CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

EFFECTS OF RHYTHM TRAINING
ON READING IMPROVEMENT

A graduate project submitted in partial satisfaction of the requirements for the degree of Master of Arts in Education with a specialization in Educational Psychology

Department of Psychological Foundation

by

Helen Voth Daley

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The graduate project of Helen Voth Daley is approved:

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ABSTRACT

EFFECTS OF RHYTHM TRAINING
ON READING IMPROVEMENT

by
Helen Voth Daley
Master of Arts in Education
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February, 1973

This study in rhythmic training was undertaken to explore the relationship of rhythmic coordination and reading. It was hypothesized that improvement in rhythmic deficiencies would carry over to improvement in reading, as measured by tests.

The design of the study was pretest-posttest, with an experimental group and a control group. There were twelve children of third and fourth grade level in each group. These children were matched according to reading level, grade, and reading score, as measured on the California State Reading Test, The Cooperative Primary.
The twelve children in the experimental group were given a thirty-minute period of rhythmic training each day for six weeks. Various rhythm activities involving clapping, dancing, body movement, and playing of instruments were used.

The Silvaroli Reading Inventory, Forms A and B, was used for the pretest and posttest. In the experimental group the results were significant at the .05 level, thus the null hypothesis was rejected. During the same period of time, there was almost no change in the scores of the control group.

The data supported the original hypothesis that remediation of rhythm difficulties would carry over into improved reading.
CHAPTER I

The Problem and Justification of Study

Justification and Need for Study

The fact that many children have difficulty with reading and that there is much discussion of this matter is certainly not news. Almost every digest, parents' magazine, professional periodical, and newspaper carries articles, suggestions, or prescriptions hoping to provide a cure for the reading problem. New methods, approaches, and materials have been created. Old practices have been revived in an effort to produce a generation of children who are able to read. With all that has been said and done, we are still faced with classrooms in which many of the children are not able to read.

Many of these children have additional problems which become even more prominent because of school failure. Many of these children have emotional difficulties in their homes. In many instances there are frequent moves so that the entire school history is one of discontinuity. Many come from broken homes, and many are culturally deprived.
The difficulty which these children have with reading is combined with other learning problems. They may have poor memories, difficulty in skipping and other gross motor functions, cluttered speech, hyperactivity or lethargy, inability to organize, inability to follow instructions, and inability to link sound and symbol. In addition, many of these children are lacking in a sense of rhythm.

In spite of these divergent problems, in many cases a single answer is given to meet the needs of these children. In many schools the common practice has required the use of the same basal reading materials but at a later beginning and at a slower pace, the assumption being that they can handle the materials used by the rest of the class provided the material is taken more slowly.

The awareness of the lack of rhythm in many of the children who have difficulty with reading prompted this inquiry. The fact that the two deficiencies appear to be linked so frequently aroused interest in the possibility of making up both lacks by working on the development of rhythm patterning.

The place of rhythms in the elementary program cannot be overstated for the establishment of rhythmic move-
ment is essential to a child's growth physically and emotionally. The child can operate more efficiently physically, intellectually, and emotionally if provision is made in the school day for the time and space required for the intensified self-expression which rhythms provide. Not only do rhythms provide for physical experiences of an immediate nature, but they help to develop such concepts as form, balance, structural design, and patterns in music, art, literature, speech, etc. Number concepts and ethnic characteristics may also be strengthened through the use of rhythms. (IDEA, 067-627)

This study will examine the relationship between the development of rhythm and improvement in reading skills. If there is a significant correlation between the improvement in rhythmic skills and success in beginning reading, this study provides a new test that may be a valuable instructional device. It will also suggest a need for further experimentation and sequencing of rhythm development designed to influence those factors involved in reading.

The Problem

The purpose of this study was to design, develop, and assess the growth in reading of children with prior read-
ing difficulties after a period of training in rhythm activities and movements.

Related Literature

Research literature related to the development of rhythm and its relationship to reading is very limited. Subjects related to this area, such as motor development and growth in musical skills as well as material on reading proficiency, are to be found in abundance; but there is a paucity of material directly related to rhythm and reading.

Since there is a growing awareness of the need for readiness for reading, considerable research has also been done in this area. However, the fact that there is still much need for research done on children who have difficulty understanding the meaning of words and who lack adequate skill in listening and speaking is verified by Helene Lloyd. (1965) Research in the area of body rhythms is also needed in order to provide definitive directions and guides for those who are working in this area. The use of rhythms may provide an avenue of help to children who have not been successful in learning to read by standard methods.
Fernald (1943) takes note of the need of new methods when she says, "It seems that most cases of reading disability are due to blocking of the learning process by use of limited, uniform methods of teaching. These methods, although they have been used successfully with the majority of children, make it impossible for certain children to learn; because they interfere with the functioning of certain abilities that the children possess." p. 176

Blair and Jones (1960) also suggest that readiness should include more than the learning of letter names and sounds. "As the term readiness is used today...it implies more than just emotional readiness, although that is important. It includes also physiological maturation, general mental ability, and experiential background or educational readiness. To be completely ready for an educational activity or learning experience, a child must want to learn; be sufficiently mature physiologically; possess appropriate mental abilities; and, finally, have had the right educational experiences." (Blair and Jones, 1960) p. 1081

One way that we can try to help and prepare these children is by enriching their experience. The program used may be all right; but for children who have not had any background, these experiences are too advanced. There
is a need for so many enriching experiences which they have not had.

This enrichment may include skills for those children who enter school with a deficiency in verbal skills. Children who lack verbal readiness will profit from a pre-reading program specifically aimed at developing verbal ability prior to their introduction to reading. (Jordan, 1965) Although the time spent in a verbal readiness program postpones the introduction to reading for such children, a longitudinal investigation shows that these children soon begin to learn faster and to show greater reading comprehension than comparable control students who do not receive the verbal readiness training.

The improvement of listening skills as a preparation for reading has also been investigated. In a three-month study in which an experimental group of students received auditory training exercises, the average gain in reading achievement for the experimental group was almost three times as great as the reading-achievement growth for a comparable control group which did not receive the listening training. (Lubershane, 1962)

Further emphasis on the need for readiness preparation, especially for children with perceptual problems, is given
by Charles Drake. (1967) He writes, "Eye-motor control, lip-tongue control, and general bodily movements are all fine motor control problems to be diagnosed at many different levels. An inability to control and use a writing instrument is but one symptom. It is especially important that preventative and remedial work begin at an early age, in order that secondary psychological symptoms resulting from the continued failure in school will not become generalized in the whole personality structure. Our present methods indicate that children should be taught a sequence of motor competencies that follow a definite hierarchy pattern of development. This hierarchy should give first primacy to gross motor development leading to an active self-conscious image of body control. This should be followed by the development of patterned, coordinated, gross body movements in musical rhythm. The development of fine coordination in hands and eyes would represent the program's goals." (Drake, 1967) p. 54, 55

That the development of rhythm is more than just a pleasant diversion has been verified by Jane Hart and Beverly Jones. (1968) Their findings show that rhythm is a regulated, consistent relationship in time, equal thrust and counterthrust, equal action and reaction, matching one's own relationship in time to external changes. The inner rhythm of the child is the more
important. The child develops rhythm patterns as seen in sleep-wake patterns. With poor internal rhythms a child is not likely to have regular, smooth, chemical changes operating inside which may account for the unpredictable, unreasonable, mood swings with which children with learning disorders are fairly universally identified. As these rhythms become more established through patterning, the child is able to work in a more successful and steady pattern.

Since the use of pattern is integral to many school functions, it is important to build this sense of rhythm. The ability to repetitiously follow the patterns of sound is imperative for reading. (Crosby, 1970)

The importance of rhythmic development has been studied by Kephart. (1960) He found that rhythm is important in kinesthetic and tactual problems, since much information obtained from the senses is probably aided and mitigated by ability to establish and maintain rhythm relationships. In the auditory field information is kept classified and organized through the imposition of rhythm upon auditory stimuli. Many problems of auditory span may be related to weaknesses in ability to establish and/or maintain rhythm patterns.
Child development specialists have for many years emphasized the importance of exploration and manipulation in the learning of the young child. Through such continuous exploration of spaces and objects, the bases for such essential concepts as form perception and space structure are laid. Such concepts, however, are dependent upon continuity of exploration. Such continuity, in turn, is dependent upon the achievement of an ongoing movement which is consistently controlled by the perceptual stimuli which determine the area to be explored.

Thus movement can be seen as a basic aspect of development and learning in children. (Frostig, 1970) Investigations in classrooms and clinics have shown that special attention to early motor learning can improve school achievement in the primary grades. (Dillon, 1970)

A large number of children enter the public school with inadequate or incomplete motor learning. They are ill-prepared to cope with the responses and manipulative demands placed upon them by classroom tasks. For this group the school is required to teach motor competencies of the type which most children bring with them when they begin their school experiences.
The competencies required by these children are more than mere motor skills. They are motor generalizations which permit certain types of purposeful exploration and manipulation. (Godfrey, 1969)

The teaching of skills for the purpose of sports participation and the like must be expanded to include movements for the purpose of exploration and learning. Coordination must be stressed so that the child's attention can shift from how the movement is to be made and can be directed to the interaction which the movement promotes. (Kephart, 1971)

There has been limited testing on the effects of rhythmic perception training on reading. In early testing there is some evidence that it may contribute to early success in reading. The auditory and visual rhythm perception in relationship to reading ability was tested in fourth grade boys. (Steritt, 1966)

More testing on the reactions of rhythmic training is also needed; since it has been found that rhythmic stimuli may have varying effects, exciting or calming, because of the differences of personal tempos. (Cratty, 1969)
Indication from the research which has been undertaken suggests that a much stronger emphasis must be placed on the establishment of motor control beginning with the gross motor development and continuing through the establishment of fine muscle control. The patterning of the child's inner rhythms must precede his attempt to read.

Rhythmic training, which previously had been associated only with sports or other athletic pursuits, offers an additional aspect of development and learning for children when utilized as a central part of reading readiness programs. This training, incorporated into established readiness programs, will allow many children to be prepared to begin reading. The period of patterning and rhythm development will allow the ultimate goal of rapid growth in reading to be attained.
CHAPTER II

Statement of Hypotheses and Definition of Terms

Hypotheses

A number of research questions, phrased as hypotheses, follow. Though stated as positively favoring the rhythmic development program, they are intended to be unbiased. The null hypothesis would be that there would be no statistically significant differences.

1. Children who are involved in the development of rhythm through listening, patterning, and playing rhythm instruments will show significantly higher oral reading ability than children who are not involved in the program.

2. Lacks in rhythmic skills will respond to remediation and ultimate improvement of reading skills.

Definition of Terms

For the purpose of this project, the rhythmic program is defined in terms of criteria, materials, and instructional procedures.
Rhythmic Development

1. Rhythmic materials were provided by the teacher and made by the children.

2. The instructional procedure was in small groups and on a one-to-one basis.

3. Grouping was flexible and focused on specific tasks, as needed, for specific youngsters at specific times.

4. There was a sequential skill development program so that each skill would proceed from the simple to the more difficult.

5. There was repetition of skills which were learned and incorporated into new skills.

The materials used by the children included a piano, metronome, record player, song bells, tone bells, drums, balls, rhythm sticks, jump ropes, and percussion instruments. Each child had a copy of _Three Billy Goats Gruff_. 
CHAPTER III
Design and Procedure

Design

Seven third grade children and five fourth grade children—in one class—were included in the experimental group, and seven third grade children and five fourth grade children—in another class—were included in the control group. These children were matched according to grade and scores on the California State Reading Test. There was no attempt made to match either the age or sex of the children. All of the children in this study fell below the 60th percentile on the State Reading Test.

The design for the study was pretest-posttest, and experimental and control. The treatment for the experimental group included specific rhythm training activities. All children were tested individually on the Silvaroli Reading Inventory, Form A. Following the intervention of the six week rhythm training, all children were retested on the Silvaroli Reading Inventory, Form B.

The specific activities used in the program can be found in Appendix A. Additionally, the story, Three Billy
Goats Gruff, adapted for use with song bells or other rhythm instruments, can be found in Appendix B.

There were some activities that allowed for total body movement, some that could be used in a series progressing from the simple to the more difficult, some that allowed the use of rhythm instruments, and still others that helped in the development of note reading with special emphasis on note time value rather than pitch, though pitch was often involved. Listening activities were an important part of the program, progressing from simply repeating a clapped rhythm to the point where children could express through a series of dots and dashes, a rhythm pattern which they had heard. They were also able to see a series of dots and dashes and play or clap the appropriate pattern.

Since the goal of the program was to insure better oral reading, the opportunity to translate visual symbols into either music or rhythmic beats was frequently given. It was to this end that the Three Billy Goats Gruff was compiled. Many opportunities to develop hand, eye, and ear responses were given. Sometimes these skills were separated, and at other times activities were used which coordinated all of these skills.
Since it was not known exactly how long each of the activities would take, an effort was made to collect an abundance of usable materials. Some of the activities included in the appendix were never used because they repeated skills which had been learned through other activities, they were inappropriate, or because of a lack of time.

During the six week training period the experimental group spent approximately thirty minutes each day working on rhythmic activities. The sequence of training is found in an anecdotal record appended hereto.
Pre- and posttests of experimental and control groups were analyzed to determine:

1) the similarity of the two groups prior to intervention, and
2) the differences between the two groups following intervention.

The experimental group was composed of children from a three-four combination class whose reading scores were below grade level. These children were selected on the basis of performance on the California State Reading Test, The Cooperative Primary, given in May of 1972.

The members of the control group were selected by matching reading level scores and grade level of the experimental group. (See Table 1)

The Silvaroli Reading Inventory, Form A, was administered at the beginning of the study to determine the level of Word Knowledge and Reading Comprehension for each individual in the experimental group and the control group. To determine if there was any significant difference in
### TABLE 1
Comparison of Grade and Reading Level

#### Control Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Percentile</th>
<th>Stanine</th>
<th>Reading Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leroy</td>
<td>3</td>
<td>14</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Julie</td>
<td>3</td>
<td>14</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Shaun</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Glenna</td>
<td>4</td>
<td>16</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Kathy</td>
<td>3</td>
<td>44</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Brian</td>
<td>3</td>
<td>44</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Janet</td>
<td>3</td>
<td>48</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>James</td>
<td>4</td>
<td>22</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Robert</td>
<td>3</td>
<td>53</td>
<td>5</td>
<td>2.9</td>
</tr>
<tr>
<td>Grace</td>
<td>4</td>
<td>24</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Daniel</td>
<td>4</td>
<td>27</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>John</td>
<td>3</td>
<td>59</td>
<td>5</td>
<td>3.1</td>
</tr>
</tbody>
</table>

#### Experimental Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Percentile</th>
<th>Stanine</th>
<th>Reading Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>3</td>
<td>14</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Robin</td>
<td>3</td>
<td>14</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Steve</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Dennis</td>
<td>4</td>
<td>16</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Cory</td>
<td>3</td>
<td>44</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Julie</td>
<td>3</td>
<td>44</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Mary</td>
<td>3</td>
<td>48</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>Tony</td>
<td>4</td>
<td>22</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Vanessa</td>
<td>3</td>
<td>53</td>
<td>5</td>
<td>2.9</td>
</tr>
<tr>
<td>Kim</td>
<td>4</td>
<td>24</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Deanna</td>
<td>4</td>
<td>27</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Matt</td>
<td>3</td>
<td>59</td>
<td>5</td>
<td>3.1</td>
</tr>
</tbody>
</table>
the groups, numerical values were given to the scores of the Reading Inventory and the t-test applied. These values are listed in Table 2.

The following formula was used:

\[ t = \frac{\bar{x}_1 - \bar{x}_2}{S_{\text{diff}}} \]

Results yielded \( t \) equal to .39 indicating that, in comparing the scores of the control group and the experimental group on the Silvaroli Reading Inventory, no statistically significant difference exists. It can be concluded that the two groups were alike on the scores of the State Reading Test, grade level, and scores on the Silvaroli Reading Inventory at the beginning of the period of testing.

Following the period of rhythm training, the Silvaroli Reading Inventory, Form B, was administered. In order to determine whether the two groups differed in their performance, the sign test was administered. These results are listed in Table 3.

In analyzing the data, the size of the sample, the nature of the data, and limited control of the variables indicated a nonparametric statistical treatment would be the most appropriate.
**TABLE 2**

Levels on Silvarolli, Form A

<table>
<thead>
<tr>
<th>Name</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Word Knowledge</td>
<td>X₁</td>
</tr>
<tr>
<td></td>
<td>X₁</td>
<td>X₂</td>
</tr>
<tr>
<td>Leroy</td>
<td>PP</td>
<td>1</td>
</tr>
<tr>
<td>Julie</td>
<td>PP</td>
<td>1</td>
</tr>
<tr>
<td>Shaun</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Glenna</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Kathy</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Brian</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Janet</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>James</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Robert</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Grace</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Daniel</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>John</td>
<td>3</td>
<td>$\frac{5}{32}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Word Knowledge</th>
<th>Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>PP</td>
<td>1</td>
</tr>
<tr>
<td>Robin</td>
<td>PP</td>
<td>1</td>
</tr>
<tr>
<td>Steve</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Dennis</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Cory</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Julie</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Mary</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Tony</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Vanessa</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Kim</td>
<td>P</td>
<td>2</td>
</tr>
<tr>
<td>Deanna</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Matt</td>
<td>2</td>
<td>$\frac{4}{35}$</td>
</tr>
</tbody>
</table>
### TABLE 3
Comparison by Sign Test

#### Control Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Silvaroli Form A</th>
<th>Silvaroli Form B</th>
<th>Sign</th>
<th>Silvaroli Form A</th>
<th>Silvaroli Form B</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Word Knowledge</td>
<td>Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Leroy</td>
<td>PP</td>
<td>PP</td>
<td>0</td>
<td>PP</td>
<td>1</td>
<td>+</td>
</tr>
<tr>
<td>2. Julie</td>
<td>PP</td>
<td>PP</td>
<td>0</td>
<td>P</td>
<td>1</td>
<td>+</td>
</tr>
<tr>
<td>3. Shaun</td>
<td>P</td>
<td>PP</td>
<td>+</td>
<td>P</td>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>4. Glenna</td>
<td>P</td>
<td>1</td>
<td>+</td>
<td>PP</td>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>5. Kathy</td>
<td>P</td>
<td>1</td>
<td>+</td>
<td>P</td>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>6. Brian</td>
<td>P</td>
<td>PP</td>
<td>-</td>
<td>P</td>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>7. Janet</td>
<td>1</td>
<td>2</td>
<td>+</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>8. James</td>
<td>P</td>
<td>PP</td>
<td>-</td>
<td>P</td>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>9. Robert</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10. Grace</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>+</td>
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<tr>
<td>11. Daniel</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
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<tr>
<td>12. John</td>
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<td>3</td>
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#### Experimental Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Silvaroli Form A</th>
<th>Silvaroli Form B</th>
<th>Sign</th>
<th>Silvaroli Form A</th>
<th>Silvaroli Form B</th>
<th>Sign</th>
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<tbody>
<tr>
<td></td>
<td>Word Knowledge</td>
<td>Comprehension</td>
<td></td>
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<tr>
<td>1. John</td>
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<td>+</td>
<td>PP</td>
<td>1</td>
<td>+</td>
</tr>
<tr>
<td>2. Robin</td>
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<td>PP</td>
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<td>PP</td>
<td>PP</td>
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<td>3. Steve</td>
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<td>+</td>
<td>2</td>
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<td>+</td>
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<tr>
<td>4. Dennis</td>
<td>2</td>
<td>2</td>
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<td>2</td>
<td>4</td>
<td>+</td>
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<tr>
<td>5. Cory</td>
<td>1</td>
<td>3</td>
<td>+</td>
<td>2</td>
<td>4</td>
<td>+</td>
</tr>
<tr>
<td>6. Julie</td>
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<td>3</td>
<td>0</td>
<td>2</td>
<td>P</td>
<td>+</td>
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<tr>
<td>7. Mary</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>PP</td>
<td>1</td>
<td>+</td>
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<tr>
<td>8. Tony</td>
<td>P</td>
<td>1</td>
<td>+</td>
<td>2</td>
<td>3</td>
<td>+</td>
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<tr>
<td>9. Vanessa</td>
<td>2</td>
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<td>1</td>
<td>3</td>
<td>+</td>
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<td>P</td>
<td>2</td>
<td>+</td>
<td>2</td>
<td>2</td>
<td>0</td>
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<tr>
<td>11. Deanna</td>
<td>1</td>
<td>2</td>
<td>+</td>
<td>P</td>
<td>2</td>
<td>+</td>
</tr>
<tr>
<td>12. Matt</td>
<td>2</td>
<td>3</td>
<td>+</td>
<td></td>
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</table>
The means of the experimental and control groups were analyzed and compared for word knowledge and comprehension.

The z-test was used with the following formula:

\[ z = \frac{X - m}{\sigma} \]

where: \( X \) is the observed frequency of plus or minus signs, whichever is larger. The null hypothesis will be rejected at the \( .05 \) level if the obtained value of \( z \) is equal to or greater than 1.96.

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Word Knowledge</strong></td>
<td>( z = \frac{9 - 6}{1.7321} = 2.0206 )</td>
<td>( z = \frac{6 - 6}{1.7321} = 0 )</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td>( z = \frac{11 - 6}{1.7321} = 2.8866 )</td>
<td>( z = \frac{7 - 6}{1.7321} = 0.5773 )</td>
</tr>
</tbody>
</table>

In the experimental group the obtained z's of 2.89 for comprehension and 2.02 for word knowledge are statistically significant. The null hypothesis must be rejected at the \( .05 \) level since the difference in the data reasonably cannot be attributed to chance, thus the causal factors stated in the research hypothesis may possibly explain the difference.
The results of the control group show that almost no change took place during the same period of time.

It is interesting to note that time alone would not have caused the changes and, therefore, we must conclude that the intervening factor of rhythm training helped bring about these results.
CHAPTER V

Implications and Discussion

The results of this study indicate that children who have had reading difficulties and who received rhythm training scored higher on an oral reading test than those who did not have the benefit of the training. Because of the results of this brief study, others may want to take a new look at the possibilities of a rhythm program in reading readiness and early reading programs. This may open up the avenue of a new tool for learning and open up the field of rhythm in other aspects of classroom activities.

Those who have been hesitant to utilize rhythms as part of their program may realize that it is a tool which is valuable and one that gives great enjoyment to those who participate. As teachers become aware of the possibilities offered, in-service training can be organized. This additional input on the part of many teachers may stimulate improvement in the rhythm program itself. Teachers may then look at their own work with new vision for improvement in their classroom techniques.
In this report, including only results of a limited test, it would be unwise to attempt to draw final conclusions as to the benefits of a particular rhythm program. While the test measurements are statistically significant, the educational importance of these differences cannot be established based on such a limited population.

However, the testing did show that there had been significant gains made in the testing of oral reading of those children who had been included in the program. These results warrant further investigation into this study.

Along with these test results there were also concomitant learnings which were not measured but which were observable. These were prominent enough to merit comment.

All of the children in this program had experienced some failure in academic work, and some had become cautious about participating when the threat of failure existed. This rhythm training offered a program where the criteria for success or failure were not apparent, and so children were able to participate enthusiastically with no fear of failure or reproach.
Several children in this program, who had previously been reluctant to make any verbal responses above a whisper, appeared to be encouraged to speak out after the experience of playing the instruments. They found that their responses could be loud and yet not be out of order. In fact, they discovered that loud sounds are often desired.

One child who has a difficulty with verbal responses became confident of his ability to play a rhythm instrument and began volunteering to demonstrate new rhythms. This willingness to take part has carried over into other areas; and, although he has not become verbose, there has been a considerable change in his class participation.

An interest in learning to read music and perform on the instruments has also been seen in the classroom with those in the experimental group acting as tutors for those who were not involved in the rhythm training. Since many of the children in the experimental group have been reluctant to share ideas with classmates due to academic failure, this ability to teach something worthwhile to the more able students has had a very positive social effect on the children. There have been some new friendships formed and more interaction among children who scarcely knew each other before the start of the rhythm program.
Because the rhythm training is primarily aimed at improvement in reading, it is hypothesized that younger children who have just reached the reading readiness stage would derive even greater benefits than those recorded in this study.

It is hoped that the results of this present study will encourage many others to adopt a schedule of rhythmic training and relate these activities to their present programs.
CHAPTER VI
Summary

This study in rhythmic training was undertaken to explore the relationship of rhythmic coordination and reading. It was observed that many children who had lacks in reading also had difficulty with rhythmic coordination. An effort was made to work on the remediation of these rhythmic lacks to determine if there would be a carry over to changes in reading scores as measured by tests.

Since there has been very little research done in this particular area, there was a corresponding scarcity of research literature. However, there has been a great deal written about the need for reading readiness emphasizing a sense of rhythm and ability to respond rhythmically as important parts of readiness training. Godfrey and Kephart (1969) and Sterritt (1966), among others, have suggested the need for much more investigation and work in this important area of rhythm development.

The design of the study was pretest-posttest, with an experimental and control group. There were twelve children of third and fourth grade level in each of the groups. The twelve children in the experimental group were given
a thirty-minute period of rhythmic training each day for six weeks. Various rhythm activities involving clapping, dancing, body movement, and playing of rhythm instruments were used.

It was hypothesized that those children who were involved in the rhythm program would score higher on an oral reading test than those not so involved. The Silvaroli Reading Inventory, Form A, was administered; and the t-test was applied to these scores to insure that no significant difference existed between the groups prior to the period of rhythmic intervention.

Following the period of intervention, the sign test was applied to the results of the Silvaroli Reading Inventory, Form B, and the z-test applied. Results of the test indicated that, while no statistically significant differences existed in the control group, the differences in the experimental group reasonably could not be attributed to chance.

The data supported the original hypothesis that remediation of rhythm difficulties would carry over into improved oral reading and suggested areas for more intensive research into this interesting field of study.
BIBLIOGRAPHY


IDEA. Microfilm, located in the Curriculum Materials Center, Westwood, California.

067-220 Music...the Principal of the Thing. California Association for Supervision and Curriculum Development.


067-287 The Effect of Different Approaches of Initial Instruction on the Reading Achievement of a Selected Group of First Grade Children, Beltramo, Louise, and Reid, Hale C. Cedar Rapids, Iowa, Community School District.

067-300 Activities for Language Development; A Sensory-Experience Approach. Columbus, Ohio. Public Schools.

067-624 Units from the WIMSA Music Program. Webster Institute of Mathematics, Science, and Arts; Webster College, Missouri.


Three Year Longitudinal Study Comparing Individualized and Basal Reading Programs at the Primary Level: Interim Report. Lakeshore Curriculum Council, Wisconsin.


APPENDIX A

Types of Activities

1. With children seated on the floor or on a chair, have them clap their hands and pat their knees (use both hands) employing the following examples:
   
   - clap one; pat one; etc.
   - clap two; pat two; etc.
   - clap three; pat three; etc.
   - clap one; pat two; etc.
   - pat one; clap two; etc.

2. Through the tapping of hands and feet in a prescribed way, children are offered another way to develop rhythm. The teacher establishes the rhythmic pattern and the children listen to and attempt to repeat it; or the teacher establishes the pattern and, as soon as the children get the feel of the rhythm, they join with the teacher. Examples of patterns that can be used are as follows:
   
   With the dominant hand or foot, tap:
   
   - right, right, right, etc.
   - right, (pause), right, etc.
   - right, right, (pause), etc.
   - right, right, right, (pause), etc.
   - right, (pause), right, right, etc.
   - right, right, (pause), right, etc.
   - right, right, right, (pause), etc.

   Repeat with the non-dominant hand, foot, both hands, or both feet. When using the foot, tap
the rhythm at some times using the toes and at other times the heels. Later use the toes and heels alternately.

3. In time with the established rhythm, the children alternately tap hands or feet, for example:

   right, left, right, left, etc.
   left, left, right, right, etc.
   right, left, left, right, etc.
   left, right, right, right, etc.

4. More complex activities combining hand and foot movements can also be used, for example:

   Tap both hands and feet in time to prescribed rhythm.
   Tap right hand and right foot.
   Tap left hand and left foot.
   Alternately tap both right hand and foot with left hand and foot.
   Tap right hand and left foot.
   Tap left hand and right foot.
   Alternately tap right hand, left foot, left hand, right foot.

5. Teacher or a student beats the drum a certain number of times as all the other children listen carefully. One child is chosen to clap back in the same beat as the drum. If he responds correctly, he may be the next drummer. Begin with the very simple patterns, then gradually increase the difficulty of the rhythmic pattern.

7. Fill glasses with water at different levels. Tap out a rhythm on the glasses.

8. Stand behind the child, and tap a rhythm that he repeats without looking.

9. Draw a rhythm, such as . . . . . . . The child must tap it out, hop it, and hum it. Hop, tap, and hum a rhythm. Child draws it.

10. Use the body as rhythm maker. Have children follow instructions:
    Slap your hands on your thighs.
    Clap your hands together.
    Snap the fingers of the right hand.
    Snap the fingers of the left hand.

    Repeat this pattern, increasing in speed each time.

11. Use a variation of the game Simon Says. Rhythm instruments are used to provide the action. Children beat out rhythm when pattern is proceeded by words, "Simon Says".

12. Use a song or poem while using body as rhythm maker.
    For example, Pease Porridge Hot:
Clap both hands to thighs.
Clap hands together.
Clap right hand with partner.
Clap left hand with partner.
Clap hands together.
Clap both hands with partner.

13. Using a chart with rhythm patterns depicted, have children play what they see. When individual rhythms are learned, combine one or more rhythms at a time.

14. Teacher gives simple directions in rhythmic fashion, and children follow directions:

Wind, wind this away - rotating hands forward
Wind, wind that away - rotating hands backward
Pull, pull - clap, clap, clap.

Other directions can be included or substituted.

15. Simple exercises can be done either to music, to the beat of a metronome, or strict counting. Such exercises can include:

jump rope
windmill
touch toes
touch knees
twist and bend
hop

16. Go through the class clapping names of children, and have them listen for rhythms. Clap names. Write the names on the chalkboard and, above the name, the music notation representing the syllabic rhythm.
Children can clap the rhythm or play on rhythm instruments.

17. Children can make up rhythms using vegetable names:

Corn and beans
Good fresh corn
Juicy apples

18. Teacher asks question. Child responds with a sentence of an equal number of syllables. For example:

School has begun.
School can be fun.

Have children tap the rhythm using right hand on desk, left foot on floor, etc.

19. Choose poems with often repeated rhythmical lines, and have children join in these lines. The Gray Mare is good for this activity.

John Smith had a little gray mare,
He, haw, hum.
Her tail was long, and her neck was bare,
He haw, hum.
John Smith went riding up Shooter's bank,
He, haw, hum.
The mare began to prick and prank,
He, haw, hum.
John Smith went riding up Shooter's hill,
He, haw, hum.
The mare fell down and made her will,
He, haw, hum.
The bridle and saddle were laid on the shelf,
He, haw, hum.
If you want any more, you must sing it yourself,
He, haw, hum.
20. Use nursery rhymes. Try nursery rhymes and selected poems which have repeated sounds such as, "diddlety, diddlety, dumpty" relishing the sound of the initial consonant in a rhythmic context. The experiment can go on with a new rhythm coming into play when the "ty" is dropped.

21. Use rhythmic reading. Begin with some color words. The teacher writes the color word on pieces of tagboard of equal size and places them in a pocket chart to suggest duple meter.

```
BLACK  BLUE  yellow  RED
GREEN  GRAY  BROWN  (blank card)
```

A capitalized word is a beat. Words in small letters are equal divisions of the beat. The blank card is used as a rest. Individualized reading, as well as group reading, then follows. The words can be rearranged, but the steady rhythm is carried on.

22. Going a step farther with the above exercise, the children may clap on the "gr" blend or the "bl" blend. Other blank cards can be used for more rests, when desired, for variation. The children should have much practice in changing color sequence and then reading the new rhythms.
23. Make cards for the following words: I can, with my, TRUM, DRUM, THUMB, etc. Put them in a card chart as follows:

    TRUM TRUM TRUM I can
    DRUM with my THUMB TRUM

"I can" and "with my" are each chanted as two eighth notes in 4/4 time. The child should read aloud each card in the time space of one pulse. He must enunciate the pairs more rapidly if he is to keep the proper chanting rhythm. This training helps avoid the ponderous reading of each word with no rhythm or flow, that is often the habit of young readers.

24. Cuisenaire rods can be used with children to illustrate differences in rhythm patterns. If a quarter note were represented by the white rod, then the half note would be represented by the red rod and the whole note by the purple rod. Phrases can be taken from a song, and the rhythm represented with rods.

25. Circle and square dances are excellent opportunities to establish rhythmic walking, clapping, and hand clapping.

26. Each child is given opportunity to strum autoharp while other children sing familiar song. Emphasis
is placed upon rhythmic strumming. Teacher can press buttons at first.

27. Use resonator bells to play melodies. Use with charts which name notes in the musical scales. Use single bell to play rhythm which is tapped, clapped, or sung.

28. Bounce balls to rhythm set either by piano, counting, or listening to the beat of the metronome.

29. Sing songs which allow for the accompaniment of music instruments either using just the beat or following the melodic line.

30. Using the Three Billy Goat Gruff booklet (Appendix B) and resonator bells, have children learn to play melodies associated with repetitive phrases in story. Say these phrases in rhythm. Read story, playing the themes as they appear.
APPENDIX B

Booklet entitled, Three Billy Goats Gruff.
THREE BILLY GOATS GRUFF

Adapted for Song Balls by Helen Daley

Illustrated by Christine Daley
Substitute these rhythmic themes whenever one of the goats appear.

Rhythmic patterns

```
\begin{align*}
\begin{array}{c}
\frac{3}{4} \quad \text{quarter notes} \\
\text{d} & \text{d} & \text{d} & \text{d} \\
\end{array}
\end{align*}
```

Melodic patterns

```
\begin{align*}
\begin{array}{c}
\text{G} & \text{G} & \text{G} & \text{G} \\
\text{E} & \text{E} & \text{D} & \text{D} & \text{E} & \text{G} \\
\text{C} & \text{E} & \text{D} & \text{C} \\
\end{array}
\end{align*}
```

- Tin-i-est Billy Goat Gruff.
- Second Billy Goat Gruff.
- Big Billy Goat Gruff.
Once upon a time there were three Billy Goats. They wanted to go to the hillside to make themselves fat. The name of all three of the goats was Gruff.
On the way to the farm was a bridge over a stream which the goats had to cross. Under the bridge lived a great ugly ogre with eyes as big as saucers and a nose as long as a poker.

First of all came the youngest Billy Goat Gruff to cross the bridge.
Rhythmic Pattern
\[ \frac{4}{4} \text{ d d d} \text{ d d d d d} \text{ d d d} \]

Melodic Pattern
\[ G \ G A \ B \ A \ G \ D \]

"Trip-trap, Trip-trap, Trip-trap, Trip-trap,"

went the bridge.

The Troll roared:

Rhythmic Pattern
\[ \frac{4}{4} \text{ d d d} \text{ d d d d d} \text{ d d d} \]

Melodic Pattern
\[ G \ G A \ B \ A \ G \ D \]

Who's that tripping o-ver my Bridge?
Oh! It is only 1, the times!

Gruff, I am going up to the
mountain to make myself fat."

Rhythmic Pattern

\[
\begin{align*}
\frac{3}{4} & \quad \frac{3}{4} \\
\text{d} \quad \text{d} & \quad \text{d} \\
\text{d} & \quad \text{d} \\
\text{d} & \quad \text{d} \\
\text{d} & \quad \text{d} \\
\text{d} & \quad \text{d} \\
\text{d} & \quad \text{d}
\end{align*}
\]

Melodic Pattern

\[
\begin{align*}
\text{C} & \quad \text{G} \\
\text{C} & \quad \text{G} \\
\text{G} & \quad \text{C} \\
\text{F} & \quad \text{E} \\
\text{D} & \quad \text{C}
\end{align*}
\]

"Now I'm going to gobble you up!"

said the Troll.
"Please, don't take me. I am too little," said the tiniest Billy Goat Gruff.

"Wait until the second Billy Goat Gruff comes. He is much bigger."

Rhythmic Pattern
\[
\frac{2}{4} \\
\text{d} | \text{d} | \text{d} | \text{d} | \text{d} | \text{d} | \text{d} | \text{d} \\
\]

Melodic Pattern
\[
\begin{align*}
\text{F} & \quad \text{A} & \quad \text{G} & \quad \text{E} & \quad \text{F} \\
\text{F} & \quad \text{A} & \quad \text{G} & \quad \text{E} & \quad \text{F} \\
\end{align*}
\]

"Well! be off with you!"

roared the Troll!
A little while later the Second Billy Goat Gruff came across the Bridge.
Rhythmic Pattern
G, D, G, D, G, D, G, D

Melodic Pattern
Trip-trap, Trip-trap, Trip-trap, Trip-trap

went the bridge.

The Troll roared:
Rhythmic Pattern
4/4 d d d d d d d d
Melodic Pattern
G, A, B, A, G, D

Who's that tripping over my bridge?
"Oh, it is the Second Billy Goat Gruff, I am going to the to make myself fat."

Rhythmic Pattern
\[
\frac{3}{4} \quad \text{d} \quad \text{d} \quad \text{d} \quad \text{d} / \text{d} / \text{d} / \text{d} / \\
\]

Melodic Pattern
\[
\begin{align*}
C & \quad G & \quad C' \quad G & \quad G & \quad F & \quad E & \quad D & \quad C \\
\end{align*}
\]

"Now I'm going to gobble you up."

roared the Troll.
"Oh no, don't take me, wait until the Big Billy Goat Gruff comes. He is much bigger."

Rhythmic Pattern
\[ \frac{2}{4} \quad \text{d} \quad \text{d} \quad \text{d} \quad \text{d} \quad \text{d} \quad \text{d} \]

Melodic Pattern
\[
\begin{align*}
F & \quad A & \quad G & \quad E & \quad F \\
\text{c} & \quad \text{d} & \quad \text{d} & \quad \text{d} & \quad \text{F}
\end{align*}
\]

"Well, be off with you."

shouted the Troll,

But just then up came the Big Billy

Goat Gruff.
Rhythmic Pattern
\[ \frac{4}{4} \quad \text{d d d} | \text{d d d d d d d} \]

Melodic Pattern
G  G  G  G  D  G  G  D

"Trip-trap, Trip-trap, Trip-trap, Trip-trap,"
went the bridge,

The Troll roared:

Rhythmic Pattern
\[ \frac{4}{4} \quad \text{d d d} | \text{d d d d d d d} \]

Melodic Pattern
G  G  G  A  B  A  G  D

Who's that tripping o-ver my Bridge?
The Billy Goat was so heavy that the bridge creaked and groaned under him, but the Big Billy Goat Gruff yelled, "It is I, the Big Billy Goat Gruff. I am going to the hill to make myself fat."
Rhythmic Pattern

\[ \begin{array}{cccc}
1 & 2 & 3 & 4 \\
\end{array} \]

Melodic Pattern

\[ \text{C} - \text{G} - \text{G} - \text{E} - \text{E} - \text{D} - \text{C} \]

"Now I'm going to gobble you up,"

roared the Troll.
Well come along! I've got two spears. And I'll poke your eyeballs out your ears. I've got besides two curling stones. And I'll crush you to bits body and bones.
that was what he said. He flew at the Troll. He poked him. He crushed him to bits. Then he went up to the hills. There the Billy Goats got so fat they could hardly walk.

Rhythmic pattern
\[ \frac{3}{4} d, | d, | d, | d \quad \| d, \| d \quad \| d \quad \| d \quad \| d \quad \| d \]

Melodic pattern
\[ \text{C} \quad \text{E} \quad \text{G} \quad \text{G} \quad \text{E} \quad \text{E} \quad \text{D} \quad \text{C} \]

Snip! Snap! Shout! This tale's told out.
APPENDIX C

Record of Activities

The following is a sequential record which gives an indication of the activities used each day of the rhythm training. The numbers in the parentheses refer to the activities included in Appendix A.

9-14 Introduced rhythmic clapping and use of rhythm instruments. (1, 9)

9-15 Introduced resonator bells, and allowed children to experiment with the sounds. Clapped out sounds, and had children play them on the resonator bells. (27)

9-18 Caught and bounced balls in rhythm to count of four. Also drew rhythms which were clapped. (28, 9)

9-20 Square dancing. Paid special heed to clap patterns. (25)

9-21 Clapped rhythms, clapped rhythms of names, and written patterns. (1, 16, 9)

9-22 Used names and words, and clapped out rhythms. Worked out rhythms of Three Billy Goats Gruff. Played resonator bells in response to notes which were called out. (16, 30)

9-25 Played pattern on piano, and children imitated rhythms on rhythm instruments. Sang songs accompanied by rhythm instruments. Worked on establishing rhythms with hands and feet. (29, 3)

9-26 Did simple exercises to beat of the metronome. Played Simon Says. (15, 11)

9-28 Worked with resonator bells. Worked on rhythms of Three Billy Goats Gruff as well as playing notes when note was called out. (30, 27)

9-29 Circle and square dancing. Particular attention to walking in rhythm. Reviewed hand clapping. (25)
10-2 Worked especially with dominant hand and foot in tapping and clapping rhythms. (2)

10-3 Circle and square dancing. (25)

10-5 Worked on reading color words in rhythm. Worked on resonator bells using the Three Billy Goats Gruff story. Played most of the rhythms in the booklet. (21, 30)

10-6 Movement in time to music. Bounced balls to count of four. (15, 28)

10-9 Had the children form rhythm band and play rhythms as they sang familiar songs. Also played rhythms which were written out. (6, 9)

10-10 Worked with the charts with notations in different times, and had children play them on rhythm instruments. At first they took the rhythms individually, and later combined several patterns. Also tapped rhythms, and children repeated on the instruments. (13, 9)

10-11 Worked with resonator bells and Three Billy Goats Gruff story. Played through themes with children
taking individual notes. Read notes and rhythms from charts. Where there was difficulty with the Rhythm, it was also clapped. (30, 13, 9)

10-12 Used charts with rhythm patterns. At first used the same rhythms, and then began adding additional rhythms until four at a time were played. When there was difficulty, the rhythms were clapped before they were played. (15)

10-13 Used rhythm instruments with singing. (29)

10-16 Used music charts to establish rhythm patterns which were played on instruments. Used metronome to set pace. Clapped rhythms, and then played on instruments. Combined several rhythms. Varied speeds and patterns. (9, 15)

10-17 Did a number of circle and square dances involving both hand clapping and walking and skipping to music. (25)

10-18 Worked with resonator bells particularly on the Three Billy Goats Gruff story. Also played rhythms from music charts. (30, 15)
10-19  Clapped out rhythms using patterns up to six beats. Children responded by clapping and then playing rhythms on instruments. (5, 6)

10-20  Worked with notation charts and rhythm instruments. Children played up to three rhythms simultaneously. Worked with tapping and clapping dominant hands and feet. (15, 2)

10-24  Worked on Three Billy Goats Gruff story. Played and read through entire story. (30)

10-25  Worked with more complex hand and foot movements. Varied speeds and patterns. (4)

10-26  Used body as rhythm makers. Increased tempo when pattern was established. Used poem. (10, 12)

10-27  Drew rhythms which were fairly complicated. Children clapped out these rhythms. Also worked with notation charts. (9, 15)