂	MAT-II, part 2, tonal center	
A ₃	MAT-II, part 3, auditory-visual	
A _t	MAT-II, total of all parts	
I	Grouping by Instrument	
P _x	Percussionists in the Experimental Groups	
P _c	Percussionists in the Control Groups	
C _x	Clarinetists in the Experimental Groups	
C _c	Clarinetists in the Control Groups	
N	Subjects in the Non-band Control Class	
K	Grouping by Piano (keyboard) Background	
K ₁	Students Lacking in Piano Background	
K _b	Students with a Background in Piano	
S	Sex of Subject	
S _m	Boys	
S _f	Girls	
G	Grouping According to Class Makeup	
G _s	Homogeneous (single instrument)	
G _g	Heterogeneous (grouped)	
AA	MAT-II Posttest (total of all parts)	
SK	Skills Test, Posttest	
X	Skills Test Judge Number 1	
Y	Skills Test Judge Number 2	
Z	Skills Test Judge Number 3	
FPE	Treatment: <u>Flexible Percussion Ensembles</u>	

The null hypotheses for both the multivariate and univariate analyses are stated below.

I. There will be no significant difference in the criterion scores MAT-II (AA) and Skills Test (SK) as a result of the use of the supplementary percussion textbook (FPE).

(Ia). There will be no significant difference in the criterion score MAT-II (AA) as a result of the use of the supplementary percussion textbook (FPE).

(Ib). There will be no significant difference in the criterion score Skills Test (SK) as a result of the use of the supplementary percussion textbook (FPE).

II. There will be no significant difference in the criterion scores (AA and SK) as a result of previous training on piano (K).

(IIa). There will be no significant difference in the criterion score (AA) as a result of previous training on piano (K).

(IIb). There will be no significant difference in the criterion score (SK) as a result of previous training on the piano (K).

III. There will be no significant difference in the criterion scores (AA and SK) as a result of the sex of the subject (S).

(IIIa). There will be no significant difference

in the criterion score (AA) as a result of the sex of the subject (S).

(IIIb). There will be no significant difference in the criterion score (SK) as a result of the sex of the subject (S).

IV. There will be no significant difference in the criterion scores (AA and SK) as a result of playing percussion instruments (P).

(IVa). There will be no significant difference in the criterion score (AA) as a result of playing percussion instruments (P).

(IVb). There will be no significant difference in the criterion score (SK) as a result of playing percussion instruments (P).

Interjudge Reliability

To determine the reliability of the Skills Test, an estimate was obtained using the Hoyt Interjudge Reliability procedure.⁵³ This reliability was found to be .625. A table showing the correlation among the three judges (X, Y, and Z) may be found in Appendix C.

⁵³Cyril Hoyt, "Test Reliability Obtained by Analysis of Variance," Psychometrika, VI (June, 1941), 153-160.

Means

Scores for the three parts of the MAT-II and the total for this pretest were used as covariates in the MANCOVA. Table 2 shows the pretest-posttest means with the subjects grouped by instrument (I): Percussionists in the experimental group (P_x) who used Flexible Percussion Ensembles (FPE), Percussionists in control classes (P_c), Clarinet players in classes with P_x (C_x), Clarinet players in control classes (C_c), and primarily non-band students in a general class of sixth graders (N).

The pretest scores (the scores on the MAT-II) are indicated by A: Part 1, major-minor (A_1), Part 2, tonal center (A_2), Part 3, auditory-visual (A_3), and the Total (A_t). SK is the score on the Skills Test posttest and AA in the total score from the posttest administration of the MAT-II. All scores are shown as percentiles.

The pretest-posttest means of students grouped according to their background in piano (K) can be found in Table 3: students with some background study of piano (K_b), and those who are lacking this background (K_l).

The means of students grouped by two variables: piano background (K) and class makeup (G) can be found in Table 4. The class makeup is indicated for homogeneous grouping (G_s) as a single instrument studied in each class and heterogeneous grouping (G_g) as two or more instruments grouped into a single class.

TABLE 2
MEANS OF GROUPS BY INSTRUMENT ON PRETEST AND POSTTESTS

	Percussion Experimental (P _x)	Percussion Control (P _c)	Clarinet Experimental (C _x)	Clarinet Control (C _c)	Non-band (N)
N	36	16	29	26	27
MAT-II Part 1 (A ₁)	33.36	36.00	41.97	45.96	38.33
MAT-II Part 2 (A ₂)	45.64	57.25	58.00	63.15	59.70
MAT-II Part 3 (A ₃)	48.64	40.00	62.21	65.19	52.04
MAT-II Total (A _t)	39.11	37.38	55.83	61.38	47.37
Skills Test (SK)	49.67	54.44	48.45	54.42	33.70
Skills Test (SK) Adj.*	52.36	58.65	45.91	50.41	34.20
MAT-II (AA) Posttest	58.98	42.69	58.00	63.54	45.63
MAT-II (AA) Adj.*	64.64	51.42	52.71	55.16	46.65

*Adjusted for pre-existing differences on the pretest.

TABLE 3
MEANS ACCORDING TO PIANO BACKGROUND

		Pretest				Posttest			
	N	MAT-II Part 1 (A ₁)	MAT-II Part 2 (A ₂)	MAT-II Part 3 (A ₃)	MAT-II Total (A _t)	Skills Test (SK)	Skills Test Adj.*	MAT-II Total (AA)	MAT-II Adj.*
With- out Piano (K ₁)	93	34.28	51.00	47.19	39.99	40.78	43.48	48.26	53.91
With Piano (K _b)	41	49.66	67.12	70.88	67.83	63.32	57.20	70.34	57.53

*Adjusted for pre-existing differences on the pretest.

TABLE 4
MEANS BY TWO VARIABLES: PIANO AND GROUPING

		Pretest				Posttest				
		N	MAT-II Part 1 (A ₁)	MAT-II Part 2 (A ₂)	MAT-II Part 3 (A ₃)	MAT-II Total (A _t)	Skills Test (SK)	Skills Test Adj.*	MAT-II Total (AA)	MAT-II Adj.*
With- out Piano (K ₁)	Homo- geneous Group (G _s)	18	31.56	46.72	56.94	45.28	47.33	47.70	52.72	53.65
	Hetero- geneous Group (G _g)	75	34.93	52.03	44.85	38.72	39.21	42.47	47.19	53.97
With Piano (K _b)	Homo- geneous Group (G _s)	13	45.92	64.15	61.69	58.00	70.00	66.98	65.31	58.92
	Hetero- geneous Group (G _g)	28	51.39	68.50	75.14	72.39	60.21	52.66	72.68	65.89

*Adjusted for pre-existing differences on the pretest.

MAT-II Analysis

The analysis of covariance for the dependent variable MAT-II posttest (AA) can be found in Table 5. Examination of this table indicates that the null hypothesis Ia, there will be no significant difference in the criterion score (AA) as a result of the use of the supplementary textbook, should be rejected at the .05 level of confidence. Using Scheffe's method for multiple comparisons among the adjusted means in Table 2, it was found that the percussionists in the experimental group (P_x) scored significantly higher than the non-band (N) control group on the posttest (AA) at the $\alpha = .05$ level and that all other pairwise comparisons among the five groups were not significant.

When all percussionists (P_x and P_c) were compared with the others (C_x , C_c , and N) using Scheffe's method, no significant difference was found. Thus null hypothesis IVa, there will be no significant difference in the criterion score (AA) as a result of playing percussion instruments, should be accepted. Further examination of Table 5 indicates that null hypotheses IIa, there will be no significant difference in the criterion score (AA) as a result of previous training on piano, and IIIa, there will be no significant difference in the criterion score (AA) as a result of the sex of the subject, should both be accepted.

TABLE 5
ANALYSIS OF VARIANCE FOR MAT-II POSTTEST

Source of Variance	Degrees of Freedom	Sum of Squares	F-Value	Probability	
MAT-II (A ₁) Part 1	1	10933.73	34.78	0.0001	*
MAT-II (A ₂) Part 2	1	4784.40	15.22	0.0002	*
MAT-II (A ₃) Part 3	1	29292.36	93.17	0.0001	*
MAT-II (A _t) Part total	1	109.26	0.35	0.56	
} Covariates					
Instrument (I)	4	5646.87	4.57	0.002	*
Piano (K)	1	212.38	0.68	0.41	
Sex (S)	1	22.53	0.07	0.79	
Grouping (G)	1	233.60	0.74	0.39	
I x K	4	1104.17	0.88	0.52	
I x S	4	854.33	0.67	0.61	
I x G	2	1306.28	2.08	0.13	
K x S	1	15.75	0.05	0.82	
K x G	1	947.51	3.01	0.09	
S x G	1	299.97	0.95	0.33	
I x K x S	3	1561.97	1.66	0.18	
I x K x G	2	218.44	0.35	0.71	
I x S x G	1	92.97	0.30	0.59	
K x S x G	1	130.29	0.41	0.52	
Error	102	32067.16			

*Significant at the $\alpha = .05$ level.

Skills Test Analysis

The analysis of covariance for the dependent variable, the Skills Test posttest (SK) can be found in Table 6. Examination of this table indicates that the null hypotheses Ib, there will be no significant difference in the criterion score (SK) as a result of the use of the supplementary text (FPE), and IIb, there will be no significant difference in the criterion score (SK) as a result of previous training on the piano (K), should both be rejected. Using Scheffe's method for multiple comparisons among the adjusted means in Table 2, it was found that the percussionists in the experimental group (P_x) scored significantly higher than the non-band (N) control group on the posttest (SK) at the $\alpha=.05$ level, as did the percussionists in the control group (P_c) and the clarinetists in the control group (C_c). No other pairwise comparisons among the five groups were significant.

An examination of the adjusted means in Table 3 indicates that students with a background in piano (K_b) scored significantly higher than the students lacking this background (K_1) on the posttest (SK) at the $\alpha=.05$ level.

TABLE 6
ANALYSIS OF VARIANCE FOR SKILLS TEST POSTTEST

Source of Variance	Degrees of Freedom	Sum of Squares	F-Value	Probability	
MAT-II (A ₁) Part 1	1	5308.07	8.01	0.0056*	Covariates
MAT-II (A ₂) Part 2	1	1147.87	1.73	0.1910	
MAT-II (A ₃) Part 3	1	11759.58	17.75	0.0001*	
MAT-II (A _t) Total	1	7.22	0.01	0.91	
Instrument (I)	4	8718.18	3.29	0.01*	
Piano (K)	1	2701.64	4.08	0.05*	
Sex (S)	1	4.01	0.01	0.94	
Grouping (G)	1	99.88	0.15	0.70	
I x K	4	4541.36	1.71	0.15	
I x S	4	1597.80	0.60	0.66	
I x G	2	759.14	0.57	0.57	
K x S	1	1.81	0.00	0.96	
K x G	1	4112.37	6.21	0.01*	
S x G	1	1274.01	1.92	0.17	
I x K x S	3	2172.76	1.09	0.36	
I x K x G	2	369.97	0.28	0.76	
I x S x G	1	327.23	0.49	0.48	
K x S x G	1	187.78	0.28	0.60	
Error	102	67572.53			

*Significant at the $\alpha = .05$ level.

When all percussionists (P_x and P_c) were compared with the others (C_x , C_c , and N) using Scheffe's method, no significant difference was found. Thus null hypothesis IVb, there will be no significant difference in the criterion score (SK) as a result of playing percussion instruments, should be accepted. Further examination of Table 6 indicates that null hypothesis IIIb, there will be no significant difference in the criterion score (SK) as a result of the sex of the subject, should be accepted.

It was also found that the interaction of piano background and class makeup ($K \times G$) was significant. The means for the four groups presented in Table 4 are graphed in Figure 6. Scheffe's method of multiple comparisons

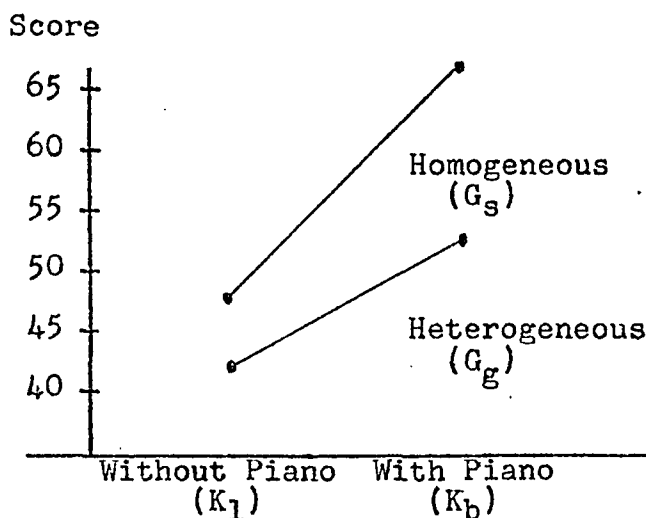


Fig. 6. Interaction of Piano (K) with Class Makeup (G) on Adjusted Skills Test Score (SK).

indicates that the students with piano backgrounds in homogeneous classes (K_pG_s) scored significantly higher on the skills test posttest (SK) than students lacking piano background in heterogeneous classes (K_1G_g). No other pairwise comparisons among the four groups were significant.

Multivariate Analysis of Covariance

The result of the multivariate analysis of covariance is presented in Table 7. No significant differences were found in any of the effects. Therefore null hypothesis I, there will be no significant difference in the criterion scores (AA and SK) as a result of the use of the supplementary text (FPE), null hypothesis II, there will be no significant difference in the criterion scores (AA and SK) as a result of previous piano training (K), null hypothesis III, there will be no significant difference in the criterion scores (AA and SK) as a result of the sex of the subject (S), and null hypothesis IV, there will be no significant difference in the criterion scores (AA and SK) as a result of playing percussion instruments (P), will be accepted. The values of the Roy's Maximum Root Criterion were compared with the $\alpha = .05$ critical values obtained from Multivariate Statistical Methods.⁵⁴

⁵⁴D. M. Morrison, Multivariate Statistical Methods (New York: McGraw Hill, 1967), pp. 312-19.

CHAPTER V

DISCUSSION

Tests

The Multivariate Analysis of Covariance (MANCOVA) was utilized as this procedure adjusts the posttest scores for pre-experimental differences. A musical achievement test (MAT-II) was selected as the covariate, because the parts of this test measured prior achievement in certain areas investigated in this study.

There were two tests given as posttests, a second administration of the MAT-II and a skills test on an unfamiliar percussion instrument. The skills test, described in Chapter III, was recorded on tape for each of the subjects, then judged anonymously by three judges (X, Y, and Z). The interjudge reliability estimate of .625 for the three judges on the skills test (SK) would seem to indicate that the test was sufficiently reliable to measure the skills for which it was designed.

The intercorrelation of the scores of the three judges is given in Appendix C. This shows a moderately high correlation between Judges X and Z (0.79), but a lower correlation between Judges X and Y (0.53) or Z and Y (0.56). This would indicate that Judge Y may have used

a somewhat different set of grading criteria than the other two judges.

The scores from the MAT-II were converted to percentiles using the norms for sixth grade in the MAT Interpretive Manual. For purposes of comparison then, the numerical scores for each judge on the skills test and for the combined scores were converted to percentiles.

Means

The means for groups by instrument are given in Table 2. This shows the clarinet groups to be above the national median ($C_c - 61.38$ and $C_x - 55.83$) on the pretest (A_t), while the two percussion groups and the non-band group were below the national median ($P_c - 37.38$, $P_x - 39.11$, and $N - 47.37$). The means used for analysis were adjusted by these pretest scores used as covariates.

The means on the posttest of skills (SK) and achievement (AA) are also given in Table 2. The unadjusted means show the control percussion classes (P_c) and the control clarinet classes (C_c) to have scored higher on the skills test (SK) than the experimental percussion classes (P_x) and the experimental clarinet classes (C_x), heterogeneous classes in which the percussionists used Flexible Percussion Ensembles. Both groups scored higher than the non-band group (N) on this criterion variable. On the other criterion variable, the music achievement test (AA), the non-band students showed little gain

from pretest to posttest administration. All the instrumental groups showed gains from approximately 2 points (C_c) to nearly 20 points (P_x).

The means for students on the basis of piano background (K) as reported in Table 3 show that the students with a background in piano (K_b) scored from 15 to 28 percentile points higher than those without a piano background (K_1) on every test given. This result agrees with the results from prior studies reported in Chapter II.

The means for students on two variables, piano (K) by class grouping (G) are given in Table 4. This shows that students with piano background in heterogeneous classes (K_bG_g) scored the highest on the pretest (A_t). The group with piano in homogeneous classes (K_bG_s), however, scored the highest on the skills test (SK). The difference between the means of these two groups was less on the posttest (AA) than the pretest (A_t).

Tests of Significance

Null hypothesis Ia, dealing with the effect of the textbook (FPE) on the posttest (AA) scores was rejected. This would seem to indicate that the book did exert some influence on the percussionists who used it, at least in areas tested by the MAT-II, including music reading and auditory skills. The post hoc test of significance determined that the experimental percussion (P_x) group was the

only group significantly higher than the control group (N) on this measure (AA).

Null hypothesis Ib, dealing with the effect of the textbook (FPE) on the posttest (SK) scores, was rejected. The post hoc tests indicated that not only the experimental percussion (P_x) group, but also the control clarinet (C_c) and control percussion (P_c) groups were significantly higher than the control group (N). Instrumental training in general seems to be more important than the use of the supplementary book (FPE) in the development of the subjects' ability to perform well on the skills test.

Null hypothesis IIb, dealing with the effect of piano training (K) on the posttest (SK) scores, was rejected. Students who had a background in piano scored significantly higher than those who had not. Perhaps piano training emphasizes the reading and playing skills which were necessary on the skills test.

On the posttest (AA) the variable sex (S) was not significant. This would indicate that the factor sex had no relationship to the scores on the achievement test (AA). The variable grouping by instrument (I), however, was significant at the .05 level, indicating that instrumental music instruction does contribute to the musical growth of students in reading and ear training.

On the posttest (SK) three independent variables, instrument group (I), piano background (K), and the interaction of piano and class grouping (K x G) showed significant differences. This interaction would indicate that the students in homogeneous classes (G_s) were able to profit more from prior piano instruction (K_p) than were students in heterogeneous classes (G_g). As Figure 6 shows, there is a difference of nearly twenty points between piano and no piano in the homogeneous group. The heterogeneous group, however, shows only a ten point difference. Possibly the homogeneous class is more like the private instruction piano students receive, and they are able to carry over more of their prior skills.

Related Items

The Analysis of Covariance takes into account pre-existing differences among the subjects. While this was necessary in determining the significance of the several variables, it may at the same time tend to mask some important data. In particular, the unadjusted means for both pretest (A_t) and posttest (AA and SK) scores are higher for the homogeneous (G_s) classes than for the heterogeneous (G_g) classes. This difference is minimized by the MANCOVA to the degree that class grouping (G) was not significant on either adjusted criterion scores. The unadjusted means offer support to the claim

that homogeneous grouping is the more efficient way to schedule beginning band classes.

The unadjusted means for students in homogeneous classes (G_s) were 3.9 points higher on the posttest (AA) and 11.9 points higher on the posttest (SK) than their counterparts in heterogeneous classes (G_g). This difference to a less marked degree is still present in the scores adjusted through the analysis of variance. These scores, shown as the first factor in the display in Appendix D, indicate that students in homogeneous (G_s) classes attained adjusted means on the skills test (SK) 10.5 points higher than students in heterogeneous (G_g) classes.

The adjusted means by instrumental group (I) can be seen in Table 2. The percussionists with the textbook (P_x) scored significantly higher than the non-band (N) group on both the skills (SK) test and the achievement (AA) test. They (P_x) were higher than the control percussionists (P_c) on the MAT-II (AA) but not significantly. However, the control group (P_c) were higher than the experimental group (P_x) on the skills test (SK). There may be two possible reasons for this phenomenon. The textbook (FPE) may emphasize theoretical concepts which are better indicated by the achievement test, or perhaps using the book took away time from the experimental (P_x) group, which the control group (P_c) used for more actual

playing performance. This extra practice time may be reflected in the higher skills test (SK) scores by the control (P_c) group.

Examination of Table 2 has shown that the experimental percussionists (P_x) scored higher on the MAT-II posttest (AA) than the controls (P_c) but lower on the posttest of skills (SK). This may indicate that the MAT-II is not a good predictor for the skills tested in (SK). Perhaps a pretest of skills could be devised which would be a better covariate for the posttest (SK). The problem raised by this suggestion is that the students have little playing ability at the beginning of this, their first year of band instruction. What skills they may already have would be difficult to measure.

As Judge Y correlated only at .53 and .56 with the other two judges, it was thought that perhaps this difference in scoring might have affected the posttest (SK) means. With this supposition, a supplementary analysis was conducted in which Judge Y was eliminated and skills test (SK) scores were computed for only two judges. The results did not change the outcome and this possibility was rejected.

The highest adjusted achievement test (AA) mean was 72.28 by the experimental percussion group in a homogeneous class with piano background ($P_x K_b S_m G_s$)(N=2). The highest adjusted skills test (SK) mean was 79.75 in

the control percussion group in a homogeneous class lacking piano ($P_cK_bS_fG_s$) ($N=1$) with the aforementioned group ($P_xK_bS_mG_s$) at 74.23. It may be seen that these groups have in common homogeneous grouping and a background in piano.

Although 134 students were sampled, 4 cells in this experimental design had no subjects. There were no females in 3 percussion groupings ($P_xK_lS_fG_g$, $P_cK_bS_fG_g$, and $P_cK_bS_fG_g$) and no male clarinet with piano background in experimental classes ($C_xK_bS_mG_g$). In addition to the 4 empty cells there were 7 cells which contained only 1 subject.

In general the lowest scores for both the test of musical achievement (AA) and the skills test (SK) are found in the control groups, particularly the non-band students who had not had piano instruction. Some less restrictive grouping might be suggested by the 4 empty cells and the 7 cells with only one subject. Cells with no subjects or few subjects may allow more extreme scores and may tend to make the MANCOVA a less powerful tool.

As the cell sizes have been noted to be small or zero in some cases, an attempt was made to determine the effect on the study by eliminating one independent variable. The factor sex (S) was not significant, so

cells were collapsed on this factor in order to get larger cell sizes. This eliminated all the empty cells and reduced to 1 the number of cells with $N=1$. Again, however, the effect of this secondary analysis did not change the significance found in the original MANCOVA.

The experimental population has been given as 134. Attrition and illness had reduced this from a projected population of 139 students. In addition, one control class which had been included in the pretest was eliminated from the study when it was discovered that it was not a truly typical, heterogeneous class. This class was a general music class in which there were no band students. In this school, band took the place of general music class.

After the experimental study had been set up with the Supervisor of Music and the teachers in one system, an administrator decided to cancel the study in that particular school. This resulted in the elimination of one class which had been randomly selected to serve as a control. The problem, it seemed, was that there had been abuses of confidential data by earlier researchers in this school.

The problem of obtaining I.Q. scores was increased by this situation in the entire city system. In another school system no I.Q. tests had been given for several years, or were to be given in the future. In a third

system, the recently enacted law providing parental access to school records necessitated parental permission to use I.Q. scores. This parental permission was not forthcoming in several cases. Because of the above problems, the variable of I.Q. was not included in the data analysis.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

Summary

The purposes of this study were threefold: to investigate the current status of beginning percussionists in selected schools in Eastern North Carolina; to develop a book which would supplement the beginning snare drum method often found in the public schools; and to examine experimentally the effect of: 1) such a book, 2) piano background, 3) sex, and 4) class makeup on the musical development of these beginning percussionists.

A review of pertinent literature indicated that percussionists are generally less prepared to play the parts assigned to them in band compositions than are the wind instrumentalists in the same organizations. One reason mentioned is the common practice of beginning percussion instruction with snare drum alone.

The typical beginning instruction book perpetuates this uniparous approach to percussion instruction. The literature indicated that many band directors, following these textbooks exactly, concentrate on the snare drum to the exclusion of the other percussion instruments.

Present research bears out the musical weaknesses found in many school-age percussionists. This research also discloses a wealth of pedagogical suggestions for improving the situation. Many of these suggestions indicate the need for beginning textbooks which teach the "total percussionist" rather than the beginning snare drummer.

The schools selected for this study started beginning classes in September of 1974. A book developed by the author, Flexible Percussion Ensembles, was utilized in an experimental situation in the Spring of 1975. The tests employed were the Colwell Music Achievement Test - II and an author designed skills test. A multivariate analysis of covariance (MANCOVA) was utilized to examine the data from the two tests. Dependent variables included the supplementary text (Flexible Percussion Ensembles), the sex of the subjects, the grouping of the beginning band class, and the piano background of each subject. (N=134).

Four hypotheses were tested with the following results: 1) Percussionists using Flexible Percussion Ensembles scored significantly higher than a control, non-band group on the posttest music achievement test;

2) Percussionists using Flexible Percussion Ensembles as well as percussionists and non-percussionists in the control classes, scored significantly higher than a control, non-band group on the posttest skills test;

3) Students with a background in piano scored

significantly higher than those without a background in piano on the posttest skills test; and

4) Students with piano background in homogeneous classes scored significantly higher than students without piano background in heterogeneous classes on the posttest skills test.

The results indicate that insofar as beginning percussion students in Eastern North Carolina are concerned, the supplementary text Flexible Percussion Ensembles assists in developing: 1) the ability to find tonal center, 2) discrimination between major-minor, 3) the ability to identify mistakes in notation of rhythm and pitch. Further, both homogeneous class grouping and prior piano experience contribute to these skills and concepts, while sex does not seem to be a significant factor. The supplementary text did not significantly affect the ability to sight read on a new instrument.

Recommendations for Further Research

The results of this study indicate several questions which might be answered by further research:

1) What would be the results of a similar study in another part of the country?

2) What would be the results of a similar study over a longer period of time (one or two years)?

3) Why does sex not seem to be a factor in the

achievement of percussionists?

4) How could a more reliable measure of the playing skills developed by percussionists be constructed?

5) What new approaches could be taken to train the beginning percussionist in all facets of percussion?

Answers to questions not within the scope of this study which might add needed information to percussion research include:

1) What is the effect of I.Q. scores on the achievement of percussionists?

2) Does there exist a unique set of personality characteristics common to percussionists?

3) Why do more boys than girls select percussion instruments in beginning bands?

4) What is the effect of some newer method books which have broader concepts of beginning percussion education?

5) What is the effect on percussion instruction of band directors recently graduating from college music programs which now emphasize "total percussion"?

Further research in all aspects of the percussion instruments, but particularly in percussion teaching, is sorely needed. Any future research or experimentation in this field can be expected to lead to better instructional materials and methods for percussion education.

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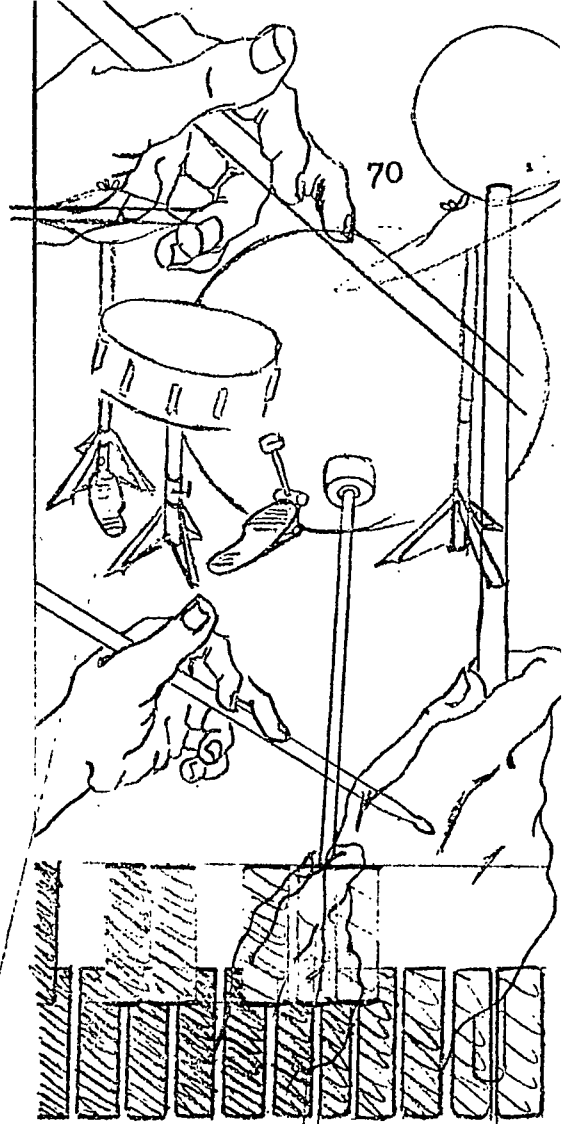
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APPENDIX A

FLEXIBLE PERCUSSION ENSEMBLES



FLEXIBLE
PERCUSSION
ENSEMBLES
FOR 1 TO 5 BEGINNERS

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<u>Are you Sleeping?</u>	17
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For 1 to 5 Beginners

by

Andrew C. Preston

The ensembles are based on familiar tunes, many of which are found in the more common beginning band method books. This book of ensembles is intended to supplement the first year band text book, which is often more limited in its scope of musical competencies than the comparable wind instrument parts. Most of the beginning band percussion books deal primarily with snare drum skills including rudiments -- the long roll and flam -- and rhythms -- eighth, quarter and half rests and notes.

Each percussionist could develop his skills beyond those covered in the typical method book if he has access to the school's resonator bells, a bell lyra, chromatic xylophone or piano, by progressing through the melody parts found here.

Likewise the young percussionist may develop skills needed soon on tympani, even if only two tom-toms, two timbales or two snare drums are available. "Roto-toms" or Orff school tympani are inexpensive additions to the beginning band program.

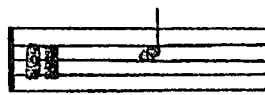
The percussion lines can be played by several players, each on a part. Or they may be performed by one player as multi-percussion solos, gradually increasing in difficulty. These can be played in place of comparable 8, 12, or 16 measure exercises with the rest of the band class.

After a few lessons with this book, a weekly percussion rehearsal at the Junior High or High School Band Room can do a great deal to build lasting enthusiasm and understanding, and combat the often found boredom in the beginning percussion section.

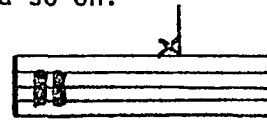
These pages can guide you in exploring different sounds found in playing the percussion instruments, give you suggested techniques of performance, and acquaint you with the notation used in writing percussion music.

Percussion

Investigate different effects possible with various sticks, on different parts of the drumhead, on the music stand, and so on.

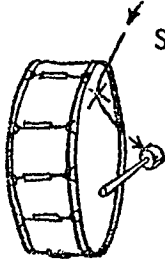


Regular tone,
near center
of the head.



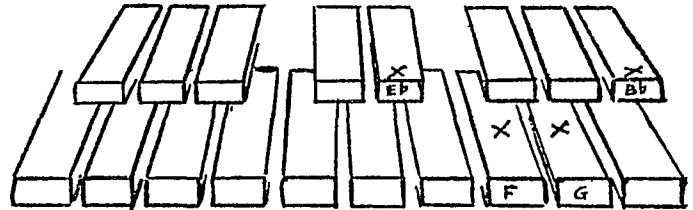
Right stick
on rim of
the drum.

Play the bass drum with a glancing blow about 10 inches from the rim.



Stop the tone after one count, with your right knee and left hand.

Bar Instruments (Bells, Marimba,
(Xylophone, Vibraphone)



Play the naturals (F & G) in the center, the flats (E^b & B^b) at the tip nearest you (spot x). E^b means half a step lower (to the left) than E. The three flats in the key signature at the beginning of each line place the song in the key of E^b . Can you find the entire E^b scale?

Simile means in the same manner as before. $\frac{4}{4}$ or C stand for Common time.

Tympani

Use bells, piano, trombone or any available pitch to tune the small tympano to the higher tone (E^b) and the large tympano to the lower tone (B^b). Let the half notes ring two full counts, but damp the tone with the fingers of your free hand when a rest (Z) occurs.

QUARTER NOTE ETUDE

Bar Instruments

Ad lib any notes in the E^b scale.

Percussion
Rim
S.D.
B.D.

Tympani $E^b + B^b$

(Simile)

MARY HAD A LITTLE LAMB
(MERRILY WE ROLL ALONG)

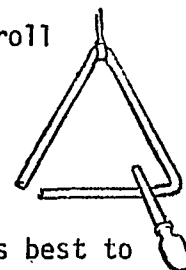
Bar Instruments

Percussion
Stick
Rim



Tympani $E^b + B^b$

Percussion

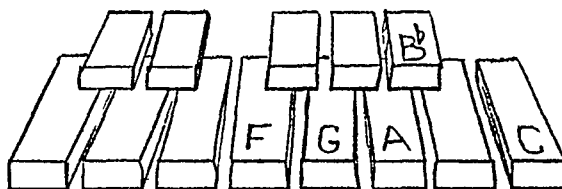
Always play with a good percussive stroke, as though you were pulling the tone out of the instrument, rather than hitting down into it. If one player is performing this line as a solo, try holding the triangle beater in one hand and the stick in the other. Strike the triangle 1/3 of the way in from the closed end. The snare drum roll may be the long roll or the single stroke roll mentioned below. The long roll is a rapid bounce roll -- L L R R.


Bar Instruments

Try different instruments from the one indicated. Which sounds best to you for each melody? Practice each melody on the piano also, in different octaves, lower and higher.

Use a light, single stroke roll for the notes marked  or . This is the only type of roll used for xylophone or tympani. (L R L R) Speed is not as important as keeping the roll relaxed and the strokes even.

The first half of the F major scale is given, can you find the rest of it?

Tympani

Use the single stroke roll mentioned above. On  roll into the 3rd count then let the tone ring through the 4th count.

The first tone, low F, should be the lowest tone you can get on the larger tympano. Check it with the piano or bells.

The repeat sign (:||) means to go back to the beginning unless there is a repeat sign (||:) to go back to.

QUARTER NOTE, WHOLE NOTE

Bar Instruments

Percussion

Cym.
S.D.
B.D.

Tympani F+C

GO TELL AUNT RHODIE

Bar Instruments

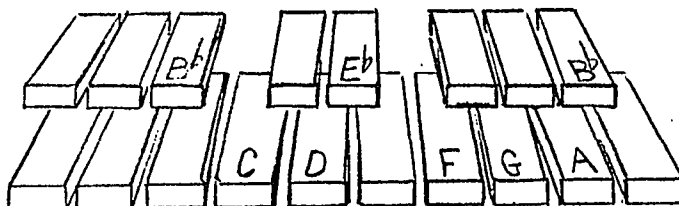
Percussion

Tri.
S.D.
B.D.

Tympani F+C

Bar Instruments

Twinkle, Twinkle is written in the key of B^b. Practice the B^b scale at the bottom of page 7, remembering that all B's and E's are played one half step lower on the bars on the far side of the instrument.



Use alternate sticking (L R L R or R L R L) as much as possible, to train the Left hand to match the Right in tone and volume.

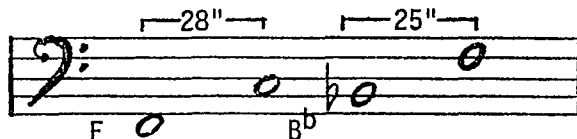
Try to produce every tone on each percussion instrument with a good percussive stroke. Imagine the mallet moving down toward the bar at 50 miles-per-hour and flying back at 100 miles-per-hour.

Tympani

The standard set of tympani should be tuned to these two notes at their lowest pitch. Ask your director to check that the larger tympano is correctly tuned to low F and the smaller to B^b.

Range of the tympani --

Tuning note

Percussion

By using six different sounds available to you (this could be any six sounds) one can imagine the melody of Twinkle Twinkle even though no pitch is sounded. Each space on the staff stands for a different sound.

D.C. (da Capo) means go back to the beginning and play to Fine (the End).

TWINKLE, TWINKLE

Bar Instruments

*

Percussion (h) Fine

Tympani B^b + F Fine

Fine

D.C. al Fine

D.C. al Fine

D.C. al Fine

* The rolls (h) may be omitted on bells or vibes.

* Percussion:

Shell Center Edge Rim Stand Stick

THE B^b SCALE

R L etc. R L

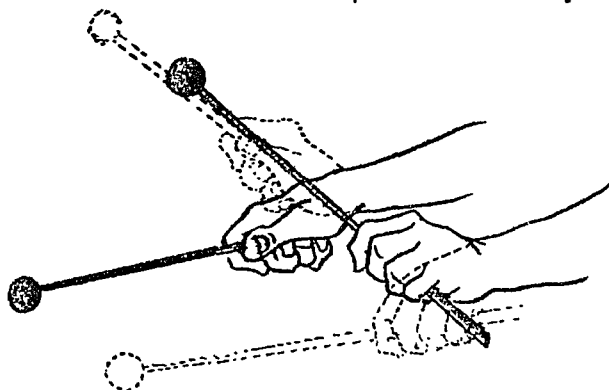
Percussion

The coordination involved for this percussion part is similar to the very familiar basic rock beat. One player can use the Right foot for the bass drum on the first beat, Left hand on the snare on beat two, and the Right hand keeping steady eighth notes on the sleigh bells (or ride cymbal) through the entire piece. The sign (‰) means to repeat the previous measure.

Bar Instruments

Jingle Bells is in the same key as Twinkle-Twinkle but starts on a different pitch. Notice, however, most melodies end on the key (home) tone.

Check that both hands move from the same height so that the single stroke roll sounds even and sustained. This is more important than speed.



Tympani

First and second endings are common in band music. Play the first ending (line 2) the first time up to the repeat sign (:||) then repeat back to the beginning. Omit this line as you play the piece the second time and go to the second ending (line 3).

There are no rolls at all in this piece, just concentrate on "pulling out the tone" rather than beating down into the drum. Sticking -- alternate (R L) as much as possible. For instance, in measure 3 use R L, and in measure 8 use R L R L.

JINGLE BELLS

Bar Instruments

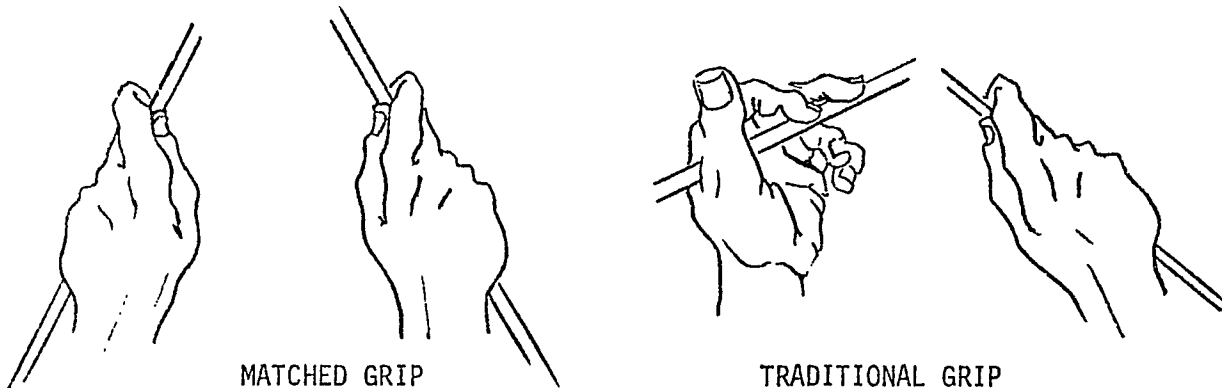
Musical score for the first system of 'Jingle Bells'. It consists of three staves. The top staff is for the Melody in G major (one flat), 2/4 time, with notes: G4, A4, B4, A4, G4, F4, E4, D4, C4. The middle staff is for Percussion, labeled 'Sleigh Bells', with notes: x, x, x, x, followed by three measures with a double bar line and repeat sign. The bottom staff is for Tympani, labeled 'B^b + F', with notes: G2, F2, E2, D2, C2, followed by notes marked 'R' and 'L' for right and left drums.

Musical score for the second system of 'Jingle Bells', marked '1.'. It consists of three staves. The top staff has notes: G4, A4, B4, A4, G4, F4, E4, D4, C4. The middle staff has notes: x, x, x, x, followed by three measures with a double bar line and repeat sign. The bottom staff has notes: G2, F2, E2, D2, C2, followed by notes marked 'R L R L'.

Musical score for the third system of 'Jingle Bells', marked '2.'. It consists of three staves. The top staff has notes: G4, A4, B4, A4, G4, F4, E4, D4, C4. The middle staff has notes: x, x, x, x, followed by three measures with a double bar line and repeat sign. The bottom staff has notes: G2, F2, E2, D2, C2, followed by notes marked 'x' for a specific drum sound.

Tympani

The tympani sticks are held so that the Left hand is identical to the Right. This "matched grip" is similar to that employed with xylophone or marimba mallets, and is called the German method. Watch that the thumbs stay on the stick and point toward the ball, and that the knuckles of the hand are nearly horizontal. Remember to muffle the tone when you get to a rest.

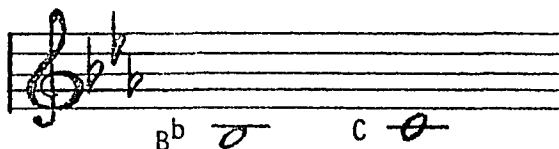
Percussion

The "matched grip" mentioned above is employed by many percussionists for the "set" of drums and for all other playing except when the drum is carried on a sling for marching. This "matched grip" has both sticks pivoting freely between the thumb and second joint of the index finger. The two sticks should point so that they are nearly in the same line with the forearm.

The rhythm of the closed hi-hat cymbal (or choked suspended cymbal) following the bass drum is called the afterbeat. Practice to keep it steady and exactly between each bass drum note.

Bar Instruments

The key of E^b is familiar from Mary Had a Little Lamb. The two pitches below the key note are also familiar.



Bar Instruments

Percussion R L L R Fine

Closed Cym. B.D. Fine

Tympani Eb + Bb Fine

L R Fine

B.D. Fine

Tympani Fine

R L X X X X D.C. al Fine

B.D. D.C. al Fine

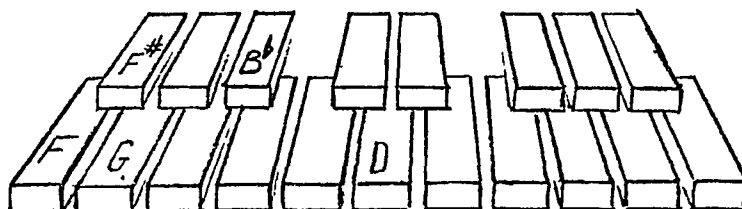
Tympani D.C. al Fine

X = Use different effects (duck call, cowbell, wood block, etc.) for each verse. Repeat the entire piece as often as desired.

() = Melody may omit these notes when percussion effects are played.

Bar Instruments

The key signature is the same as Jingle Bells - 2 flats; however, Minka sounds in the key of G minor. The accidental, F-sharp (F[#]) and the last tone (the home tone) G are characteristic of this tonality. F[#] is the left-hand bar of the group of three, centered between F and G. F[#] means half a step higher (to the right) than F.



Tympani

Try the suggested sticking. It is best not to play more than two notes in a row with the same hand. An > under the last note indicates an accent, which is played a bit louder than the other tones.

Percussion

If the drummer is playing this piece at the "set" this will be good practice in coordinating the two hands with the steady bass drum beat of the Right foot.

D. S. stands for dal Segno which means go back to the sign (♯).

Three clef signs have been used in this book. Treble clef (♯) is used for all melodic percussion instruments. Percussion clef (U) is used for drum parts. Bass clef (♭) is used for tympani. Many times drum parts will also be found to use Bass clef.

Bar Instruments

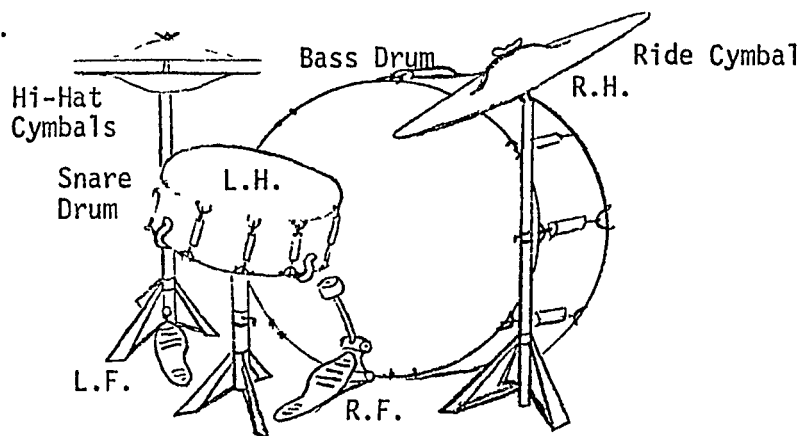
Musical score for Bar Instruments, Percussion, and Tympani. The Bar Instruments part is in 3/4 time with a key signature of two flats. The Percussion part includes Rim (SD, BD, 4) and Tympani (G + D, L, R). The score consists of four measures.

Musical score for Bar Instruments, Percussion, and Tympani. The Bar Instruments part is in 3/4 time with a key signature of two flats. The Percussion part includes Rim (SD, BD, 4) and Tympani (G + D, L, R). The score consists of four measures, ending with a 'Fine' marking.


Musical score for Bar Instruments, Percussion, and Tympani. The Bar Instruments part is in 3/4 time with a key signature of two flats. The Percussion part includes Rim (SD, BD, 4) and Tympani (G + D, L, R). The score consists of four measures, ending with a 'D.S. al Fine' marking.

Percussion

The "set" part given here is a basic "jazz" rhythm in which the bass drum (R.F.) and ride cymbal (R.H.) keep a steady four beats in a measure. The snare drum (L.H.) plays on beats 2 and 4 of each measure except the three pickup notes at the beginning and the last measure. This is similar to the slow afterbeat in Old MacDonald.



Bar Instruments

The quality of this piece is achieved with the syncopated (off-beat) rhythms found in every measure. In the first full measure, the note C is played before the count of four, and likewise, the A and G rolls in the next measure come before the second and third count. Think: 

The key signature, no sharps or flats, indicates the key of C Major.
(See page 24).

Tympani

The pitches for the tympani in the key of C are C and G. The C is played on the smaller drum up one tone from its lowest pitch, and the G up one tone from the larger drum's lowest pitch. Practice damping the tone, on the rest following each note, with the fingers of the hand that played that note.

Bar Instruments

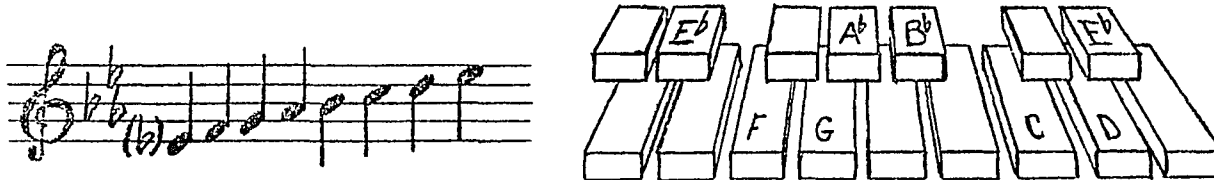
Musical score for the first system of 'Bar Instruments'. It consists of three staves. The top staff is in treble clef with a common time signature (C) and contains a melodic line with eighth and sixteenth notes. The middle staff is labeled 'Percussion' and includes 'Cym.' (Cymbal) with 'x' marks, 'S.D.' (Snare Drum) with note heads, and 'B.D.' (Bass Drum) with note heads. The bottom staff is in bass clef with a common time signature (C) and contains a bass line with eighth notes. The system spans three measures.

Musical score for the second system of 'Bar Instruments'. It consists of three staves. The top staff continues the melodic line from the first system. The middle staff continues the percussion parts, including cymbal, snare, and bass drum. The bottom staff continues the bass line. The system spans three measures.

Musical score for the third system of 'Bar Instruments'. It consists of three staves. The top staff continues the melodic line. The middle staff continues the percussion parts. The bottom staff continues the bass line. The system spans three measures and ends with double bar lines and repeat dots.

Bar Instruments

The key of E^b we have had before in Old MacDonald. The fourth scale step, A^b is new, however, to this piece. Practice the entire E^b scale before trying Are You Sleeping?



Good practice for note reading is to keep your eyes on the music, let your peripheral vision (that, that you see to the side of your direct line of sight) guide the mallets to the bar, and let your ear tell you if you struck the correct note.

Tympani

Roll the 3rd and 4th counts but lift the roll before the note on the first count of the next measure. The tuning is again E^b and B^b - the first and fifth notes of the scale, or "Do" and "Sol". Use a single stroke roll; never let the sticks bounce as they do on the snare drum long roll.

Percussion

If a wood block is not readily available, check with the music teacher to borrow a tone-block from the rhythm band instruments. The cone of the cymbal is the humped part next to the center hole. This has a more bell-like quality than the edge of the cymbal.

ARE YOU SLEEPING?
(FRÈRE JAQUES)

88

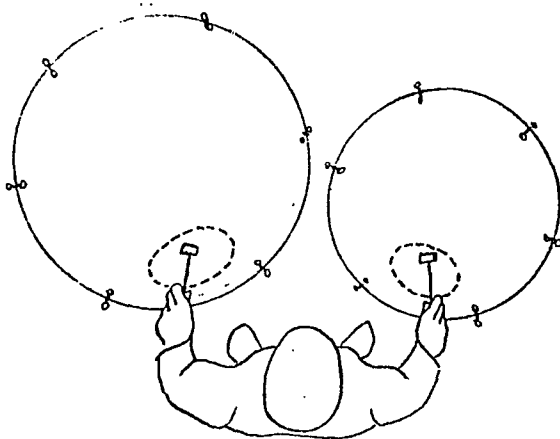
The musical score is arranged in three systems. The first system includes three staves: Bar Instruments (treble clef, C major), Percussion (C major), and Tympani (bass clef, E^b+B^b). The Percussion staff lists instruments: Cym. Cone, Block, and Rim. The score is marked with circled numbers 1 and 2. The second system continues the three staves, marked with circled numbers 3 and 4. The music is in common time (C) and features a simple melody with a steady bass line.

Performance suggestion: start with tympani for two measures, add percussion for two measures, then begin the round with as many different bar percussion instruments as possible, starting at two measure intervals.

Tympani

The key of B^b calls for the tympani tuning of B^b and F. However, this time, the F is the higher tone, found on the smaller drum as the highest tone that will sound full and clear. The B^b on the larger drum could be tuned to the lowest pitch of the smaller drum before it is raised to the high F.

Stand back from the two tympani far enough so that you comfortably strike the heads in the area of best tone, 3 to 5 inches from the rim, between two tuning rods.



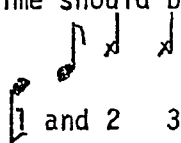
Bar Instruments

Be sure to roll the notes full value. When changing pitches, as in line 2, measure 5, connect the tones by not stopping the roll at all. When rolling on two consecutive notes of the same pitch, as in the first two measures, think of lifting the roll up and off the bar for just one or two strokes.

The tone, low A, is the natural bar to the left of B^b .

Percussion

This waltz time should be easy to keep even. On the last section, line 2, measure 5, count:



1. _____, as you play on the repeat of line one.

Bar Instruments

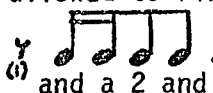
First system of the musical score. It consists of three staves. The top staff is for Bar Instruments, written in treble clef with a key signature of two flats and a 3/4 time signature. The middle staff is for Percussion, with a trill (Trl.) and a drum set (S.D. 3, B.D. 4) indicated. The bottom staff is for Tympani, written in bass clef with a key signature of two flats and a 3/4 time signature. The music features a melodic line in the bar instruments, a rhythmic pattern in the percussion, and a bass line in the tympani. A first ending bracket is present at the end of the system.



Second system of the musical score. It consists of three staves. The top staff is for Bar Instruments, written in treble clef with a key signature of two flats and a 3/4 time signature. The middle staff is for Percussion, with a trill (Trl.) and a drum set (S.D. 3, B.D. 4) indicated. The bottom staff is for Tympani, written in bass clef with a key signature of two flats and a 3/4 time signature. The music features a melodic line in the bar instruments, a rhythmic pattern in the percussion, and a bass line in the tympani. A first ending bracket is present at the end of the system.

Third system of the musical score. It consists of three staves. The top staff is for Bar Instruments, written in treble clef with a key signature of two flats and a 3/4 time signature. The middle staff is for Percussion, with a trill (Trl.) and a drum set (S.D. 3, B.D. 4) indicated. The bottom staff is for Tympani, written in bass clef with a key signature of two flats and a 3/4 time signature. The music features a melodic line in the bar instruments, a rhythmic pattern in the percussion, and a bass line in the tympani. A first ending bracket is present at the end of the system.

Percussion

This is a standard march part and the afterbeat should be even, at a moderate march tempo (speed). The bass drum and the cymbal part may be played by separate players or one player may play both parts simultaneously with his feet. In this case the hi-hat cymbal should be allowed to ring.


Measure 4 can be counted: . The second line begins with a

flam. Be certain that the grace note () is played with a stroke less than half as long as the principal stroke (). Play the snare drum within two inches of the center for less ring.

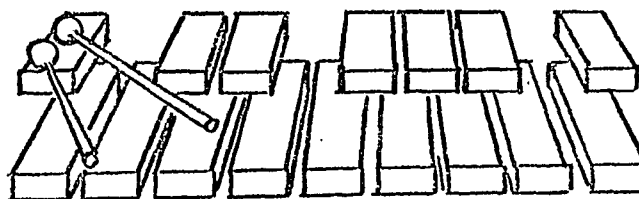
Tympani

Remember to alternate the sticking in the second line, as well as accenting (a bit louder) the half notes, by using a quicker percussive stroke. The tuning is the same as Jingle Bells - the larger tympano tuned to its lowest pitch, F, and the smaller one to its lowest pitch, B^b.

Bar Instruments

In this piece you will find that the sticking works out better if you start each group of eighth notes with the Right hand: . On the B^b roll you may

use one mallet at the tip of the bar and the other at the center.



THE MARINES' HYMN

Bar Instruments

Musical score for the first system. It consists of three staves: Bar Instruments (treble clef, 7/4 time), Percussion (snare drum, bass drum, and cymbal), and Tympani (bass clef, 7/4 time). The key signature has two flats. The percussion part includes rhythmic notation with 'R' and 'L' for right and left sides, and 'S.D.', 'B.D.', and 'Cym.' for snare drum, bass drum, and cymbal respectively. The tympani part is marked 'Bb + F'.

Musical score for the second system, continuing the three staves from the first system. The percussion part includes rhythmic notation with 'LR' for left and right sides. The tympani part has accents (>) under the first and third measures.

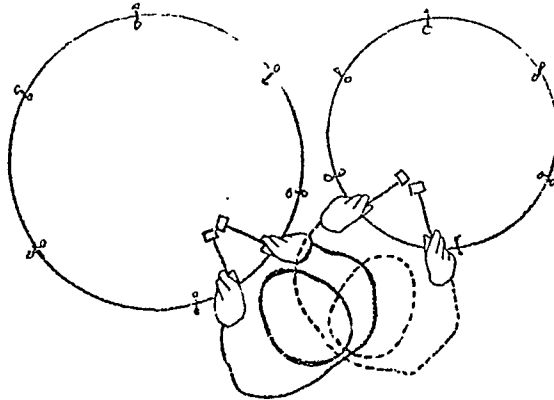
Musical score for the third system, continuing the three staves from the first system. The percussion part includes rhythmic notation with accents (>) under the first and third measures.

Bar Instruments

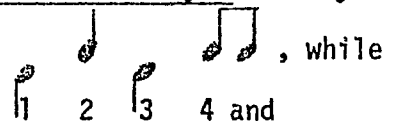
The key - E^b shows three flats: B^b , E^b and A^b . This locates the home tone (final pitch) even though the A^b is not needed in this piece. The melody follows many scale-wise patterns like Are You Sleeping?, so it will be helpful to review the entire E^b scale. (See page 16).

Tympani

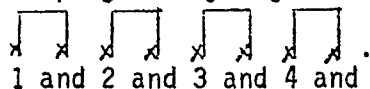
The tuning is the same as Are You Sleeping?, the first note in the E^b scale and the fifth note - B^b . Try the suggested sticking in measure two, pivoting your arms and shoulders rather than crossing the Right over the Left mallet.

Percussion

It is easy to see the similarity of the snare and bass drum parts to the basic afterbeat rhythm found in Old MacDonald and The Marines Hymn. Now you must play two eighth notes on the fourth beat. Count:



keeping steady eighth notes on the closed hi-hat or ride cymbal, counting:



AT PIERROT'S DOOR

Bar Instruments

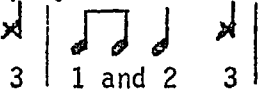
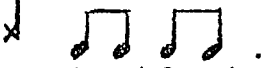
Musical score for the first system of 'Bar Instruments'. It consists of three staves. The top staff is a treble clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a melodic line with eighth and quarter notes. The middle staff is a percussion staff with a common time signature (C). It includes a Hi-hat line with 'x' marks for hits, and two lines for S.D. (Snare Drum) and B.D. (Bass Drum) with rhythmic notation. The bottom staff is a bass clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a bass line with quarter and eighth notes, and a Tympani line with notes for E-flat and B-flat, and rhythmic markings 'R L R L'. The system ends with a double bar line and a repeat sign.

Musical score for the second system of 'Bar Instruments'. It consists of three staves. The top staff is a treble clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a melodic line with eighth and quarter notes. The middle staff is a percussion staff with a common time signature (C). It includes a Hi-hat line with 'x' marks for hits, and two lines for S.D. (Snare Drum) and B.D. (Bass Drum) with rhythmic notation. The bottom staff is a bass clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a bass line with quarter and eighth notes, and a Tympani line with notes for E-flat and B-flat, and rhythmic markings. The system ends with a double bar line and a repeat sign.



Musical score for the third system of 'Bar Instruments'. It consists of three staves. The top staff is a treble clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a melodic line with eighth and quarter notes. The middle staff is a percussion staff with a common time signature (C). It includes a Hi-hat line with 'x' marks for hits, and two lines for S.D. (Snare Drum) and B.D. (Bass Drum) with rhythmic notation. The bottom staff is a bass clef with a key signature of two flats (B-flat and E-flat) and a common time signature (C). It contains a bass line with quarter and eighth notes, and a Tympani line with notes for E-flat and B-flat, and rhythmic markings. The system ends with a double bar line and a repeat sign.

Percussion

Suggestion for playing all parts - hold the triangle beater with your right hand and play the snare drum with the left stick alone.

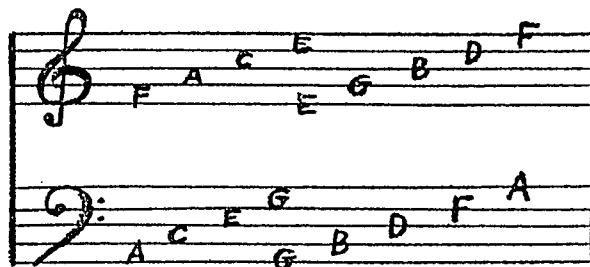
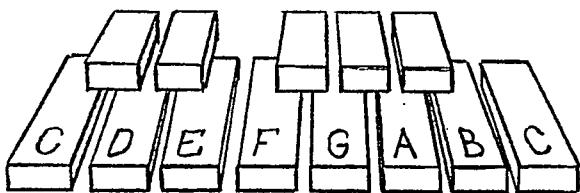
Count:  for the first measure. Do not let the eighth notes in measure 3 rush, count:  .
3 | 1 and 2 3 |
in measure 3 rush, count: 1 - 2 and 3 and

Tympani

The key of C has no sharps or flats. So, saying the scale starting on C (C,D,E,F,G,A,B,C) we find the standard tuning for this key is C - the first scale step, and G - the fifth. Dampen the tone of the drum on the third beat, following  and on the second beat, following .

Bar Instruments

The C scale is more difficult in one respect because there are no sharps or flats to help keep the mallets in place. Practice with your eyes closed to develop a "feel" of the spacing of the bars, gradually increasing your speed.



The percussionist should, by now, know by memory the notes in the Treble clef and the Bass clef.

THE CARNIVAL OF VENICE
(THE THREE-CORNERED HAT)

Bar Instruments

Musical score for the first system of 'Bar Instruments'. It consists of three staves. The top staff is in treble clef with a 3/4 time signature. The middle staff is labeled 'Percussion Tri.' and contains rhythmic notation with 'x' marks. The bottom staff is in bass clef and is labeled 'Tympani C+G'. The music spans six measures.

Musical score for the second system of 'Bar Instruments'. It consists of three staves. The top staff is in treble clef. The middle staff is labeled 'Percussion Tri.' and contains rhythmic notation with 'x' marks. The bottom staff is in bass clef. The music spans six measures.

Musical score for the third system of 'Bar Instruments'. It consists of three staves. The top staff is in treble clef. The middle staff is labeled 'Percussion Tri.' and contains rhythmic notation with 'x' marks. The bottom staff is in bass clef. The music spans six measures.

HOW FAR CAN YOU GO?

Clap, play or count out loud the following lines of rhythm.

1.

2.

Example:

1 2 3 - 4 | (1) 2 3 (+) | 1 2 + 3 (+) | (1-2) 3 ||












3.

4.

Example:

Student's Name _____

(✓)














1. Afterbeats, at  = 120, hand to hand. ( ) 1.()
2. Single Stroke Roll, in , at  = 120. 2.()
3. C Scale, one octave, hand to hand, at  = 120. 3.()
4. Mary Had a Little Lamb on a melody instrument. 4.()
5. Long Roll, open to close to open. 5.()
6. Percussion part to Quarter Note Etude. 6.()
7. F Scale, one octave, hand to hand, at  = 132. 7.()
8. Tympani part to Mary Had a Little Lamb. 8.()
9. Exercise 1. in How Far Can You Go?, at  = 132. 9.()
10. Flams open to close, up to  = 132. 10.()
11. Melody part to Quarter Note, Whole Note. 11.()
12. Tympani part to Quarter Note, Whole Note. 12.()
13. Exercise 2. in How Far Can You Go?, at  = 132. 13.()
14. B^b Scale, one octave, hand to hand, at  = 132. 14.()
15. Percussion part to Quarter Note, Whole Note. 15.()
16. Melody part to Go Tell Aunt Rhodie. 16.()
17. Tympani part to Go Tell Aunt Rhodie. 17.()
18. Percussion part ("set") to Go Tell Aunt Rhodie. 18.()
19. Melody part to Twinkle, Twinkle. 19.()
20. Tympani part to Jingle Bells. 20.()

Each percussion student should keep a record of the proficiencies he has completed, or ask his teacher to initial each one completed satisfactorily.

A student should not leave more than one space empty while proceeding to the subsequent exercises.

PERCUSSION PROFICIENCY LEVELS

100

21. Long Roll,  . . . , at  = 132. 21.()
22. Exercise 3 in Hard as 8th's, at  = 120. 22.()
23. Percussion part to Jingle Bells. 23.()
24. E^b Scale, one octave, hand to hand, at  = 132. 24.()
25. Melody part to Jingle Bells. 25.()
26. Tympani part to Old MacDonald. 26.()
27. B^b Scale, in , at  = 120. 27.()
28. G minor Scale (harmonic form) at  = 132. 28.()
29. Percussion part to He's Got the Whole World. 29.()
30. Melody part to Minka. 30.()
31. Single Stroke Roll, in , at  = 144. 31.()
32. F Scale, in , at  = 120. 32.()
33. Melody part to He's Got the Whole World. 33.()
34. Tympani part to Du, Du, liegst mir im Herzen. 34.()
35. Percussion part to Du, Du, liegst mir im Herzen. 35.()
36. Melody part to Marines' Hymn. 36.()
37. Percussion part to Marines' Hymn. 37.()
38. Tympani part to Pierrot's Door. 38.()
39. C Scale, in , at  = 132. 39.()
40. Melody part to Carnival of Venice. 40.()

Ask your teacher to explain any of the steps that you do not understand.

(Teacher's Signature)

(Date Completed)

Accent (>)	12, 20.
Afterbeat	10, 14, 20, 22.
Alternate sticking	6, 8, 12, 20.
Clefs	
Bass (F)	12, 24.
Percussion ()	12.
Treble (G)	12, 24.
Common time (C or 4)	2.
da Capo (D.C.)	6.
dal Segno (D.S.)	12.
Fine	6.
First ending (11. —)	8, 18.
Flam	20.
Flat (b)	2, 6, 16.
Home tone	8, 12, 22.
Jazz beat	14.
Keys	
F Major (1 Flat)	4.
B ^b Major (2 Flats)	6, 8, 18, 20.
E ^b Major (3 Flats)	2, 10, 16, 22.
C Major (0 Sharps or Flats)	14, 24.
G minor (2 Flats)	12.
Long roll	4, 16.
March rhythm (2/4)	20.
Matched grip (like handhold)	10.
Muffling (damping)	
Bass Drum	2.
Tympani	2, 10, 14, 24.
Percussive stroke	4, 6, 8, 20.
Playing spot	
Bar instruments	2, 20.
Drums	2, 20.
Tympani	18.
Repeat sign (:)	4, 8.
Rock beat	8, 22.
Second ending (12. —)	8.
Sharp (#)	12.
Single stroke roll	4, 8, 16.
Syncopation	14.
Traditional grip (rudimental handhold)	10.
Tympani range	6.
Tympani tuning 3	2, 6, 14, 16, 18, 22, 24.
Waltz time (3/4)	18.

APPENDIX B

SKILLS TEST

(Read:)

These are the Temple Blocks. These hollow blocks are really small wooden bells. Originally used in Chinese and Korean temples as part of the worship ceremony, they were usually painted red with gold and black signifying the mouth and eyes of a fish.

There are five blocks in a set used in today's music. They may all be set in a row like the naturals on a xylophone keyboard, or they may be stacked with two above three.

In either case the lower tone is usually to the left, as is traditional with keyboard instruments and tympani.

Generally a marimba mallet gives the best sound on the temple blocks. Strike the block on the hump at the front of the block. Listen to the tone of the block as you strike it.

The temple blocks may be scored on a single staff with each line representing a single block, the largest block being written on the bottom line. Play the five blocks, starting with the lowest and going up.

Now try this line of music.

Did it sound anything like "Yankee Doodle"? Would you like to try once more?

.....

(Start the metronome at 80 beats per minute, and turn the instruction page over to the test page and read:)

Now let's get ready to see how well you can do with a piece of music for the temple blocks. Take a moment to glance over the music.

(Pause 10 seconds)

Which is the first block? When does the pitch change to the highest block?

Keep playing even though you may make an error or two. Both the melody and the rhythm are important so keep going. I will count off four beats before you begin. Are you ready?

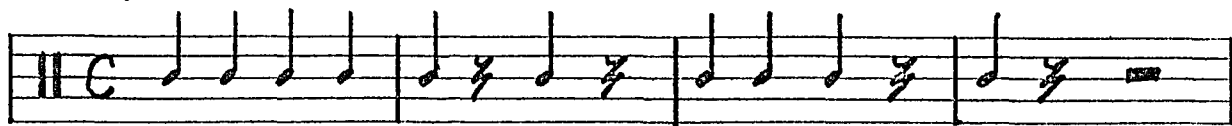
(Turn on tape recorder.

Give the student's code number.

Count off four beats at 80 beats per minute.

Turn off the metronome.)

TEMPLE BLOCKS
slowly



APPENDIX C

INTERCORRELATION OF JUDGES' SCORES

Judge	X	Y	Z
X	1.00	0.53	0.79
Y	0.53	1.00	0.56
Z	0.79	0.56	1.00

(N=134)

APPENDIX D
 FACTORIAL DISPLAY OF ANALYSIS OF
 SKILLS TEST POSTTEST SCORES

Grouping (G)	Piano (K)	Sex (S)	Percus- sion				Clarinet Control (Cc)	Clarinet Exper- mental (Cx)	Non- band (N)
			Experi- mental (Px)	Control (Pc)	Control (Pc)	Exper- mental (Cx)			
Homo- geneous	With	Male	72.28 N=2	52.19 N=3	62.12 N=2	N=0*	N=0*		
		Fe- male	58.99 N=2	53.74 N=1	56.28 N=3	N=0*	N=0*		
	With- out	Male	54.02 N=7	59.27 N=4	57.14 N=2	N=0*	N=0*		
		Fe- male	71.18 N=1	N=0	41.22 N=4	N=0*	N=0*		
Hetero- geneous	With	Male	63.90 N=2	10.96 N=1	26.17 N=1	N=0	53.78 N=1		
		Fe- male	65.10 N=3	N=0	62.76 N=7	57.31 N=8	56.21 N=5		
	With- out	Male	68.00 N=19	54.03 N=6	53.49 N=1	62.24 N=3	38.84 N=10		
		Fe- male	N=0	40.21 N=1	57.13 N=6	49.08 N=18	48.76 N=11		

*Not possible with this experimental design.

APPENDIX E

CRITICAL VALUES COMPARED WITH ROY'S MAXIMUM ROOT CRITERION

Source	Roy's Maximum Root Criterion
MAT-II (A ₁) Part 1	.0124
MAT-II (A ₂) Part 2	.0114
MAT-II (A ₃) Part 3	.0470
MAT-II (A _t) Total	.0005
Instrument (I)	.0432
Piano (K)	.0047
Sex (S)	.0003
Grouping (G)	.0348
I x K	.0246
I x S	.0336
I x G	.0226
K x S	.0154
K x G	.0271
S x G	.0584
I x K x S	.0583
I x K x G	.0057
I x S x G	.0066
K x S x G	.0083