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ABSTRACT

This study explored the development of rhythm among eight kindergarten children with profound hearing loss in Ankara, Turkey. Musical instruments were used whose frequency ranges matched those the children were capable of hearing. After a pretest, students spent 5 half-days per week in training over the course of 2 months. Training included breathing activities, sound distinction exercises, and training in such rhythm skills as the ability to beat the rhythm of a given unseen sound or musical passage and the ability to beat a rhythm by imitating a visible model. Students in an integrated group program were involved in rhythmic activities alongside hearing children, such as dancing and singing. Post-test results indicate significant improvements in students' performance on a variety of rhythm tasks, with imitation of visible models being evidently easier. Student results are analyzed by specific rhythm beaten. (Contains 11 references.) (PB)

A STUDY ON THE DEVELOPMENT OF THE CONCEPT OF RHYTHM IN 5 TO 7-YEAR-OLD WITH PROFOUND HEARING LOSS KINDERGARTEN CHILDREN

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This is an experimental study designed to investigate the development of the concept of rhythm in 5 to 7-year-old kindergarten children with profound hearing loss. The subjects consisted of 5 to 7-year-old children with profound hearing loss five girls and three boys, attending a kindergarten affiliated with the Department of Child Health and Education, Hacettepe University, Ankara. The study consisted of the following activities: The pre-training test, training, and post-training test. In the course of the study, musical instruments were used whose frequency ranges matched those the children were capable of hearing. The children's pre-and post-training levels of development of the concept of rhythm were measured to find out whether the implemented training program had been beneficial to the development of their hearing perception. In the statistical analysis of the data thus collected, the X^2 test (the Mc Nemar Test) was used for dependent samples. The test results show the percentage of the children capable of 'beating the rhythm of the sound heard' and that of the children capable of 'beating a rhythm by imitating the model' are greater in the post-training test than in the pre-training test.

In hearing impaired children, the development of the sense of rhythm begins at birth as in normal children. The development of the skills of concentrating and listening gains importance in a hearing impaired child's communication with others in the social environment he may happen to be in. Rhythmic activities greatly contribute to the development of these skills. Through training, a hearing impaired child can keep tempo and beat the rhythm of a sound he hears. He can also translate the rhythmic pattern he hears into certain bodily movements.

A hearing impaired child should be helped to beat the rhythm of the sound he hears initially through visual aid, and in later stages, without any visual help so that he can make the most use of whatever residue of hearing he may have left in communication.

METHOD

This is an experimental study designed to examine the development of the concept of rhythm in 5 to 7-year-old kindergarten children with profound hearing loss.

The extent of the following skills in hearing impaired children was examined in this experimental study.

1. The ability to beat the rhythm of the sound heard, and,
2. The ability to beat a rhythm by imitating the model.

The subjects consisted of eight 5 to 7-year-old hearing impaired children, five girls and three boys, all attending a kindergarten affiliated with the Department of Child Health and Education, Hacettepe University, Ankara.

The Characteristics of the Subjects

Included within the scope of this study were eight children, three boys and five girls, who exhibited similar developmental characteristics as revealed by the Denver Development Screening Test :

1. The subjects were 5 to 7 years of age with a serious bilateral sensorineural hearing impairment. They were otherwise normal;

2. They had received training at the Child Health and Education Department's kindergarten for 1-2 years, two half days per week;

3. They had been wearing a hearing aid;

4. Their parents (or guardians) were at least literate, and

5. Both parents were living, and there were no step-parents involved.

The children's hearing was tested with their hearing aids on, and the frequency ranges of the musical instruments to be used for training were measured at the Audiology Department of Hacettepe University Hospital in order to choose the musical instruments whose frequency ranges corresponded to those the children included in this study were capable of hearing (the drum, the tambourine, the flute, the maracas and the steel triangle).

The study mainly consisted of the following activities : The pre-training test, training, and the post-training test.

The pre-and post-training tests were administered in the following manner:

Two identical drums were used for the evaluation of the children's ability 'to beat the rhythm of the sound heard' (Table 1 and Figure 1) and 'to beat the rhythm by imitating the model' (Table 2 and Figure 2). In the first phase of the test, the trainer stood one meter behind the child being tested, who was sitting on a cushion, and beat the rhythms in the same order as listed in Tables 1 and 2 in the 'Findings' section. The trainer

first beat the drum in a random manner and asked the child to do the same, that is, beat the drum randomly. The child had three chances to get it right. If he managed to get it right in any one of the three attempts, he was given a '+' point for that rhythm. In the second phase, (Table 2), the same was repeated in front of the child. That is, after giving a random beat on the drum, the trainer asked the child to do the same. If the child managed to imitate the beat, he was given a '+' point for that random rhythm. The same was repeated for the remainder of the rhythms.

A training program was implemented for two months, five half days a week after the children had been given the pre-training test individually.

The training program and the individual training activities included breathing exercises aimed at developing proper prior-to speech breathing patterns in children, and developing their breathing capacity as well as strengthening their muscles of the lip and the palate. The training program also involved sound distinction exercises. In addition, in order to help children develop the concept of rhythm, percussion instruments such as the drum, the tambourine, and the steel triangle were used so that the children could be given a chance "to beat a rhythm by imitating the model", and "to beat the rhythm of a sound heard". The integrated group training program, on the other hand involved integrating the hearing impaired children included in the study with hearing children attending the same kindergarten, and gave room to activities involving, dancing and singing to the accompaniment of music, as well as rhythmic activities.

In the statistical analysis of the data thus collected,the x^2 test (the Mc Nemar Test) was used for the 'dependent samples'. In addition, for each item the tables showed the percentage of children who were successful in both the pre-and post-training tests.

The results were presented in Tables and Figures 1 and 2.

Table 1 shows the distribution of 5 to 7 year-old hearing impaired kindergarten children on the basis of their ability 'to beat the rhythm of the sound heard'.

FINDINGS AND DISCUSSION

Table 1 : The Distribution Of 5 To 7 Year-Old Hearing Impaired Kindergarten Children On The Basis Of Their Ability "To Beat The Rhythm Of The Sound Heard" (Ankara, 1990).

Pre-Training Test	+		I	—		II	X^2	P
Post-Training Test	+	—		+	—			
1. Random Beat	7	0	87.5	1	0	100.0	1	P>0.05
2. 	3	0	37.5	5	0	100.0	5	P<0.05
3. 	3	0	37.5	4	1	87.5	4	P<0.05
4. 	3	0	37.5	3	2	75.0	3	P>0.05 P<0.10
5. 	3	0	37.5	3	2	75.0	3	P>0.05 P<0.10
6. 	3	0	37.5	2	3	62.5	2	P>0.05
7. 	3	0	37.5	2	3	62.5	2	P>0.05
8. 	2	0	25.0	1	5	37.5	1	P>0.05
9. 	3	0	37.5	2	3	62.5	2	P>0.05
10. 	1	0	12.5	3	4	50.0	3	P>0.05 P<0.10
11. 	0	0	0.0	3	5	37.5	3	P>0.05 P<0.10
12. 	0	0	0.0	3	5	37.5	3	P>0.05 P<0.10
13. 	0	0	0.0	3	5	37.5	3	P>0.05 P<0.10

I : The percentage of the children capable of beating the rhythm of the sound heard in the pre-training test.

II : The percentage of the children capable of beating the rhythm of the sound heard in the post-training test.

Figure 1: The Distribution Of 5 To 7 Year - Old Hearing Impaired Kindergarten Children On The Basis Of Their Ability "To Beat The Rhythm Of The Sound Heard" (Ankara, 1990).

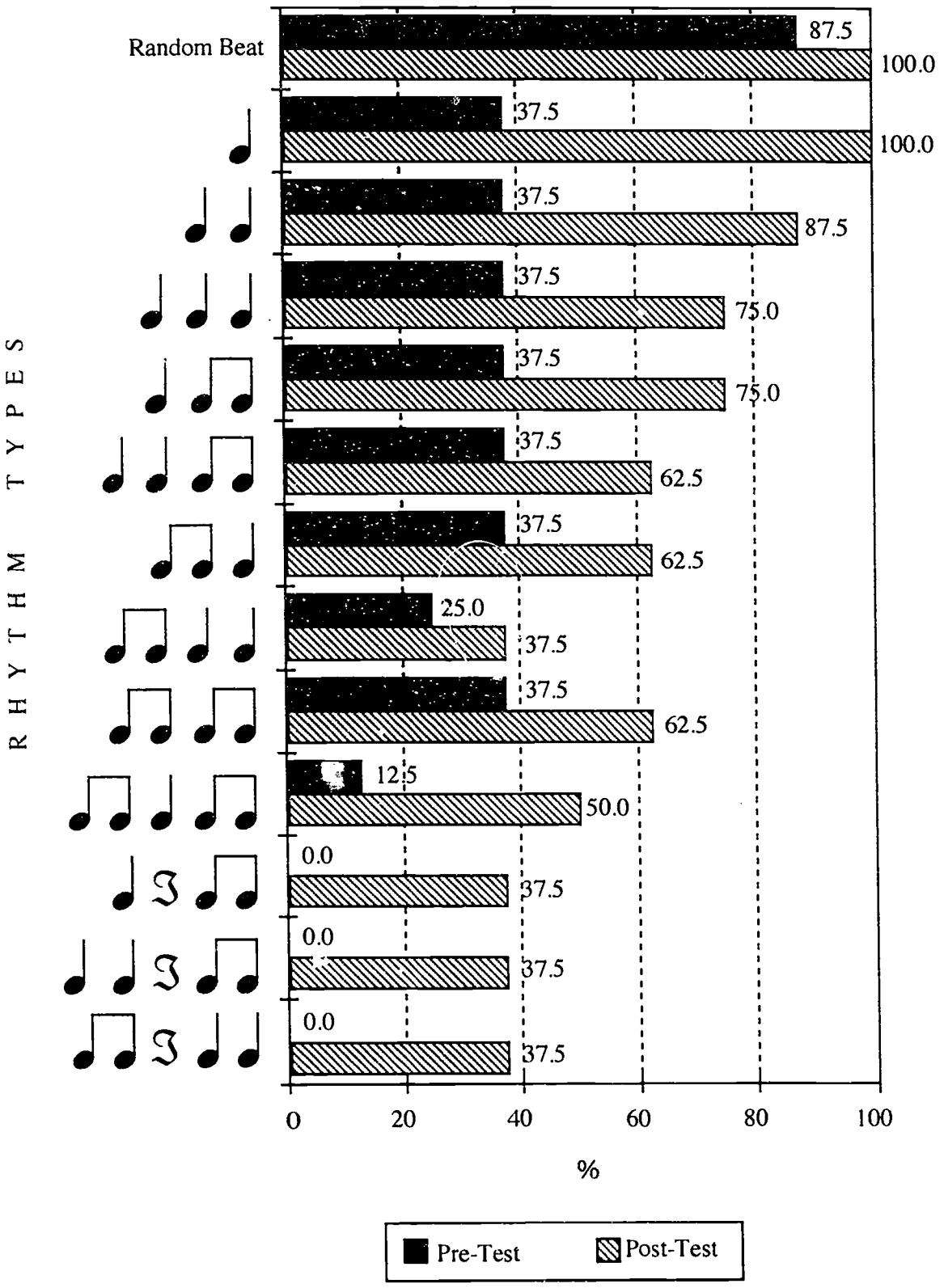
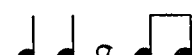
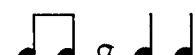


Table 1 and Figure 1 show the distribution of 5 to 7-year-old kindergarten children with profound hearing loss on the basis of their ability 'to beat the rhythm of the sound heard'. Based on the results in Table 1, the difference between the pre and post - training tests was found significant for the following : "♩" (X^2;5, P<0.05), "♩♩"(X^2;4, P<0.05), "♩♩♩","♩♫", "♫♩♫", "♩𝄾♩♩", "♩♩𝄾♫", "♫𝄾♩♩" (X^2;3 P<0.10) The difference was not significant for other rhythms. However, if we study the % values in the table, we will see for all the rhythms that the percentage of the children capable of beating the rhythm of the sound heard was greater in the post-training test than in the pre-training test. These results suggest that the rhythm tranining given benefited the children.

The rhythm exercises may include more complex rhythms depending on the children's level of development.

Table 2 and Figure 2 show the distribution of 5 to 7-year-old hearing impaired kindergarten children on the basis of their ability 'to beat a rhythm by imitating the model'.

Table 2 : The Distribution Of 5 to 7-Year- Old Hearing Impaired Kindergarten Children On The Basis Of Their Ability "To Beat a Rhythm By Imitating The Model" (Ankara, 1990).

Pre-Training Test	+		I	—		II	X^2	P
Post-Training Test	+	—		+	—			
1. Random Beat	7	0	87.5	1	0	100.0	1	P>0.05
2. 	7	0	87.5	1	0	100.0	1	P>0.05
3. 	5	0	62.5	3	0	87.5	3	P>0.05 P<0.10
4. 	4	0	50.0	3	1	75.0	3	P>0.05 P<0.10
5. 	4	0	50.0	2	2	62.5	2	P>0.05
6. 	3	0	37.5	2	3	62.5	2	P>0.05
7. 	3	###	37.5	2	3	50.0	2	P>0.05
8. 	3	0	37.5	1	4	62.5	1	P>0.05
9. 	3	0	37.5	2	3	50.0	2	P>0.05
10. 	2	0	25.0	2	4	62.5	2	P>0.05
11. 	1	0	12.5	4	3	37.5	4	P<0.05
12. 	1	0	12.5	2	5	37.5	2	P>0.05
13. 	1	0	12.5	2	5	37.5	2	P>0.05

I : The percentage of the children capable of beating the rhythm by imitating the model in the pre-training test.

II : The percentage of the children capable of beating the rhythm by imitating the model in the post-training test.

Figure 2: The Distribution Of 5 to 7-Year-Old Hearing Impaired Kindergarten Children On The Basis Of Their Ability "To Beat a Rhythm By Imitating The Model" (Ankara, 1990).

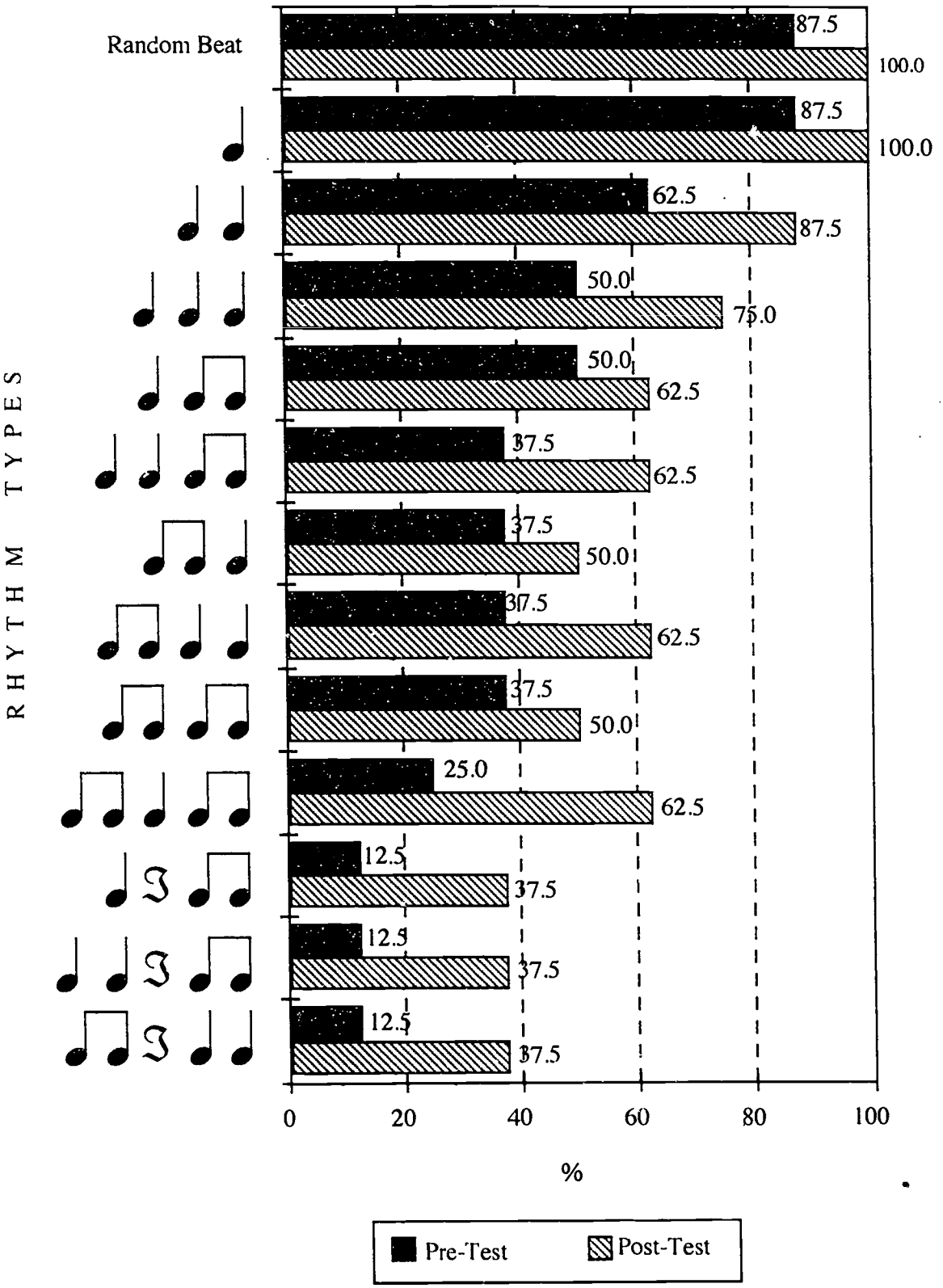


Table 2 and Figure 2 present the distribution of 5 to 7-year-old hearing impaired kindergarten children on the basis of their ability 'to beat a rhythm by imitating the model'. On the basis of the statistical test results on this table, the difference between the pre-and post-training tests was found to be significant for the following rhythms : "♩♩", "♩♩♩"(X^2; 3, P<0.10), "♩𝄾♫" (X^2;4, P<0.05). For other rhythms statistical test results were found to be insignificant. However, if we consider the % values in the table, we will see for all the rhythms by imitating the model was greater in the post-training test than in the pre-training test. As it also relies on visual clues, beating a rhythm by imitating the model proves to be easier than the development of the skill of beating the rhythm of a sound heard (Table 1). However, what is important is to help the child beat the rhythm of a sound he or she hears without the aid of visual clues. This will help him or her make the most use of whatever residue of hearing he may have left. The child should be encouraged to beat a rhythm solely by using his or her sense of hearing. This should succeed the development of the skill of beating a rhythm through visual clues. Repetition plays a great part in learning. Therefore, the concept of rhythm should be instilled in the minds of children through a variety of activities.

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