A STUDY OF THE EFFECTS OF CLASSROOM INSTRUCTION IN THE AREAS OF FOLK DANCE, MODERN DANCE, AND TAP DANCE UPON THE DEVELOPMENT OF RHYTHMIC ABILITY OF COLLEGE WOMEN

THESIS

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Allison Ann Sloan, B. S.
Denton, Texas

June, 1970

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER I

INTRODUCTION

Since the beginning of time, rhythm and dance has been an integral part of man's life. Through rhythm and dance man has expressed and continues to express his wants and desires, his fears and inhibitions, and his emotional state of being.

There has been a trend in physical education programs in recent years to place more emphasis in the area of dance. There appears to be general agreement among physical educators that dance provides opportunities for the development of balance, body control, and poise which are important components in efficient body movement. One important outcome of participation in dance, in terms of self-awareness and self-expression, is that through emotional release, creativity and enjoyment may be enhanced. Furthermore, participation in rhythmic activities stimulates various organic systems of the body, thus providing physiological benefit to the individual (1, p. 44).

There are various forms of dance each of which may contribute some specific aspect to the total development of an

individual. Participation in programs of folk dance, modern dance, or tap dance may contribute to the development of a well-co-ordinated body. However, the development of rhythmic ability in the three areas of dance is somewhat varied due to the differences in the basic structure of each of them. Of the three areas, folk dance and tap dance are more structured in a disciplined manner, using established rhythms and steps; while modern dance does not deal totally with the disciplined rhythms, it affords greater experimentation with various rhythm patterns (4, p. 297). These differences in the structure of the programs may or may not have a direct relation on the development of rhythmic ability.

For several years attainment of rhythmic ability has been questioned. Some authorities concur that rhythm is an innate quality, while others contend that rhythm is a learned technique which may be developed with practice and time.

Haight (5, p. 42) in his study of individual differences in motor adaptations to varied rhythmic stimuli concluded that there was no significant relationship between skill in athletics or dance, or to past musical experience, and the success of the individual in adapting to varied rhythms or rhythmic patterns. Haight further stated that "success in

adapting to objective rhythms is an innate quality rather than an acquired skill" (5, p. 42).

McCristal (8, pp. 74-75), on the other hand, indicated that rhythm is not innate, but that rhythm is a learned technique. McCristal further stated that the nature of movements along with the intensity and length of practice periods are determining factors on the speed with which rhythm may be learned and/or improved.

There appears to be a need for further study in the area of rhythm and the development of rhythmic ability. Can rhythmic ability be developed and improved through dance programs? If so, does one form of dance or dance program develop rhythmic ability more significantly than another? These are some of the questions the writer attempted to answer in this investigation. It is hoped that the results and conclusions drawn from this study will provide educators with knowledge concerning development of rhythm which will be helpful in planning more effective dance programs.

Statement of the Problem

The problem of this study was to investigate the effects of instruction in the areas of folk dance, modern dance, and tap dance upon the development of rhythmic ability.

Purposes of the Study

The following purposes were proposed for the development of this study:

A. To determine whether or not rhythmic ability as measured by the Harvey Rhythm Test is developed through participation in a folk dance class.

B. To determine whether or not rhythmic ability as measured by the Harvey Rhythm Test is developed through participation in a modern dance class.

C. To determine whether or not rhythmic ability as measured by the Harvey Rhythm Test is developed through participation in a tap dance class.

D. To compare results of the Harvey Rhythm Test at the completion of the experimental period and to indicate any differences in development of rhythmic ability in the organized classes of folk dance, modern dance, and tap dance.

Definition of Terms

The following definitions were pertinent to the study:

A. Rhythm.--Rhythm is an organization of events. A succession of regularly recurring events (6, p. 301).

B. Rhythmic ability.--The synchronization of body movement with musical accompaniment or time structure.

C. Motor rhythm.--The form in which muscular experience occurs. It is force manifest in muscular movement (6, p. 301).

D. Folk dance.--The traditional recreational dance forms of the common people (7, p. 1).

E. Modern dance.--A creative expression of emotional experiences transformed by thought and movement into an art form (2, p. 379).

F. Tap dance.--A professionalized and intricate type of dancing with emphasis upon the variety of rhythms secured through rapid manipulation of the feet (3, p. xlii).

Limitations of the Study

The study was limited to women in beginning dance classes at North Texas State University during the fall semester of 1969-70.

Delimitations of the Study

The study was delimited to beginning dance classes, folk dance, modern dance, and tap dance which were under the instruction of the investigator. Twenty-one women who were not enrolled in any physical activity class were designated as the control group. The study was further delimited to women who had received no prior professional dance instruction as determined by Barnard's Rhythmic Background Questionnaire (Appendix A).

Sources of Data

Sixty-five women enrolled in beginning classes of folk dance, modern dance, and tap dance at North Texas State University during the fall semester, 1969-70, were the human sources of data.

CHAPTER BIBLIOGRAPHY

1. Bucher, Charles A., Foundations of Physical Education, Saint Louis, C. V. Mosby Company, 1964.

2. Domonkos, Helen E., as quoted by McCue, Betty Foster, Physical Education Activities for Women, London, The Macmillan Company, 1969.

3. Duggan, Anne Schley, The Complete Tap Dance Book, A. S. Barnes and Company, Inc., 1947.

4. _____, as documented by Weston, Arthur, The Making of American Physical Education, New York, Meredith Publishing Company, 1962.

5. Haight, Edith C., "Individual Differences in Motor Adaptations to Rhythmic Stimuli," Research Quarterly, XV (March, 1944), 38-43.

6. H'Doubler, Margaret N., "An Interpretation of Rhythm," The Journal of Health and Physical Education, III (September, 1932), 16-17, 54-55.

7. Kraus, Richard, Folk Dancing, New York, The Macmillan Company, 1962.

8. McCristal, K. J., "Experimental Study of Rhythm in Gymnastics and Tap Dancing," Research Quarterly, IV (May, 1933), 63-75.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature included in this chapter was chosen primarily because of its relationship to the investigation. Experimental studies, surveys, and articles dealing with motor rhythm, rhythm testing, and rhythmic ability were reviewed.

A limited amount of research has been conducted in the areas of the development of rhythmic ability and measurement of motor rhythm. The difficulty authors have in defining the word, rhythm, along with the difficulty in measuring motor rhythm and rhythmic ability, may partially explain the sparcity of research in this area.

Whether or not rhythm is an innate characteristic or an acquired one has intrigued research workers for several years. Studies dealing with this question were investigated first.

Haight (5), in an attempt to determine individual differences of motor adaptations to rhythmic stimuli, stated that of the men and women studied no relationship existed between skill in athletics, dancing, or past musical

experience and the ability to adapt to a rhythm pattern. She further postulated that success in adapting to objective rhythms is an innate quality rather than an acquired skill.

Lemon and Sherbon (6) in an attempt to determine the relationship between rhythmic ability and motor ability utilized the following tests: Brace scale of motor ability, Carl Seashore's test of rhythm perception, Robert Seashore's test of motor rhythm, and an original practical rhythm test devised by the investigators. Three groups were tested (students electing dancing, students majoring in physical education, and freshmen in required physical education classes). As a result of the study, it was indicated that rhythmic ability is more of an innate tendency rather than that of training. It was found that a correlation did exist between rhythmic ability and motor ability in college women as measured by the four tests. However, the correlation obtained was low and may have been due to imperfections in the tests and abilities tested. Further conclusions drawn from the study were that the test for perception of rhythm and the test for motor rhythm were not adequate tests for the type of rhythmic ability emphasized in physical education activities.

McCristal (7) and Swindle (11), on the other hand, contend that rhythm is not innate, but that rhythm is a learned technique. McCristal (7) stated that the learning of rhythm is dependent upon the nature of the movements practiced and the amount of emphasis placed upon the length of practice periods.

One of the first major experimental studies dealing with rhythm and performance of motor rhythm was conducted by R. H. Seashore (9) in 1926, in an attempt to determine the relationship between time and rhythm discrimination and motor rhythm performance. The results indicated that there was a low but positive relationship between the motor rhythm test and such performance tests as a rotary pursuit test, a steadiness test, a tapping test, and a thrust precision test. The highest correlation obtained was with the pursuit test. He further reported that there is little maintained improvement in motor rhythm with practice.

Annett (1) conducted a study for the purpose of determining whether or not there was a correlation between Carl Seashore's Measures of Musical Talent and performance in motor rhythm. One hundred twenty-two subjects were tested. The scores obtained from the Seashore rhythm test, the teacher's ratings on motor rhythm performance, and school

marks in physical education were compared. The comparison was made on the high, average, and low marks. The results indicated that those who ranked high or low in motor rhythm did not score correspondingly on Seashore's Measures of Musical Talent. In an attempt to determine this difference, he used a questionnaire on rhythmical background experience. From the answers obtained from the questionnaire and the results of the study, it was concluded that the Seashore rhythm test was an instrument which could be used in the prediction of motor rhythm skill. He further concluded that frequent practice, interest, and training in dance along with motor rhythm activities are components which accompany skill in dance.

Muzzey (8) compared the group progress of fifty white children and fifty colored children in elementary grades two through six in learning a rhythm pattern. She found that all children tested showed a measurable degree of learning a motor response to a rhythm pattern. The results further revealed that motor rhythm is a function of chronological age with each grade being superior to the one before. The group of colored children tested were superior to the white children in motor rhythm, both at the beginning and

end of the learning period, and their initial rate of learning was more rapid than that of the white group.

Wight (14) conducted a study at the Country Home for Convalescent Crippled Children in Chicago in an attempt to determine whether or not rhythmization is an ability which can be increased by training and if there is a relationship between rhythmic ability and general motor ability. Wight (14) noted that most of the children at the Home suffered from some form of disturbance in the skeletal structure, and their age range was from four to fourteen.

In order to determine the development of rhythmic ability and the relationship between rhythmic ability and general motor ability, Wight (14) designed a rhythm test and a motor coordination test which were suitable to the situation and which met the scientific standards of reliability. The tests were administered to forty-seven children, all ambulatory cases, ranging in age from 57 to 187 months. She noted that the age range was unsatisfactory for this type of experimental study, but that the investigation had to be undertaken in the prevailing situation at the Home.

Following the initial rhythm tests, a retest was given after a two week period in which improvement was reported.

At this time the children were divided into two experimental and two control groups. The experimental groups received rhythm training for approximately two months; the control groups did not. At the end of the experimental period, the groups were retested. Both of the experimental groups improved above their initial test and the retest. The control group, however, did not improve above their retest but fell back to the level of their initial performance. The results of the study indicated that individual differences in rhythmic ability did exist, and that rhythmic ability and intelligence were related to motor coordination. It was further concluded that improvement in rhythmic ability may be enhanced through specific and general training, regardless of the initial level of ability.

Gualt and Goodfellow (4) conducted a study involving twenty-one psychology students which investigated pattern perception in audition, vision, and touch. A set of fifty pairs of patterns were developed for the experiment. In twenty-five of the pairs, the patterns were identical; the other twenty-five pattern pairs were different. The patterns were presented to all three sense modalities. The subject was to determine if the pattern pair presented was identical

or different. In the second part of the experiment the subject was to reproduce the pattern presented.

They concluded from the study that differences in the ability to discriminate patterns and to reproduce these patterns did exist among the three sense modalities. It was further concluded that training in discrimination had no significant effect on performance. However, in the ability to reproduce patterns, training had a considerable effect, with the initial difference being practically eliminated. They contend that the reason for this effect may be found in the kinesthetic accompaniment to the reproduction of the patterns.

Ashton (2) developed a gross motor rhythm test which was designed to cut across the skills of folk dance, square dance, and modern dance. The test was administered to 1,234 freshmen and sophomore women studying the three forms of dance over a period of five-and-one-half years.

The results revealed that the gross motor rhythm test using simple movements initiated by the student was usuable and effective in measuring rhythm of those students studying in the areas of folk dance, square dance, and modern dance. She concluded that no significant difference appeared between

the results of the tests for those students studying folk, square, or modern dance.

Weitz and Fair (13) conducted a survey of studies of rhythm including several aspects of assessing rhythm, such as rhythm perception, rhythm accenting and grouping, rhythm preference, and motor rhythm. The survey revealed that there are various individual differences in rhythmic motor performance, and that a positive relationship exists between chronological age and improvement in rhythmic ability. Most of the studies surveyed seemed to indicate little permanent improvement in the motor performance of rhythm through practice, and that any improvement which may occur takes place during the early trials and may not be of a lasting nature. Furthermore, the survey indicated that short periods of training have little effect on rhythmic ability.

Simpson (10) developed an objective measure of locomotor response to auditory rhythmic stimuli. The instrument developed for this study was called a "Rhythmeter." The female subjects for the study were divided into two experimental groups consisting of thirty-eight professional dancers and forty-two members of dance clubs in professional schools or colleges of physical education, and one control group consisting of eighty-nine members of the general college

population. All subjects were tested on rhythmic identification and time discrimination sections of the Kwalwasser-Dykema Music Tests and the "Rhythmeter" in order to determine the relationship between sensory and locomotor response to auditory rhythmic patterns. The results of the study indicated that the "Rhythmeter" was an objective and reliable measure of locomotor response to auditory rhythmic stimuli, and that performance on the instrument may be useful in predicting an individual's rhythmic ability. A further conclusion drawn from the study was that individual and group differences in rhythmic ability did exist to a statistically significant degree.

Thackray (12) conducted a recent study in 1968 which investigated rhythmic abilities in various forms, their measurement, and their relationships. The four rhythmic abilities tested were as follows: rhythmic perception (aural), rhythmic perception (visual), rhythmic performance (finer movements), and rhythmic movement (gross body movements).

He devised a battery of tests which were to be administered to students at a specialist women's college of physical education. The tests were administered in an attempt to ascertain rhythmic abilities and their relationships.

As a result of the study, the conclusions drawn were that a correlation, although not high, did exist between all three forms of rhythmic ability tested. The correlation between rhythmic perception and rhythmic performance was slightly higher than the correlation between rhythmic movement and either rhythmic perception or rhythmic performance. Furthermore, it was found that a slightly higher correlation existed between rhythmic movement and rhythmic performance than between rhythmic movement and rhythmic perception.

Freytag (3) conducted a study to determine the differences in rhythmic ability and in background in music and dance of eighty-four high school girls of various racial and socioeconomic backgrounds. The various racial groups used in the study were Caucasians, Mexicans, Negroes, and Orientals. A socioeconomic background questionnaire developed by the investigator was used to group the subjects into high, middle, and low socioeconomic levels. Ashton's Gross Motor Rhythm Test was used to measure the rhythmic ability of the subjects, and Barnard's Rhythmic Background Questionnaire was used to determine the rhythmic background experience of each subject. After the subjects were classified into groups according to race and socioeconomic level, they were administered the rhythmic background questionnaire and the

motor rhythm test in order to determine differences among the groups.

The results revealed that Ashton's motor rhythm test was a reliable measure of rhythmic ability, and that rhythmic ability did not appear to be related to socioeconomic status. Caucasians, Mexicans, and Negroes showed no difference in their ability to respond to a rhythm through body movement; however, Orientals seem to have less ability in this area. Further conclusions drawn were that background in music and dance had some relationship to the rhythmic ability of the Mexican and Negro groups but little or none within the Caucasian and Oriental groups, and that the relationship between rhythmic background and ability varied with socio-economic status--substantial for the middle, slight for the low, and none for the high socioeconomic groups.

It is interesting to note the lack of agreement among the various studies concerning motor-rhythm testing and the development of rhythmic ability. Experimental studies reveal that investigators are not in agreement as to the nature of rhythm, whether innate or acquired. Of the studies reviewed, it is apparent that the development of rhythmic ability is still a question of major concern. Differences which occur in groups which received rhythm training and those which did

not were not significant. Investigators seem to agree that rhythm training is of some value, but not significantly in the development of rhythmic ability.

CHAPTER BIBLIOGRAPHY

1. Annett, Thomas, "A Study of Rhythmical Capacity and Performance in Motor Rhythm in Physical Education Majors," Research Quarterly, III (May, 1932), 183-190.

2. Ashton, Dudley, "A Gross Motor Rhythm Test," Research Quarterly, XXIV (October, 1953), 253-260.

3. Freytag, Janice Geiger, "The Relationship of Rhythmic Ability and Background in Dance and Music to Racial and Socioeconomic Background," unpublished master's thesis, University of Washington, 1967 (Microcard).

4. Gault, R. H. and L. D. Goodfellow, "An Empirical Comparison of Audition, Vision, and Touch in the Discrimination of Temporal Patterns and Ability to Reproduce Them," Journal of Genetic Psychology, XVIII (1938), 41-47.

5. Haight, Edith C., "Individual Differences in Motor Adaptations to Rhythmic Stimuli," Research Quarterly, XV (March, 1944), 38-43.

6. Lemon, Eloise and Elizabeth Sherbon, "A Study of the Relationship of Certain Measures of Rhythmic Ability and Motor Ability in Girls and Women," Research Quarterly Supplement, V (March, 1934), 82-85.

7. McCristal, K. J., "Experimental Study of Rhythm in Gymnastics and Tap Dancing," Research Quarterly, IV (May, 1933), 63-75.

8. Muzzey, Dorothy M., "Group Progress of White and Colored Children in Learning a Rhythm Pattern," Research Quarterly, IV (October, 1933), 62-75.

9. Seashore, Robert H., "Studies in Motor Rhythm," Psychological Monographs, XXXVI (1926), 142-189.

10. Simpson, Shirley E., "Development of Validation of an Objective Measure of Locomotor Response to Auditory Stimuli," Research Quarterly, XXIX (October, 1958), 342-347.

11. Swindle, P. F., "On the Inheritance of Rhythm," American Journal of Psychology, XXIV (April, 1913), 180-203.

12. Thackray, Rupert, "Rhythmic Abilities and Their Measurement," Journal of Research in Music Education, XVII (Spring, 1969), 144-148.

13. Weitz, Joseph and Kenwood L. Fair, A Survey of Studies of Rhythm, Air Training Command--Human Resources Research Center, Lackland Air Force Base, San Antonio, Texas, Research Bulletin 51-4 (March, 1951), 33 pp.

14. Wight, Minnie G., "The Effect of Training on Rhythmic Ability and Other Problems Related to Rhythm," Child Development, VIII (June, 1937), 159-172.

CHAPTER III

PROCEDURES IN THE DEVELOPMENT OF THE STUDY

The problem of this study was to investigate through experimentation the effects of instruction in the areas of folk dance, modern dance, and tap dance upon the development of rhythmic ability of college women.

Selection of Subjects

The subjects selected for this study were seventy-four college women enrolled in beginning classes of folk dance, modern dance, and tap dance at North Texas State University during the fall semester, 1969-70. These women chose dance classes from the activities offered during the fall semester as a part of the degree requirement. Twenty-one women who were not enrolled in any physical activity class were designated as the control group. Final selection of the subjects for this study was based on the information obtained from the administration of Barnard's Rhythmic Background Questionnaire (1, p. 113). Nine of the women who began the study withdrew from these classes before the final tests were administered. Three of the women withdrew from folk dance, three withdrew

from modern dance, and three withdrew from tap dance. Their withdrawal from these classes was due to transferring to other colleges or universities, getting married, going to work, or dropping out of school and was not attributed to the study. From the sixty-five women who completed this study, twenty-four were enrolled in folk dance, eighteen were enrolled in modern dance, and twenty-three were enrolled in tap dance.

General Class Procedures

Figure 1 includes the experimental design developed for this study. All subjects participated in an organized program of dance in one of the selected areas of folk dance, modern dance, or tap dance for a period of eight weeks. All subjects met three days per week for forty minutes each day, receiving a total of sixteen hours of instruction during the eight weeks. All subjects spent approximately ten minutes each period in warm-up activities. Approximately fifteen minutes of each period was spent in review and/or introduction of new material. The remaining fifteen minutes was spent as a practice period. All subjects were introduced to problem-solving, exploration, and experimentation designed for experiences in creativity. (A complete list of dances taught, basic dance steps, and dance technique used during

the eight-week experimental period in the selected programs of folk dance, modern dance, and tap dance appears in Appendix B.)

	Weeks 1-2	Weeks 3-10	Weeks 11-12
Control Group	Harvey Rhythm Test	No Instruction	Harvey Rhythm Test
Experimental Groups:			
Folk Dance	Harvey Rhythm Test	Folk Dance Program	Harvey Rhythm Test
Modern Dance	Harvey Rhythm Test	Modern Dance Program	Harvey Rhythm Test
Tap Dance	Harvey Rhythm Test	Tap Dance Program	Harvey Rhythm Test

Test Order:

Day I — All subjects completed Part I of the Harvey Rhythm Test.

Day II — All subjects completed Part II and Exercise I of Part III of the Harvey Rhythm Test.

Day III — All subjects completed Part III--Exercise 2 and 2a of the Harvey Rhythm Test.

Day IV — All subjects completed Exercise I and began Exercise II of Part IV of the Harvey Rhythm Test.

Day V — All subjects completed Exercise 2 and began Exercise 3 of Part IV of the Harvey Rhythm Test.

Day VI — All subjects completed Exercise 3 and Exercise 4 of Part IV of the Harvey Rhythm Test.

Fig. 1--Experimental design

Selection of the Test

The selection of the test for this study was governed by the objectives of the study, review of literature, and availability of facilities and equipment. The criteria used for selection was validity, objectivity, and ease of administration.

The Harvey Rhythm Test (2) was selected as the instrument to measure rhythmic ability. The test utilizes gross motor activities to a greater extent than rhythm tests reviewed and does not include specific dance forms such as the polka, two-step, or schottische. The test incorporates various rhythms set to the accompaniment of a wood block and/or metronome. The validity of the test was computed by correlating the subjective instructor's rating of student performance with the student performance on the test. The validity of the test items was computed by correlating the score made on the given test item and the total score made by the student on the test. Each of the ten items in the test has relatively high validity ratings, ranging from a low of .67 to a high of .96. Other determining factors in the selection of the test were its ease of administration, scoring, and interpretation.

General Procedures in Test Administration

Facilities and equipment were prepared for the testing program in compliance with the specifications of the Harvey Rhythm Test (2). Testing stations were prepared for testing prior to the administration of the tests. The facility used was a regular classroom where the classes met and marked by a restraining line of white adhesive tape twenty-four inches in length placed four yards in front of the investigator. The equipment included a tape recorder, a magnetic tape of the test, four wooden frames fifteen inches in dimension, eight wooden blocks one-and-one-half inches in dimension, score sheets and pencils.

The score sheets for each subject included space for name, classification, and scores obtained from each exercise. The subjects were dressed in a regulation gym suit.

During the testing period, the subjects met three days per week for forty minutes each day and were tested the first six class meetings of the semester. There was no preliminary discussion of the test or test items prior to administration of the test. All subjects tested each period were given oral directions for each exercise of the test. Each exercise was administered individually to each subject,

and scores were recorded by the investigator using the rating scale developed in conjunction with the test.

The subjects then participated in an eight-week dance program in the selected area of folk dance, modern dance, or tap dance. At the end of the eight-week experimental period, the subjects were retested on the Harvey Rhythm Test (2).

Description of the Test

The Harvey Rhythm Test (2) contains ten exercises arranged into four major parts. The instructions and directions for each exercise were recorded on magnetic tape. The subject taking the test is instructed to listen to the tape and perform each exercise as the directions indicate. The test includes a "walk through" for each of the ten exercises. This "walk through" is then repeated before the actual exercise begins. The major divisions of the test are entitled as follows:

Part I--Rhythm Dexterity of the Hands

Part II--Continuing Rhythm Without an Audible Beat

Part III--Even-Plus-Uneven Beat Sequence

Part IV--Varied Movement and Rhythms Performed in Wooden Frames Placed on the Floor.

The scoring of the Harvey Rhythm Test (2) is accomplished by using a rating scale designed specifically for use with

the test. The possible ratings on each exercise of the test range from zero to four. The highest possible rating is four, and the entire exercise must be performed correctly in order to obtain this score. Other possible ratings of three, two, one, and zero may be obtained on any of the ten exercises. Each rating is in accordance with the specific number of beats or series of beats established for the exercise. The fewer beats or series of beats performed correctly during the exercise, the smaller the rating. The total score for the test is computed by adding the ratings obtained on each of the ten exercises. (A complete description of the rating scale used in conjunction with the Harvey Rhythm Test [2] may be found in Appendix C.)

Part I--Rhythm Dexterity of the Hands includes two exercises. Both of the exercises utilize eight wooden blocks and two wooden frames. The subject is instructed to move the blocks one by one from the frame on his left to the frame on his right. Then, with the same hand, he is to remove the blocks in the same manner back to the frame on his left. His movements are to be in rhythm with the given meter, and the subject is instructed that it takes two beats to move one block from one frame to the other. The given

meter for Exercise 1 is 80, and the given meter for Exercise 2 is 152 (2, pp. 65-68).

Part II is Continuing Rhythm Without an Audible Beat. The subject is instructed to run in rhythm with the given beat, making a large circle around the room and to continue running after the beat stops until he hears a signal to stop. A total of thirty beats, meter of 126, is given. Ten of the beats are audible, twenty of the beats are not audible (2, pp. 68-69).

Part III of the test is Even-Plus-Uneven Beat Sequence and includes three exercises. The first exercise is four series of two, three beat sequences at a given meter of 138. The subject is instructed to accent a beat sequence of two followed by a beat sequence of three, stepping on each beat. He is to accent the first beat in each beat sequence by stamping with one foot (2, pp. 70-71).

Exercise 2 and Exercise 2a of Part III are composed of four series of two, three, five beat sequences. Exercise 2 is performed at a given meter of 184, and Exercise 2a is performed at a given meter of 208. In both exercises the subject is instructed to accent a beat sequence of two, followed by a beat sequence of three, and a beat sequence of five. He is instructed to accent the first beat in each

sequence by clapping, and to hold the hands on the unaccented beats (2, pp. 71-74).

Part IV of the test is Varied Movement and Rhythms Performed in Wooden Frames Placed on the Floor, and it includes four exercises. The first exercise is four series of four beats at a given meter of 104. The subject is instructed to step into frame one with one foot on count one; on count two, jump, landing on both feet with one foot in frame two and one foot in frame three; on count three, step into frame four with one foot; and on count four, step out of frame four, turning around ready to return to the starting position (2, pp. 74-75).

The second exercise is four series of ten beats at a given meter of 108. The subject is instructed to jump landing on both feet in frame one, on the count of one. He is to jump out of the frame straddling the frame on count two. The subject then repeats the same movement and same rhythm in frames two, three, and four. This takes eight counts. On counts nine and ten, the subject steps outside of frame four and turns around ready to repeat the same movement series, returning to the starting position (2, pp. 75-77).

The third exercise is four series of one, "and" two, three, "and" four beats at a given meter of 104. The subject

is instructed to step into frame one with one foot on count one. He is then to step into frame two with one foot on the "and" and step into frame three on count two with the other foot. On count three, he is to step into frame four. He then steps outside of frame four, taking two steps to turn around, counts "and" four, ready to repeat the same movement series, returning to the starting position (2, pp. 77-79).

The fourth and final exercise of the Harvey Rhythm Test (2) is four series of one, two, three, "and" four beats at a given meter of 108. The subject is instructed to move from frame one to frame four, stepping in each frame and finishing outside of frame four on the fourth beat. He is to turn around, ready to repeat the same movement pattern, returning to the starting position (2, pp. 79-80). (A complete description of the Harvey Rhythm Test and frame placement for Part I and Part IV of the test may be found in Appendix D.)

Treatment of Data

All subjects were administered the Harvey Rhythm Test (2) at the beginning and again at the completion of twenty-four class periods of experimentation. Data were reported for sixty-five subjects who completed the tests. The statistical procedures used to analyze the data were the

difference method for determining the significance of the difference between correlated means and analysis of variance. Mean gains on the Harvey Rhythm Test (2) were determined for each group between initial and final test trials. The *t* ratios were computed to ascertain whether the groups had gained significantly from initial to final test. Analysis of variance was used to determine any significant difference among the groups. The significance of the difference was determined by application of the *F* ratio at the .05 level of confidence.

CHAPTER BIBLIOGRAPHY

1. Barnard, Betty Jean, "The Relationship of Rhythmic Ability and Background in Dance and Music to Swimming Achievement of College Women," unpublished master's thesis, University of Washington, Seattle, Washington, 1964, p. 113.

2. Harvey, Patricia Ann, "The Construction of a Rhythm Test Based on Motor Response for Women Physical Education Majors at North Texas State University," unpublished master's thesis, Department of Physical Education, North Texas State University, Denton, Texas, 1963.

CHAPTER IV

FINDINGS

This chapter presents an analysis and interpretation of the tests. The findings were derived statistically by an IBM 1620 computer from the data gathered. The Harvey Rhythm Test was administered to eighty-six college women to determine whether or not any statistically significant changes in rhythmic ability occurred after participating in an eight week program in folk, modern, or tap dance. The difference between correlated means was computed by the method suggested by McNemar (1, pp. 101-102), in order to determine significant gains made by any one of the three experimental groups or the control group.

Changes in Rhythmic Ability Among Means On the Harvey Rhythm Test

Table I presents the means of scores for Experimental Group I (Folk Dance) on the pre-test and post-test. The gains made by this group were statistically significant. A t of 2.07 was required to be statistically significant at the .05 level of confidence.

TABLE I

DIFFERENCE BETWEEN MEANS ON THE HARVEY RHYTHM TEST BY COLLEGE WOMEN (FOLK DANCE)

Test	N	Mean	Diff.	SE Diff.	t
Pre-test	24	20.79	10.79	.89	11.90*
Post-test	24	31.58			

*Significant at the .05 level of confidence.

Table II presents the means of scores for Experimental Group II (Modern Dance) on the pre-test and post-test. The gains made by this group were statistically significant. A t of 2.11 was required to be statistically significant at the .05 level of confidence.

TABLE II

DIFFERENCE BETWEEN MEANS ON THE HARVEY RHYTHM TEST BY COLLEGE WOMEN (MODERN DANCE)

Test	N	Mean	Diff.	SE Diff.	t
Pre-test	18	22.27	7.11	1.11	6.20*
Post-test	18	29.38			

*Significant at the .05 level of confidence.

The means of scores on the pre-test and post-test for Experimental Group III (Tap Dance) are presented in Table III. The gains made by this group were statistically significant. A *t* of 2.07 was required to be statistically significant at the .05 level of confidence.

TABLE III

DIFFERENCE BETWEEN MEANS ON THE HARVEY RHYTHM TEST BY COLLEGE WOMEN (TAP DANCE)

Test	*N*	Mean	Diff.	SE Diff.	*t*
Pre-test	23	21.65	8.65	1.33	6.36*
Post-test	23	30.30			

*Significant at the .05 level of confidence.

Table IV presents the means of scores for the Control Group on the pre-test and post-test. The gains made by the control group were statistically significant. A *t* of 2.09 was required to be statistically significant at the .05 level of confidence.

Changes in Rhythmic Ability by Subjects on Each Major Part of the Harvey Rhythm Test

Since all groups made statistically significant gains between the pre-test and post-test, it was thought advisable

TABLE IV

DIFFERENCE BETWEEN MEANS ON THE HARVEY RHYTHM TEST BY COLLEGE WOMEN (CONTROL GROUP)

Test	N	Mean	Diff.	SE Diff.	t
Pre-test	21	22.09	4.00	.82	4.78*
Post-test	21	26.09			

*Significant at the .05 level of confidence.

to analyze each major part of the Harvey Rhythm Test in terms of pre-test and post-test scores made on each part. Further analysis of pre-test and post-test scores for all groups is presented in the following tables.

Table V presents the means of scores for Experimental Group I (Folk Dance) on the pre-test and post-test of each major part of the Harvey Rhythm Test. The t test was used to determine whether or not the differences between the pre-test means and post-test means were statistically significant. A t of 2.07 was required to be statistically significant at the .05 level of confidence. All parts revealed statistically significant increases. Part IV revealed the largest increase, which included exercises dealing with agility, balance, timing, and coordination.

TABLE V

DIFFERENCES BETWEEN MEANS ON EACH PART OF THE HARVEY RHYTHM TEST (FOLK DANCE)

Test Item	N	Initial Mean	Final Mean	Diff.	SE Diff.	t
Part I	24	6.00	6.83	.83	.316	2.25*
Part II	24	2.08	3.00	.92	.262	3.41*
Part III	24	5.16	9.08	3.91	.628	6.09*
Part IV	24	7.54	12.66	5.12	.479	10.45*

*Significant at the .05 level of confidence.

Table VI presents the means of scores for Experimental Group II (Modern Dance) on the pre-test and post-test of each major part of the Harvey Rhythm Test. The t test was used to determine whether or not the differences between the pre-test means and the post-test means were statistically significant. A t of 2.11 was required to be statistically significant at the .05 level of confidence. Analysis of scores on Parts II, III, and IV revealed statistically significant increases.

Table VII presents the means of scores for Experimental Group III (Tap Dance) on the pre-test and post-test of each major part of the Harvey Rhythm Test. The t test was used

TABLE VI

DIFFERENCES BETWEEN MEANS ON EACH PART OF THE HARVEY RHYTHM TEST (MODERN DANCE)

Test Item	N	Initial Mean	Final Mean	Diff.	SE Diff.	t
Part I	18	5.83	6.55	.72	.39	1.79
Part II	18	2.50	3.27	.78	.35	2.17*
Part III	18	6.11	8.05	1.94	.45	4.15*
Part IV	18	7.83	11.50	3.66	.80	4.46*

*Significant at the .05 level of confidence.

to determine whether or not the differences between the pre-test means and post-test means were statistically significant. A t of 2.07 was required to be statistically significant at the .05 level of confidence. All parts revealed statistically significant increases.

Table VIII presents the means of scores for the Control Group on the pre-test and post-test of each major part of the Harvey Rhythm Test. The t test was used to determine whether or not the differences between the pre-test means and the post-test means were statistically significant. A t of 2.09 was required to be statistically significant at the .05 level of confidence. All but Part II revealed statistically significant increases.

TABLE VII

DIFFERENCES BETWEEN MEANS ON EACH PART OF THE HARVEY RHYTHM TEST (TAP DANCE)

Test Item	N	Initial Mean	Final Mean	Diff.	SE Diff.	t
Part I	23	5.82	6.73	.91	.35	2.53*
Part II	23	2.47	3.17	.70	.21	3.27*
Part III	23	5.82	9.13	3.30	.70	4.60*
Part IV	23	7.52	11.26	3.73	.72	5.11*

*Significant at the .05 level of confidence.

TABLE VIII

DIFFERENCES BETWEEN MEANS ON EACH PART OF THE HARVEY RHYTHM TEST (CONTROL GROUP)

Test Item	N	Initial Mean	Final Mean	Diff.	SE Diff.	t
Part I	21	5.33	6.23	.90	.32	2.80*
Part II	21	2.80	2.61	.19	.36	.52
Part III	21	5.28	6.71	1.42	.38	3.62*
Part IV	21	8.66	10.52	1.85	.54	3.33*

*Significant at the .05 level of confidence.

Comparison of Group Differences Among Post-Test Scores on the Harvey Rhythm Test

A comparison of difference between groups was determined by an analysis of variance. An F ratio of 2.71 was necessary for significance at the .05 level of confidence. The source of variation, degrees of freedom, sum of squares, and F ratio for the experimental groups and the control group on the post-test scores of the Harvey Rhythm Test are presented in Table IX. There were no statistically significant differences between the experimental groups and the control group.

TABLE IX

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF POST-TEST SCORES ON THE HARVEY RHYTHM TEST

Source of Variance	df	SS	Mean Square	F
Treatment	3	362.42	120.81	1.89
Error	82	5252.79	64.06	. .
Total	85	5615.21	. . .	. .

Discussion of Findings

A comparison of the means between the experimental groups and the control group on the initial and final

administrations of the Harvey Rhythm Test revealed that all groups made statistically significant gains from pre-test to post-test. The assumption is that the gains made by the experimental groups may be attributed to the dance instruction which they received.

With the exception of Part I, the Modern Dance Group showed statistically significant gains. The exercises included in Part I are more mechanical in nature; therefore, it is conceivable that active participation in an organized program of modern dance would not necessarily bring about appreciable gains. Statistically significant gains on Parts I, III, and IV made by the control group cannot be explained. Perhaps these subjects were more mature, their rhythmical background experiences more varied, and the nature of outside experiences during the eight-week period may have influenced the results. It is further suggested that the learning process which may take place from pre-test to post-test could have produced these results. It appears that Part II of the Harvey Rhythm Test deals more specifically with basic rhythm than do the other parts of the test, perhaps explaining lack of significant gains in that part.

The findings derived from the data with regard to the effects of instruction upon the development of rhythmic

ability in the areas of folk dance, modern dance, and tap dance revealed no statistically significant differences among the groups. This seems to indicate that the observed improvement of the experimental groups could not necessarily be attributed to the effect of instruction in any one of the selected areas of folk dance, modern dance, or tap dance.

The results of this study were analogous to the results of studies similar in design conducted by Ashton, Simpson, and Lemon and Sherbon. These comparable studies are referred to in Chapter II.

CHAPTER BIBLIOGRAPHY

1. McNemar, Quinn, Psychological Statistics, 3rd ed., New York, John Wiley and Sons, Inc., 1962.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of the problem, an analysis of the results, conclusions based on the results, and recommendations for additional studies.

The study was designed to determine the effects of instruction in the selected areas of folk dance, modern dance, and tap dance upon the development of rhythmic ability. Sixty-five college women enrolled in beginning classes of folk, modern, and tap dance at North Texas State University during the fall semester, 1969-70 and receiving no prior professional dance instruction as determined by administration of Barnard's Rhythmic Background Questionnaire were subjects in this investigation.

Data for determining any changes in rhythmic ability were provided by scores derived from two administrations of the Harvey Rhythm Test. The experiment lasted through twenty-four class periods.

The Harvey Rhythm Test was used to measure rhythmic ability. An analysis of the results revealed that all groups made significant gains at the completion of the

experimental period. An analysis of each part of the test revealed that all groups except Group II (Modern Dance) made statistically significant gains on Parts II, III, and IV. The Control Group made no statistically significant gain on Part II of the Harvey Rhythm Test. The results further revealed that differences in rhythmic ability between groups were not great enough to be statistically significant.

Conclusions

Based on the results of this study, the following conclusions appear to be justified:

1. Participation by college women in an organized program of folk dance improved rhythmic ability as measured by the Harvey Rhythm Test.

2. Participation by college women in an organized program of modern dance improved rhythmic ability as measured by the Harvey Rhythm Test.

3. Participation by college women in an organized program of tap dance improved rhythmic ability as measured by the Harvey Rhythm Test.

4. No one type of dance instruction investigated is superior to the other in developing rhythmic ability.

5. The Harvey Rhythm Test may be used effectively to measure an individual's rhythmic ability.

6. The Harvey Rhythm Test predicts individual and group differences in rhythmic ability.

7. The development of rhythmic ability may be an innate tendency rather than a learned technique.

Recommendations

The following recommendations are presented as a result of this study:

1. A comparative study be conducted between selected dance classes and selected sports classes.

2. A similar study be conducted using male subjects.

3. Additional studies be conducted at the elementary and secondary school levels.

Name _____

Class _____

APPENDIX A

RHYTHMIC BACKGROUND QUESTIONNAIRE[1]

This questionnaire was devised to determine the amount of experience you have had in music and/or dance.

INSTRUCTIONS:

1. In Column I, circle the rhythmic activities in which you have had experience. This experience must be organized, formal instruction or participation as shown by the situations listed below.

2. In Column II, record the number of the type(s) of situations(s) listed below for each rhythmic activity circled.

3. In Column III, record the length of time, as nearly correct as possible, that you have spent in each of the rhythmic situations you have indicated. The time is to be recorded as the number of months for the number of years. (For example, if you have taken tap dance lessons for three years but not during the summer you would record 9 months for 3 years.)

SITUATIONS:

Dance

1. Physical education instruction.
2. Active club experience. (For example, Girl Scouts,

---

[1]Betty Jean Barnard, "The Relationship of Rhythmic Ability and Background in Dance and Music to Swimming Achievement of College Women," unpublished master's thesis, University of Washington, Seattle, Washington, 1964, p. 113.

Girls' Athletic Association, community or nationality group, etc.)

3. Participation in demonstration or entertainment group. (Example: school, commercial enterprise, etc.)
4. Private or group instruction outside of school. (Examples: Y. W. C. A., Park Department, studio, camp, etc.)

Music

5. Private lessons (school, studio, etc.)
6. Band or orchestra experience in school, camp or other organizations.
7. Choir or glee club experience in school, church or other organizations.
8. Participation in small entertainment groups. (Examples: quartet, dance combo: May also include solo work.)

RHYTHMIC ACTIVITIES

Column I	Column II	Column III	
Dance	Type of Experience (Numbers from above)	Length of time Months	Years
Folk and Square			
Ballet			
Social (Ballroom)			
Modern (Creative)			
Tap			

RHYTHMIC ACTIVITIES (Continued)

Column I	Column II	Column III	
Dance	Type of Experience (Numbers from above)	Length of time Months	Years
Jazz (Ballet or Modern)			
Acrobatic Dance			
Free Exercise (Gymnastics)			
Figure Skating (Ice or Roller) with music			
MUSIC			
Instrumental			
Singing			
Music or Dance Composition			

I have never had instruction but I have played the _____ (instrument) for _____ months for _____ years.

SCORING OF RHYTHMIC BACKGROUND QUESTIONNAIRE

By multiplying the number of months spent in each activity by the number of years, the total number of months spent in each activity section was determined. The total number of months in dance and the total number of months in music were then divided by 12 to give the total number of years in each rhythmic background section. The number of years in dance and the number of years in music were then converted to scores by the rating scale and totaled.

Rhythmic Background Rating Scale

Activity	Length of Time	Score
Dance	Beyond 10 years	10
Dance	5 up to 10 years	9
Music	Beyond 10 years	8
Music	5 up to 10 years	7
Dance	3 up to 5 years	6
Dance	1 up to 3 years	5
Music	3 up to 5 years	4
Music	1 up to 3 years	3
Dance	Less than 1 year	2
Music	Less than 1 year	1
No experience		0

This scale was based on the assumption that:

1. A combination of dance and music experience is beneficial to rhythmic ability.
2. Dance experience is of more importance than music experience in rhythmic ability as defined by this study.
3. Music experience is less important than dance experience in rhythmic ability as defined in this study.
4. The length of time spent in either of these activities affects rhythmic ability.

APPENDIX B

DESCRIPTION OF EIGHT-WEEK EXPERIMENTAL PERIOD IN THE SELECTED CLASSES OF FOLK, MODERN, AND TAP DANCE

Group I (Folk Dance)

The following is a description of the classroom instruction given in folk dance during the eight-week experimental period.

I. Weeks 1-2

A. The basic steps taught were as follows:

1. Walk
2. Run
3. Slide
4. Hop
5. Grapevine

B. The dance step taught was the schottische.

C. The dances taught using the above steps were as follows:

1. Jiffy Mixer
2. Teton Mountain Stomp
3. Cshebogar
4. Road to the Isles

II. Weeks 3-4

A. The basic step taught was the step-hop.

B. The dance step taught was the two-step

C. The dances taught using the above steps were as follows:

1. Alnelul
2. Korobushka
3. D'Hammerschmieds'gellen
4. Miserlou
5. Progressive Two-Step

III. Weeks 5-6

A. The dances taught were as follows:

1. Harmonica
2. Boston Two-Step
3. Danish Sextur
4. Salty Dog Rag
5. Zorongo

IV. Weeks 7-8

A. The dance step taught was the polka.

B. The dances taught using the above step were as follows:

1. Hawaiian Stick Dance*
2. Badger Gavotte
3. Kalvelis
4. Kanafaska

Group II (Modern Dance)

The following is a description of the classroom instruction given in modern dance during the eight-week experimental period.

I. Weeks 1-2

A. The basic warm-up movements taught were as follows:

---

*Students in groups of two or three created two original dance steps for this dance.

1. Bounces
2. Stretches
3. Flex and point
4. Pliés
5. Brushes
6. Combinations of the above movements

B. The basic locomotor movements taught were as follows:

1. Modern dance walk
2. Skip
3. Gallop
4. Slide
5. Run
6. Jump
7. Leap
8. Hop
9. Combinations of the above movements

II. Weeks 3-4

A. All basic warm-up movements were practiced.

B. All basic locomotor movements were practiced.

C. Additional movements taught were as follows:

1. Three count body contractions
2. Four count body contractions
3. Three count locomotor movement (lunge, step, step)
4. Dance run
5. Progressive turns (stationary and moving)

III. Weeks 5-6

A. All basic warm-up movements were practiced.

B. All basic locomotor movements were practiced.

C. Additional movements taught were as follows:

1. Run, run, leap
2. Prance

D. Students in groups of three or four created an original movement phrase maintaining the initial beat established throughout the movement.

IV. Weeks 7-8

A. All basic warm-up movements were practiced.

B. All basic locomotor movements were practiced.

C. Students created an original movement phrase utilizing dance dynamics.

Group III (Tap Dance)

The following is a description of the classroom instruction given in tap dance during the eight-week experimental period.

I. Weeks 1-2

A. The basic steps taught were as follows:

1. Ones

a. Brush
b. Hop
c. Toe-tap and toe-drop
d. Heel-tap and heel-drop
e. Toe-tip
f. Heel scuff

2. Twos

a. Flap (Slap)
b. Shuffle (Rattle)
c. Toe-heel

3. Threes

a. Shuffle-step
b. Three-step-turn (stationary and moving)

B. Combinations of the basic steps were practiced.

II. Weeks 3-4

A. All basic steps were practiced.

B. The tap dance routines taught were classified as Soft Shoe.

III. Weeks 5-6

A. All basic steps were practiced.

B. Fours and fives were taught.

1. Cramproll (four)

2. Leap, shuffle, ballchange (five)

C. The tap dance routines taught were classified as Waltz-time.

IV. Weeks 7-8

A. All basic steps were practiced.

B. The tap routines taught included the Charleston and additional routines, using various step combinations.

C. Students in groups of three or four created two original tap dance steps.

APPENDIX C

RATING SCALE FOR THE HARVEY RHYTHM TEST[1]

Part I

Exercise 1. (32 beats)	Score
A. Each movement begins and ends in rhythm throughout the given beat or the exercise.	4
B. Movements during the first 2 or the last 2 beats are out of rhythm with the given beat. Eight or 7 blocks (according to the adjustment made to get in rhythm) are returned to the first frame. The remaining 30 beats are executed in rhythm.	3
C. Movements during the first 16 beats are out of rhythm with the given beat. Eight or 7 blocks (according to the adjustment made to get in rhythm) are returned to the first frame. The remaining 16 beats are executed in rhythm.	2
D. Movements are jerky and in rhythm spasmodically throughout the given beat of the exercise. Eight or 7 blocks (according to the adjustment made to get in rhythm) are returned to the first frame.	1
E. Each movement begins and ends out of rhythm throughout the given beat of the exercise.	

[1]Patricia Ann Harvey, "The Construction of a Rhythm Test Based on Motor Response for Women Physical Education Majors at North Texas State University," unpublished master's thesis, North Texas State University, Denton, Texas, 1963.

Exercise 2. (32 beats) Score

Apply the same criteria of scoring for Exercise 2 as stated in Exercise 1.

A. 4

B. 3

C. 2

D. 1

E. 0

Part I Total Score: ____

Part II

Exercise 1. (A total of 30 beats--10 given beats) Score

A. The runs are executed in rhythm with the given beat. A total of 30 runs is completed from the beginning of the given beat until the signal to stop. 4

B. The runs are executed in rhythm with the given beat. A total of 29 or 31 runs is completed from the beginning of the given beat until the signal to stop. 3

C. The runs are executed in rhythm with the given beat. A total of 28 or 32 runs is completed from the beginning of the given beat until the signal to stop. 2

D. The runs are executed in rhythm spasmodically during the given beat. A total of 27 or 33 runs is completed from the beginning of the given beat until the signal to stop. 1

Score

E. The runs are executed out of rhythm with the given beat. A total of fewer than 27 or more than 33 runs is completed from the beginning of the given beat until the signal to stop. 0

Part II Total Score: ____

Part III

Exercise 1. (8 series of 2, 3 beat sequences) Score

A. Eight series of the 2, 3 beat sequences are executed in rhythm throughout the given beat of the exercise. 4

B. Movements during the first 2 series of the 2, 3 beat sequences are executed out of rhythm. The remaining 6 series are executed in rhythm. 3

C. Movements during the first 4 series of the 2, 3 beat sequences are executed out of rhythm. The remaining 4 series are executed in rhythm. 2

D. Movements during the first 5 series of the 2, 3 beat sequences are executed out of rhythm. The remaining 3 series are executed in rhythm. 1

E. The 8 series of the 2, 3 beat sequences are executed out of rhythm throughout the given beat of the exercise. 0

Exercise 2. (6 series of 2, 3, 5 beat sequences)

A. Six series of the 2, 3, 5 beat sequences are executed in rhythm throughout the given beat of the exercise. 4

Score

B. Movements during the first 2 series of the 2, 3, 5 beat sequences are out of rhythm. The remaining 4 series are executed in rhythm. 3

C. Movements during the first 3 series of the 2, 3, 5 beat sequences are out of rhythm. The remaining 3 series are executed in rhythm. 2

D. Movements during the first 5 series of the 2, 3, 5 beat sequences are out of rhythm. The remaining 1 series is executed in rhythm. 1

E. The 6 series of the 2, 3, 5 beat sequences are executed out of rhythm throughout the given beat or the exercise. 0

Exercise 2a. (6 series of 2, 3, 5 beat sequences)

Apply the same criteria of scoring for Exercise 2a as stated in Exercise 2.

A. 4

B. 3

C. 2

D. 1

E. 0

Part III Total Score: ____

Part IV

Exercise 1. (4 series of 4 beats) Score

A. The steps and jumps are executed in rhythm throughout the given beat of the exercise. 4

Score

B. The steps and jumps are executed out of rhythm during the first 4 beats. The remaining 2 series of 4 beats are executed in rhythm. 3

C. The steps and jumps are executed out of rhythm during the first 2 series of 4 beats. The remaining 2 series of 4 beats are executed in rhythm. 2

D. The steps and jumps are executed in a different movement pattern from the established movement pattern. However, the steps and jumps are executed in rhythm with the given beat throughout the exercise. 1

E. The steps and jumps are executed out of rhythm throughout the given beat of the exercise. 0

Exercise 2. (4 series of 10 beats)

A. The steps are executed in rhythm throughout the given beat of the exercise. 4

B. The steps are executed out of rhythm during the first 4 beats. The remaining 3 series of 4 beats are executed in rhythm. 3

C. The steps are executed out of rhythm during the first 2 series of 4 beats. The remaining 2 series of 4 beats are executed in rhythm. 2

D. The steps are executed in a different movement pattern from the established movement pattern. However, the jumps are executed in rhythm with the given beat throughout the exercise. 1

E. The steps are executed out of rhythm throughout the given beat of the exercise. 0

Exercise 3. (4 series of 1, and 2, 3, and 4 beats)	Score
A. The steps are executed in rhythm throughout the given beat of the exercise.	4
B. The steps are executed out of rhythm during the first 4 beats. The remaining 3 series of 4 beats are executed in rhythm.	3
C. The steps are executed out of rhythm during the first series of 4 beats. The remaining 2 series of 4 beats are executed in rhythm.	2
D. The steps are executed in a different movement pattern from the established movement pattern. However, the jumps are executed in rhythm with the given beat throughout the exercise.	1
E. The steps are executed out of rhythm throughout the given beat of the exercise.	0
Exercise 4. (4 series of 1, 2, 3, and 4 beats)	
A. The steps are executed in rhythm throughout the given beat of the exercise.	4
B. The steps are executed out of rhythm during the first 4 beats. The remaining 3 series of 4 beats are executed in rhythm.	3
C. The steps are executed out of rhythm during the first 2 series of 4 beats. The remaining 2 series of 4 beats are executed in rhythm.	2
D. The steps are executed in a different movement pattern from the established movement pattern. However, the hops are executed in rhythm with the given beat throughout the exercise.	1
E. The steps are executed out of rhythm throughout the given beat of the exercise.	0
Part IV Total Score:	____

NAME _____ COURSE _____

CLASSIFICATION _____ DATE _____

PART I	PART II	PART III	PART IV
Exercise 1 ____	Exercise 1 ____	Exercise 1 ____	Exercise 1 ____
Exercise 2 ____	Total ____	Exercise 2 ____	Exercise 2 ____
Total ____		Exercise 2a ____	Exercise 3 ____
		Total ____	Exercise 4 ____
			Total ____
Exercise 1 ____	Exercise 1 ____	Exercise 1 ____	Exercise 1 ____
Exercise 2 ____	Total ____	Exercise 2 ____	Exercise 2 ____
Total ____		Exercise 2a ____	Exercise 3 ____
		Total ____	Exercise 4 ____
			Total ____

APPENDIX D

THE HARVEY RHYTHM TEST[1]

Directions for Taking the Harvey Rhythm Test

The first statement that you will hear is one of general directions for the test item. You will then be given the command to begin walking through the test item, as the directions are given. This walk-through is repeated. Next, stand still, and listen while the rhythm by which you are to execute the exercise is given. You will next hear the command, "Ready, begin!" Start on the beat directly after the word, "begin."

Part I--Rhythmic Dexterity of the Hands

Exercise 1

Starting position.--Assume a kneeling position, with knees on the mark placed on the floor. Frame one contains eight blocks, and is located on one side of you. Frame two is empty, and is located on the other side of you.

---

[1]Patricia Ann Harvey, "The Construction of a Rhythm Test Based on Motor Response for Women Physical Education Majors at North Texas State University," unpublished master's thesis, North Texas State University, Denton, Texas, 1963.

Movement and rhythm pattern.--Move the blocks one by one from frame one with one hand until all eight blocks are in frame two. Then, with the same hand, remove the blocks in the same manner back to frame one. Your movements are to be in rhythm with the given meter. It takes two beats to move one block from one frame to the other.

First walk-through.--Take the starting position. Ready, begin.

Count one--pick up block.

Count two--put in block.

Count three--pick up block.

Count four--put in block.

Count five--pick up block.

Count six--put in block.

Count seven--pick up block.

Count eight--put in block.

Continue: pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in. Reverse; pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in.

Second walk-through.--Ready, begin.

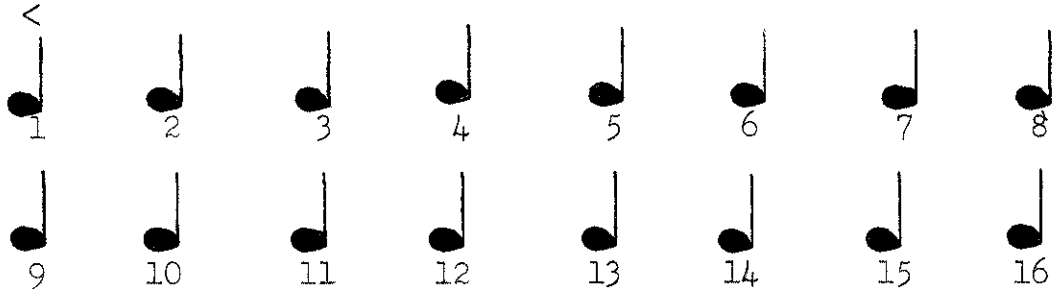
Pick up, put in, pick up, put in, pick up, put in, pick up,

put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in. Reverse; pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in, pick up, put in.

Be still and listen. Do not move your hand while the rhythm is given.

The rhythm will be:--(16 beats--meter of 80) (m.m. ♩ = 80).

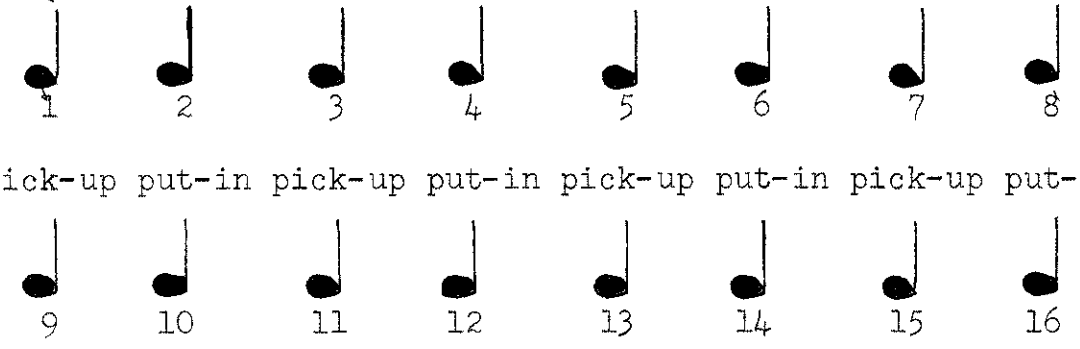
pick-up put-in pick-up put-in pick-up put-in pick-up put-in



Ready, begin.--(32 beats--meter of 80) (m.m. ♩ = 80).

Verbal sounds are not heard after the word begin, only percussion.

pick-up put-in pick-up put-in pick-up put-in pick-up put-in

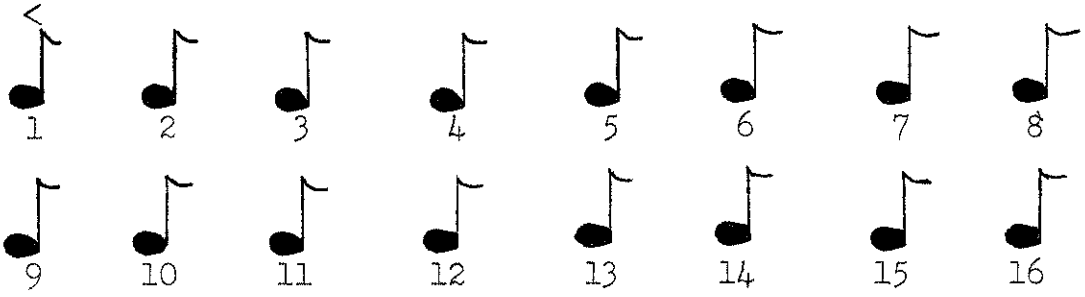


Exercise 2

Execute the same movement and rhythm pattern as done in the preceding exercise.

The rhythm will be:--(16 beats--meter 152) (m.m. ♩ = 152).

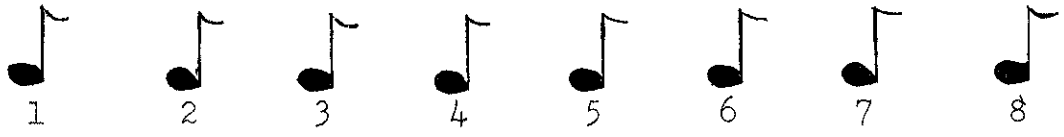
pick-up put-in pick-up put-in pick-up put-in pick-up put-in



Ready, begin.--(32 beats--meter of 152) (m.m. ♩ = 152).

Verbal sounds are not heard after the word begin, only percussion.

pick-up put-in pick-up put-in pick-up put-in pick-up put-in



pick-up put-in pick-up put-in pick-up put-in pick-up put-in

Refer to Figure 1 in the Appendix for illustration of frame placement on the floor and of the restraining mark.

Part II--Continuing Rhythm Without an Audible Beat

Exercise 1

Starting position.--Take a position in the middle of the floor facing a side wall. Stand with weight on one foot, and with the other foot ready to run forward on the first beat.

Movement and rhythm pattern.--Run, making a large circle as the line of direction. Perform each step of the run in rhythm with the given beat. Continue the established rhythm of the run after the beat stops until you hear a signal to stop.

First walk-through.--Take the starting position. Remember to continue the established rhythm of the run after the beat stops, until you hear a signal to stop. Ready, begin.

run, run, run, run, run, run, run, run, run, continue: . . .

. . . . . stop.

Second walk-through.--Remember to continue the established rhythm of the run after the beat stops, until you hear a signal to stop. Ready, begin.

run, run, run, run, run, run, run, run, run, run, continue:

. . . . . stop.

Be still and listen. Do not run while the rhythm is given.

The rhythm will be:--(10 given beats--meter of 126) (m.m.  = 126).

run run run run run run run run run run

1 2 3 4 5 6 7 8 9 10 11 12

\- - - - - - - -

13 14 15 16 17 18 19 20

Ready, begin.--(A total of 30 beats--10 given beats--meter of 126) (m.m.  = 126).

run run run run run run run run run run run run

1 2 3 4 5 6 7 8 9 10 11 12

run run run run run run run run run run run run

\- - - - - - - - - - - -

13 14 15 16 17 18 19 20 21 22 23 24

run run run run run run

\- - - - - -

25 26 27 28 29 30

Part III--Even-Plus-Uneven-Beat Sequence

Exercise 1

Starting position.--Take a position in the middle of the floor, keeping the weight on both feet and facing the grader.

Movement and rhythm pattern.--Accent a beat sequence of two, followed by a beat sequence of three, stepping on each beat. Accent the first beat in each beat sequence, by stamping with one foot. The first of each two and three beat sequence will be accented. Continue the movement series until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one--stamp right foot.

Count two--step left foot.

Count one--stamp right foot.

Count two--step left foot.

Count three--step right foot.

Count one--stamp left foot.

Count two--step right foot.

Count one--stamp left foot.

Count two--step right foot.

Count three--step left foot.

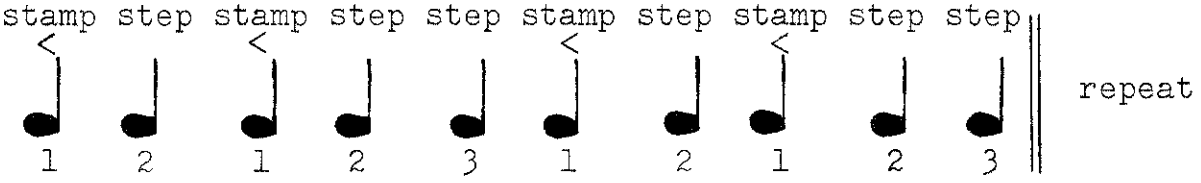
Stamp, step, stamp, step, step, stamp, step, stamp, step, step.

Second walk-through.--Ready, begin.

Stamp, step, stamp, step, step, stamp, step, stamp, step, step, stamp, step, stamp, step, step, stamp, step, stamp, step, step.

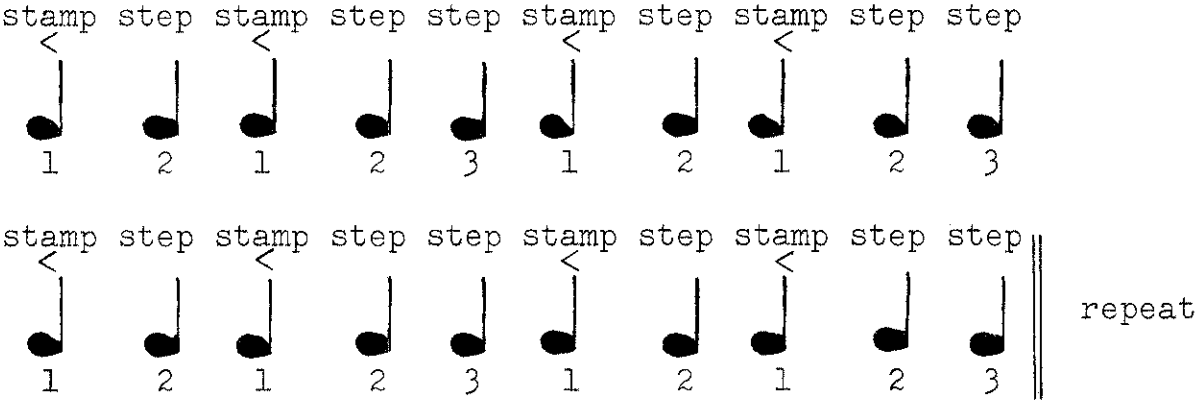
Stand still and listen. Do not step while the rhythm is given.

The rhythm will be:--(4 series of 2, 3 beat sequences--meter of 13$) (m.m. ♩ = 13$).



repeat

Ready, begin.--(8 series of 2, 3 beat sequence--meter of 13$) (m.m. ♩ = 13$).



repeat

Exercise 2

Starting position.--Take a position in the middle of the floor, keeping the weight on both feet, facing the grader.

Movement and rhythm pattern.--Accent a beat sequence of two, followed by a beat sequence of three, and a beat sequence of five. Accent the first beat in each sequence by clapping, and hold the hands on the un-accented beats. The first of each beat sequence will be accented. Continue the movement series until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one--clap.

Count two--hold.

Count one--clap.

Count two, three--hold.

Count one--clap.

Count two, three, four, five--hold.

Clap, hold two, clap, hold two, three, clap, hold two, three, four, five. Clap, hold two, clap hold two, three, clap hold two, three, four, five.

Second walk-through.--Ready, begin.

Count one--clap.

Count two--hold.

Count one--clap.

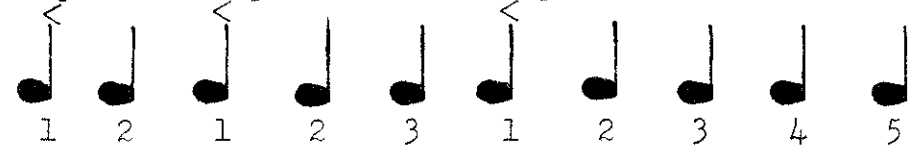
Count two, three, four, five--hold.

Clap, hold two, clap, hold two, three, clap, hold two, three, four, five, clap hold two, clap hold two, three, clap hold two, three, four, five.

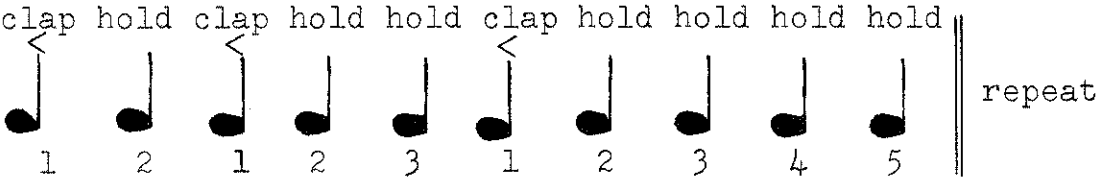
Stand still and listen. Do not clap while the rhythm is given.

The rhythm will be:--(4 series of 2, 3, 5 beat sequences--meter of 184) (m.m. ♩ = 184).

clap hold clap hold hold clap hold hold hold hold



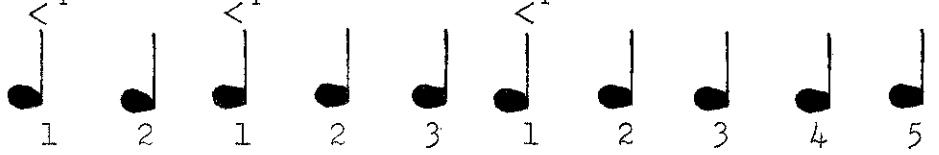
clap hold clap hold hold clap hold hold hold hold



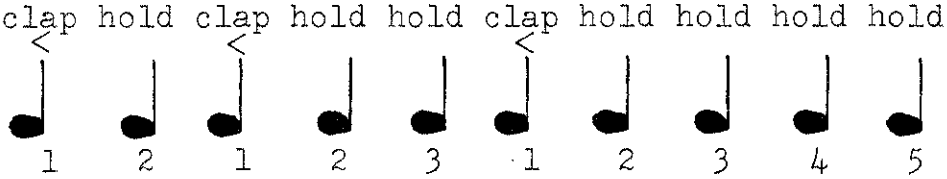
repeat

Ready, begin.--(6 series of 2, 3, 5 beat sequences--meter of 184) (m.m. ♩ = 184).

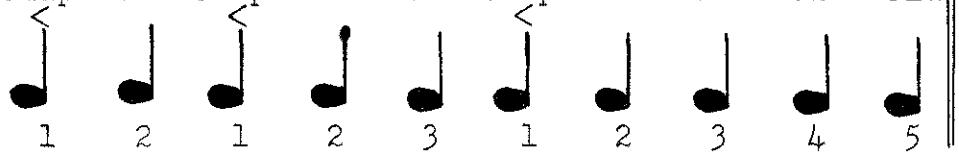
clap hold clap hold hold clap hold hold hold hold



clap hold clap hold hold clap hold hold hold hold



clap hold clap hold hold clap hold hold hold hold



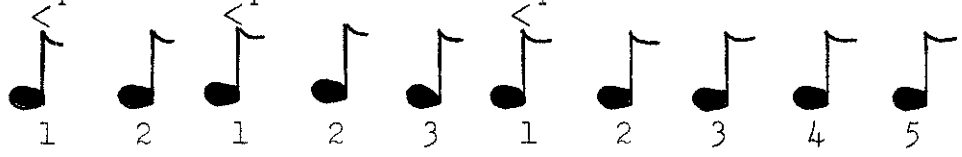
repeat

Exercise 2a

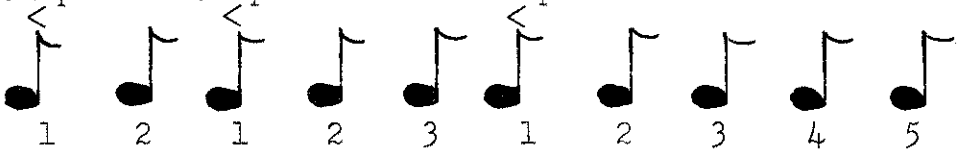
Execute the same movement and rhythm pattern as done in the preceding exercise.

The rhythm will be:--(4 series of 2, 3, 5 beat sequences--meter of 208) (m.m. ♩ = 208).

clap hold clap hold hold clap hold hold hold hold

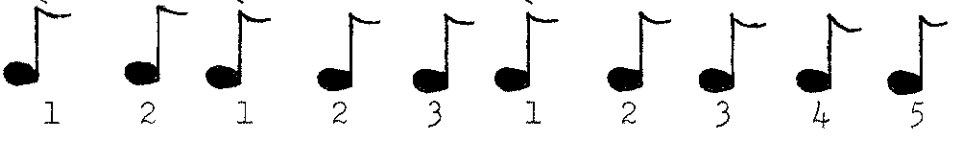


clap hold clap hold hold clap hold hold hold hold

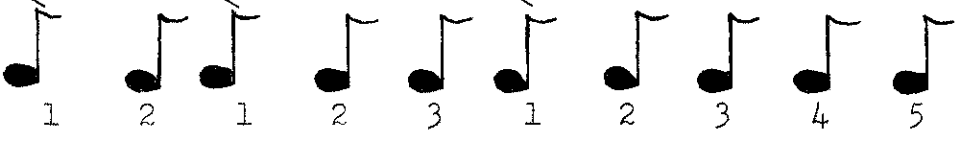


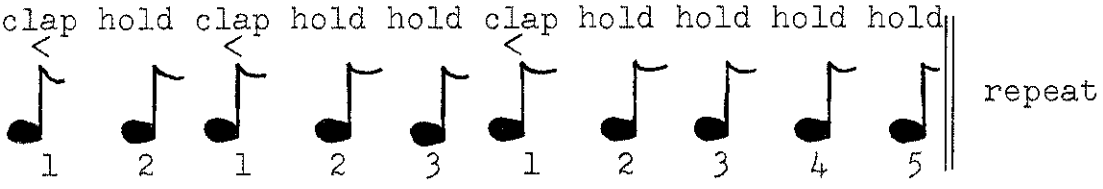
Ready, begin.--(6 series of 2, 3, 5 beat sequences--meter of 208) (m.m. ♩ = 208).

clap hold clap hold hold clap hold hold hold hold



clap hold clap hold hold clap hold hold hold hold





Part IV--Varied Movement and Rhythms Performed in Wooden Frames Placed on the Floor

Exercise 1

Starting position.--Take a position standing outside frame one facing frame four.

Movement and rhythm pattern.--Step into frame one, on the count of one, with one foot. Count two, jump landing on both feet, with one foot in frame two and one foot in frame three. Count three, step in frame four with one foot. Count four, step out of frame four turn around ready to repeat the same movement series back to the starting position. One, two, three, four; step, jump, step, turn. The movement will resemble the game of hopscotch. Every first beat of the four beat series will be accented. Continue the steps and jumps until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one--step into frame one with one foot.

Count two--jump, landing on both feet, with one foot in frame two and one foot in frame three.

Count three--step out of frame four, turning around ready to repeat back to the starting position.

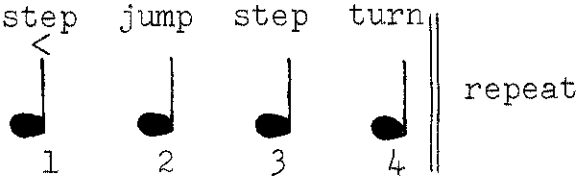
Step, jump, step, turn.

Second walk-through.--Ready, begin.

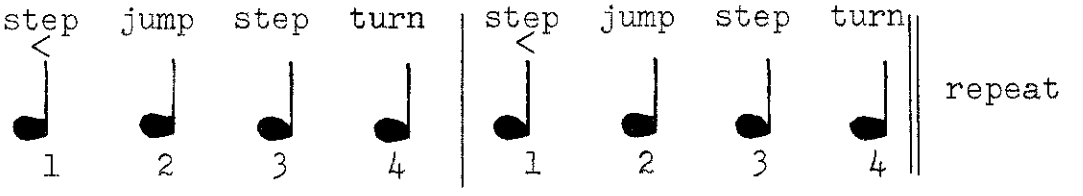
Step, jump, step, turn, step, jump, step, turn.

Stand still and listen. Do not jump while the rhythm is given.

The rhythm will be:--(2 series of 4 beats--meter of 104) (m.m. ♩ = 104).



Ready, begin.--(4 series of 4 beats--meter of 104) (m.m. ♩ = 104).



Exercise 2

Starting position.--Take a position standing outside frame one facing frame four.

Movement and rhythm pattern.--Jump landing on both feet in frame one, on the count of one. Jump out of the frame

straddling the frame on count two. Repeat the same movement, and same rhythm in frames two, three and four. This will take eight counts. On the ninth and tenth count, step outside of frame four and turn around ready to repeat the same movement series back to the starting position. Every first beat of each series of ten beats will be accented. Continue the jumps until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one--jump into frame one, with both feet.

Count two--jump out, straddling the frame.

Count three--jump into frame two, with both feet.

Count four--jump out, straddling the frame.

Continue the same movement pattern in frames three and four.

jump in, jump out, jump in, jump out.

Count nine--step outside of frame four.

Count ten--step and turn around.

Repeat the jump pattern back to the starting position, jump in, jump out, jump in, jump out, jump in, jump out, jump in, jump out, step, step turn.

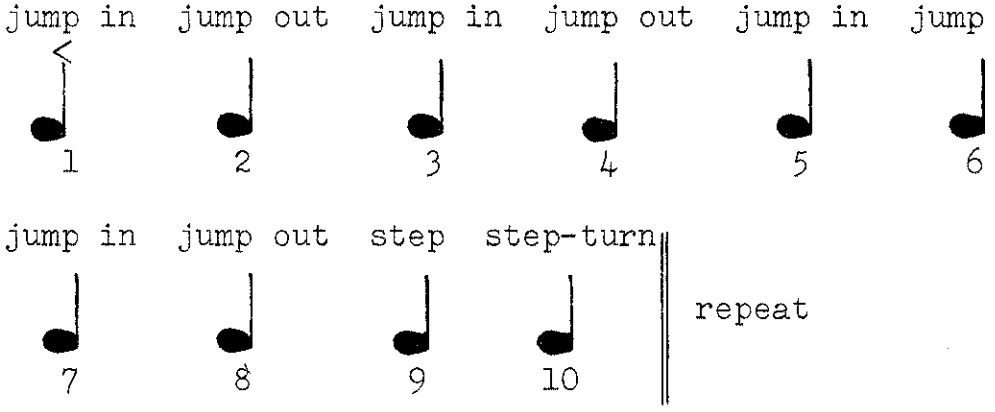
Second walk-through.--Ready, begin.

Jump in, jump out, jump in, jump out, jump in, jump out, jump in, jump out, step, step turn, jump in, jump out,

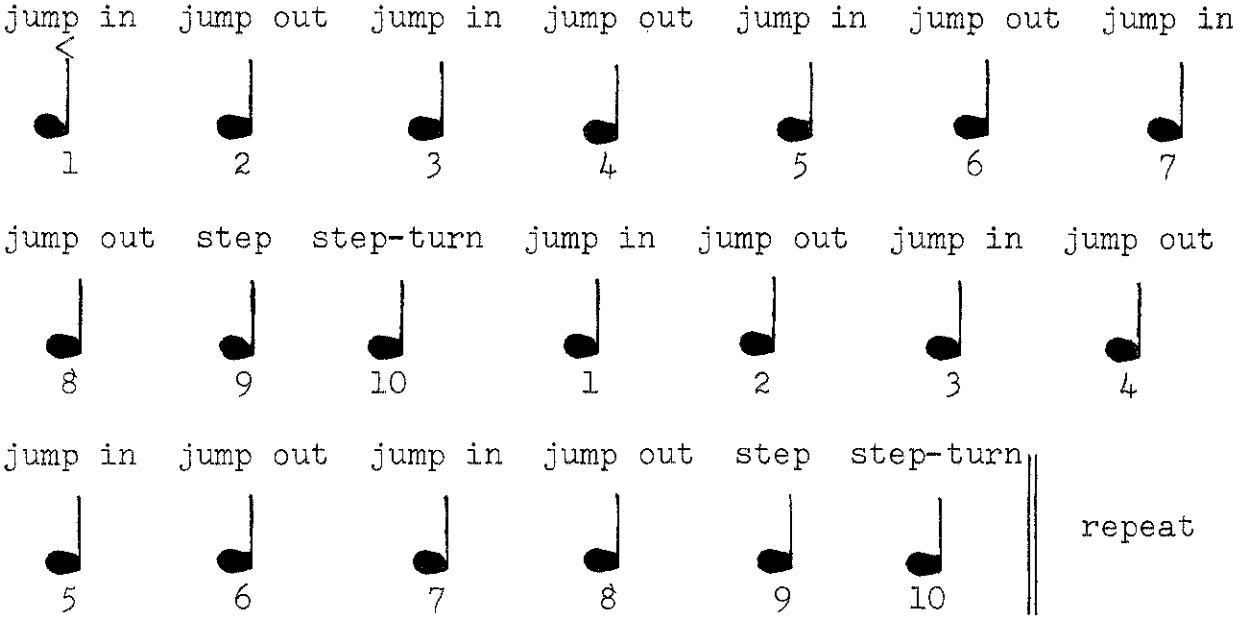
jump in, jump out, jump in, jump out, jump in, jump out, step, step turn.

Stand still and listen. Do not jump while the rhythm is given.

The rhythm will be:--(2 series of 10 beats--meter of 108) (m.m. ♩ = 108).



Ready, begin.--(4 series of 10 beats--meter of 108) (m.m. ♩ = 108).



Exercise 3

Starting position.--Take a position standing outside frame one, facing frame four.

Movement and rhythm pattern.--Count one, step into frame one with one foot. Step into frame two with one foot on the "and." Step into frame three on count two. Step into frame four on count three. Step outside of frame four, taking two steps to turn around on the count of four. Be ready to repeat the same movement series to the starting position. The count for this exercise is one, "and" two, three, "and" four. Step, step step, step, step-turn. Every beat of each four beat series will be accented. Continue the steps until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one--step into frame one with one foot.

Count "and" two--step into frame two with one foot and frame three with one foot.

Count three--step into frame four with one foot.

Count "and" four--with one foot, step outside frame four, keeping the weight on that foot. Step, with the free foot turning on that foot, ready to repeat.

Step, step step, step, step, step-turn.

Second walk-through.--Ready, begin.

Count one--step into frame one with one foot.

Count "and" two--step into frame two with one foot and frame three with one foot.

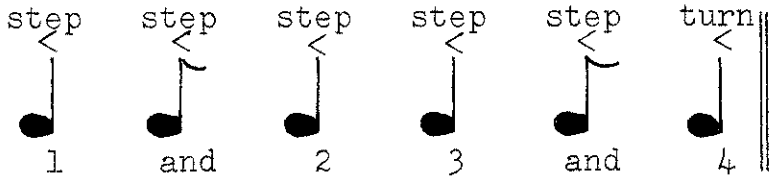
Count three--step into frame four with one foot.

Count "and" four--with one foot, step outside frame four, keeping the weight on that foot. Step with the free foot, turning on that foot, ready to repeat.

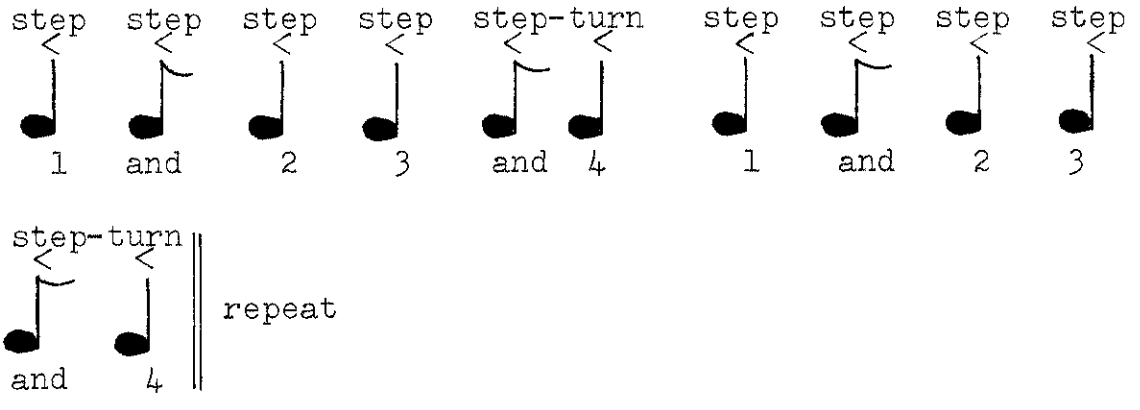
Step, step step, step, step, step-turn.

Stand still and listen. Do not step while the rhythm is given.

The rhythm will be:--(2 series of 1, "and" 2, 3, "and" 4 beats--meter of 104) (m.m. ♩ = 104).



Ready, begin.--(4 series of 1, "and" 2, 3, "and" 4 beats--meter of 104) (m.m. ♩ = 104).



Exercise 4

Starting position.--Take a position standing outside frame one facing frame four.

Movement and rhythm pattern.--Move from frame one to frame four, stepping in each frame, ending outside of frame four on the fourth beat. Turn around, taking two step on the count of "and" four, ready to repeat the same movement pattern back to the starting position. The count for this exercise will be one, two, three, "and" four, step, step, step, step-turn. The first beat of each series of four beats will be accented. Continue the steps until the beat stops.

First walk-through.--Take the starting position. Ready, begin.

Count one, two, three--step left, right, left.

Count "and" four--step, turn outside of frame four. Repeat the step pattern back to the starting position.

step right, left, right, step-turn.

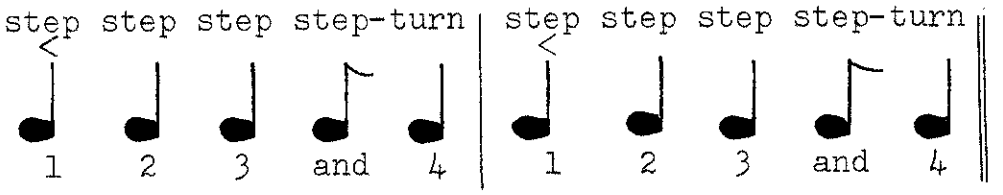
Second walk-through.--Ready, begin.

Step right, left, right, step-turn. Step right, left, right, step-turn.

Stand still and listen. Do not step while the rhythm is given.

The rhythm will be.--(2 series of 1, 2, 3, "and" 4 beats--meter 108) (m.m. ♩ = 108).

Ready, begin.--(4 series of 1, 2, 3, "and" 4 beats--meter 108) (m.m. ♩ = 108).



Numbering and floor patterns of the frames used in the four previous exercises are illustrated in the Appendix, Figures 2 and 3.

Floor Placement of Wooden Frames
Used in the Administration of
The Harvey Rhythm Test

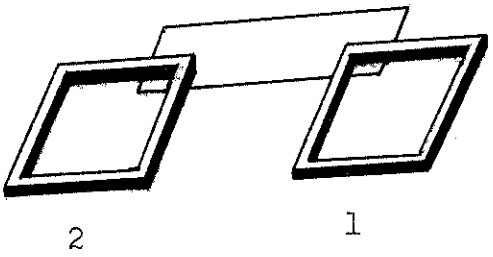


Fig. 1--The position and numbering of frames for exercises 1 and 2; and the restraining mark for the knees contained in Part 1 of The Harvey Rhythm Test.

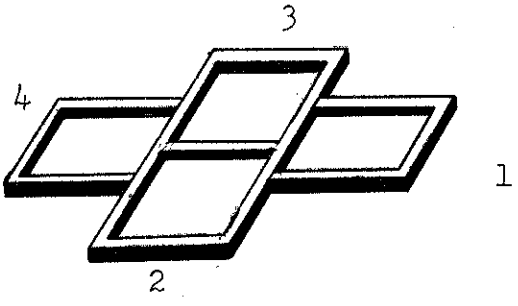


Fig. 2--The position and numbering of frames for exercises 1 and 3 of Part IV of The Harvey Rhythm Test.

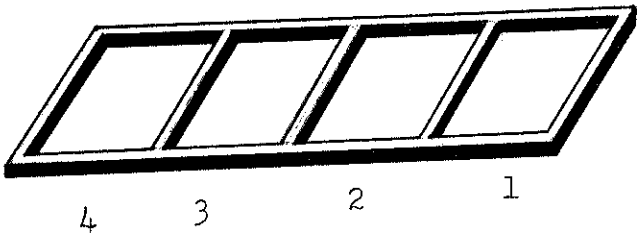


Fig. 3--The position and numbering of frames for exercises 2 and 4 of Part IV of The Harvey Rhythm Test.

BIBLIOGRAPHY

Books

Bucher, Charles A., Foundations of Physical Education, Saint Louis, C. V. Mosby Company, 1964.

Domonkos, Helen E., as quoted by McCue, Betty Foster, Physical Education Activities for Women, London, The Macmillan Company, 1969.

Duggan, Anne Schley, The Complete Tap Dance Book, New York, A. S. Barnes and Company, Inc., 1947.

_____, as documented by Weston, Authur, The Making of American Physical Education, New York, Meredith Publishing Company, 1962.

Kraus, Richard, Folk Dancing, New York, The Macmillan Company, 1962.

McNemar, Quinn, Psychological Statistics, 3rd ed., New York, John Wiley and Sons, Inc., 1962.

Articles

Annett, Thomas, "A Study of Rhythmical Capacity and Performance in Motor Rhythm in Physical Education Majors," Research Quarterly, III (May, 1932), 183-190.

Ashton, Dudley, "A Gross Motor Rhythm Test," Research Quarterly, XXIV (October, 1953), 253-260.

Gault, R. H. and L. D. Goodfellow, "An Empirical Comparison of Audition, Vision, and Touch in the Discrimination of Temporal Patterns and Ability to Reproduce Them," Journal of Genetic Psychology, XVIII (1938), 41-47.

Haight, Edith C., "Individual Differences in Motor Adaptations to Rhythmic Stimuli," Research Quarterly, XV (March, 1944), 38-43.

H'Doubler, Margaret N., "An Interpretation of Rhythm," The Journal of Health and Physical Education, III (September, 1932), 16-17, 54-55.

Lemon, Eloise and Elizabeth Sherbon, "A Study of the Relationship of Certain Measures of Rhythmic Ability and Motor Ability in Girls and Women," Research Quarterly Supplement, V (March, 1934), 82-85.

McCristal, K. J., "Experimental Study of Rhythm in Gymnastics and Tap Dancing," Research Quarterly, IV (May, 1933), 63-75.

Muzzey, Dorothy M., "Group Progress of White and Colored Children in Learning a Rhythm Pattern," Research Quarterly, IV (October, 1933), 62-75.

Seashore, Robert H., "Studies in Motor Rhythm," Psychological Monographs, XXXVI (1926), 142-189.

Simpson, Shirley E., "Development of Validation of an Objective Measure of Locomotor Response to Auditory Stimuli," Research Quarterly, XXIX (October, 1958), 342-347.

Swindle, P. F., "On the Inheritance of Rhythm," American Journal of Psychology, XXIV (April, 1913), 180-203.

Thackray, Rupert, "Rhythmic Abilities and Their Measurement," Journal of Research in Music Education, XVII (Spring, 1969), 144-148.

Wight, Minnie G., "The Effect of Training on Rhythmic Ability and Other Problems Related to Rhythm," Child Development, VIII (June, 1937), 159-172.

Government Documents

Weitz, Joseph and Kenwood L. Fair, A Survey of Studies of Rhythm, Air Training Command--Human Resources Research Center, Lackland Air Force Base, San Antonio, Texas, Research Bulletin 51-4 (March, 1951), 33 pp.

Unpublished Materials

Barnard, Betty Jean, "The Relationship of Rhythmic Ability and Background in Dance and Music to Swimming Achievement of College Women," unpublished master's thesis, University of Washington, Seattle, 1964.

Harvey, Patricia Ann, "The Construction of a Rhythm Test Based on Motor Response for Women Physical Education Majors at North Texas State University," unpublished master's thesis, Department of Physical Education, North Texas State University, Denton, Texas, 1963.

Freytag, Janice Geiger, "The Relationship of Rhythmic Ability and Background in Dance and Music to Racial and Socio-economic Background," unpublished master's thesis, University of Washington, Seattle, 1967 (microcard).