

## Effect of music on learning and retention of concept among the students with mental retardation at primary level

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### Abstract

The educational system has been revolutionized and changed the style of learning, teaching, communication and providing the information. There is need to use innovative methods in teaching children with mental retardation. The experiment across ten participants assessed the efficacy of music in teaching concept of direction to children with mental retardation at primary level. Students were divided in two groups: experimental and control. While experimental group receive instruction through rhymes with musical components, other group received instruction in a traditional way. The investigation involved t-test; the findings revealed that experimental group performed better in post test in learning and retention: in addition the researcher observed that the attention, concentration and interest were higher in experimental group though it was not a part of the study.

**Keywords:** Mental Retardation, Music, Learning, Retention.

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### Introduction

Mental Retardation is characterized both by a significantly below average score on a test of mental ability or intelligence and by limitation in the ability to function in areas of daily life, such as communication, self care and getting along in social situations and school activities. Mental retardation is sometimes referred to as a cognitive or intellectual disability. "The term mental retardation refers to substantial limitation in present functioning, existing concurrently with related limitation in two or more of the adaptive skill areas like, communication, home living, community use, help & safety, leisure, self care, social skills, self direction, functional academics and work. The manifests of mental retardation on before the age of 18 years" (AAMR 1992).

Parents of children with mental retardation often say that their children cannot remember for long what they learn and what they are told to do, for learning any activity one need to concentrate on it and attend to it. Concentration means paying attention to an activity for a significant period of time. No learning takes place if we do not pay attention. Any recreational activity like Music and Games helps to improve the child's ability to attend to a task concentrate and remember, will help him in other way as well, including his ability to learn apart from providing enjoyment. The mentally retarded children often lack of self-confidence, because of their many failures so it is imperative that all educational and recreational programme for them, be planned around the things they can accomplish, physical education and recreation programme provides the retarded child and adult a chance to come into close contact with people in a fun activity, to co operatively learn.

Memory essentially depends upon retention. Retention is the process of preserving the material learnt. Therefore, this is an ability that is essential to keep in the mind the things learnt. There are some factors affecting retention also like nature & materials, amount of learning, methods of

learning, mental set, speed of learning, attention, interest, individual differences.

Music sharpens the sense of attention and concentration. "Music and movement are a natural part of most childhood activity" (Maxim, 1989). Music allow for the development of attention span, auditory discrimination & memory development. Listening music especially songs give directions to follow provides an excellent opportunity for careful concentration and attention. Music can help to accomplish the purpose & is often a first means of creating in the child a pleasurable reaction to an outside stimulus. It is beginning of a social relationship upon which other things may grow music can be one of our most effective teaching strategies or teaching tool.

### Statement of the problem

The purpose of study is to find out "Effect of music and retention of concepts among the students with mental retardation at primary level".

### Objectives

1. To study the effect of music in learning over the regular instruction given in the classroom.
2. To compare the performance of both the groups and report significance of findings.

### Hypothesis

There would be a significant difference in achievement of students instructed with the help of music and those who are taught in a traditional way.

### Review of Literature

Farah Naderi; Behnam Mackvandi (2000) investigated the effects of music on the learning and educational performance in mentally retarded. The only hypothesis for this research was that there would be a music impact on learning & educational performance in retarded students. The students were 30 (15 male & 15 female) students at the

first grade of elementary exceptional children education schools in Ahwaz city. All students were randomly selected. The testing results on pre-test & post-test experimental design with control group were processed. The sample was divided into two groups by random: Experimental group (students who received music) and Control group (Students not receiving music). After a period of 3 months, the educational performance score of the two groups were analyzed by using t-test for two independent groups. Results indicate significant difference. The study revealed that music affects the educational performance in mentally retarded children.

Gregoire, Michele A. (1984) examined the relationship between a passive music listening activity, designed to facilitate concentration and relaxation, and subsequent performance of a specific classroom task (Matching Numbers) with 17 mentally retarded students in 2 classes. The age group was 6-11 years. Both groups received treatment and control conditions in reverse order a 2 week period. Experimental conditions consisted of a brief taped story illustrated on a felt board, a rest period with relaxing music and 5 minutes of individual number matching. Control conditions were identical but without the music. Results were not significant overall.

Clauss & Eric Lawrence. (1995) investigated of music on attention and self-stimulation. A single subject, repeated measure, design was employed and replicated on each subject. Subjects were exposed to the baseline condition, i.e. no music for a minimum of seven consecutive sessions prior to the introduction of music. Five students from the centre for development disabilities participated in this study. Each participant had diagnoses of ASD and Mental Retardation. Subjects were required to perform an attention task on a computer using software. This task involved pressing a mouse in response to visual stimulus on a monitor. The three levels of the independent variable were no background music, slow tempo music and fast tempo music. The response measure for attention included response latency and frequency of correct and incorrect responses. Response measures for attention were frequency and duration. It was hypothesized that background music would improve attention and reduce self-stimulation. The results of this study support that music improves attention, but hypothesis that music reduces self-stimulation were not found supported.

Metzger, Rolland; Simon, Seymore; Ditrachs, Raymond (1965) examined the effects of retention interval activity on short term memory in retardates. Total 70 retarded students were selected. The 70 retarded subjects showed reductions in short-term retention of single verbal items 73% correct recall in 16 sec. under condition where words different from the stimulus word filled the retention interval. Under retention interval conditions of no instructed activity, instructed rehearsal, music listening, negligible declines in recall were observed. Results indicate significant improvement.

Burnett, M.H. (1983) studied the effects of rhythmic training on musical perception and motor skill development.

Total 23 developmentally delayed children were selected for the study both male and female. For the study two groups were made on experimental group received the training programme with music and control group received without music. Comparison of ore test and post test score on an inventory of observable musical behaviours and a survey of development and perceptual skills. The results indicated significant increases for the experimental group in musical perception and motor development.

Sidney, W.B (1968) investigated the development of left and right concepts in retarded children using fading techniques. The subjects consisted of 90 children from the preschool and primary grades of the Lesley-Ellis school. Boys were 52 including age range 3.5 to 6.11 years and 38 girls including are range 3.3 and 6.8 years. The performance was recorded in pre test and post test. The testing was done on three test and 20 slides in each test were prepared to evaluate discrimination before and after training of the program. The stimuli consisted of 10 forms cut from 1.1/2 in. squares of red, yellow, green and blue paper. An overview of the results indicates that the training program developed with normal preschool children was effective in teaching many of the retarded children Left-Right concepts.

## Methodology

Pretest and post test quasi-experimental.

## Sample

The sample for the present study consists of 10 MR students who was studying in Primary level under National Institution for the Mentally Handicapped school.

## Criteria for subject selection

1. Students in the age group of 8-12 years.
2. Diagnosed as Mentally Retarded.
3. Studying in primary level.
4. Studying in English Medium.
5. No other associated physical deformities excluded.

## Tool

Two Instrument were used during the study,

1. Assessment checklist on the concept "Direction". The Investigator has developed and validated the tool. It was distributed to 15 special education professionals having more the 5 years experience. Based on the suggestions given by the experts the items with 90-100% consensus were selected and rests were deleted from the tool.
2. The performance of the students was recorded on the checklist at 4 levels. (No= 0, Physical Prompting=1, Verbal Prompting=2, Cueing=3, Independent=4).

## Scoring Pattern

The record sheet consists of 10 items. The keys used were No= 0, Physical Prompting=1, Verbal Prompting=2, Cueing=3, Independent=4. The Maximum score was 4 and minimum score was 0.

### Administration of tool

The tool was administered in two session's i.e. (i) pre-test and (ii) post-test sessions taken by the researcher to the students with MR.

### Statistical Techniques

The independent t-test was used to see the relationship between the dependent variables and independent variables.

### Data Analysis

**Table 1: Summary of experimental and control group in pre-test, learning-direction Programme for the children with Mentally Retarded.**

S. No	Group	Mean	S.D.	t-statistic*
1.	Experimental	9.6	2.62	t= 0.99
2.	Control	8.4	0.92	

\*P>0.05

Table 1. Graphical representation of experimental and control group means in pre test t-test done for pre test scores to find any significant difference between the two groups selected for intervention. As evident from table 1, the mean score for the experimental group was 9.6 and that of control group was 8.4, there is no significant difference in the groups selected.

**Table 2: Comparison between experimental and control group, mean score of post test – Learning.**

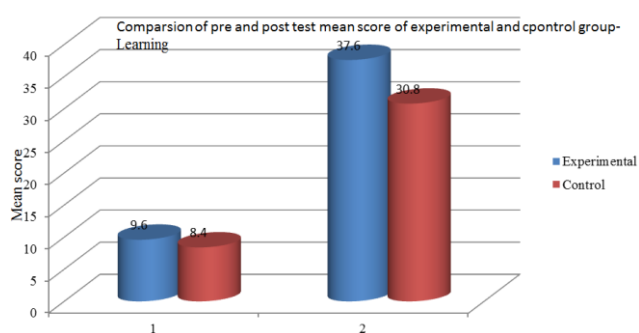
S. No	Group	Mean	S.D.	t-statistic*
1.	Experimental	37.6	1.30	t= 5.25
2.	Control	30.8	2.60	

Table 2 Graphical representation of mean scores of experimental and control group in post t-test to find a difference between post scores in learning, mean of experimental and control group depicts that there is a significant in groups' performance. Experimental groups' mean is 37.6 while the mean of control group is 30.8. Thus, experimental group gained and performed significantly better than the control group.

**Table 3: Comparison between experimental and control group, mean score of post test – Retention.**

S. No	Group	Mean	S.D.	t-statistic*
1.	Experimental	27.6	1.30	t= 7.9
2.	Control	19.6	2.60	

Table 3: Graphical representation of mean scores of experimental and control group in post t-test to find a difference between post scores in retention, mean of experimental and control group depicts that there is a significant in groups' performance. Experimental groups' mean is 27.6 while the mean of control group is 19.6. Thus, experimental group gained and performed significantly better than the control group.



**Fig. 4: Comparison of pre and post test mean score of experimental and control group- Learning.**

Comparison of pre and post test mean score of experimental and control group for the rate of learning. During the pre test mean score of experimental group was found to be 9.6 and the mean score of the control group was 8.4. During post test the mean score of experimental group was 37.6 and of control group was 30.8.

### Results

Data collected for the control and experimental groups have been analyzed individually and in groups based on entry-level performance, gain in learning during intervention and loss after intervention. The pre test of both the groups did not have any significant difference. Gain in learning during intervention has been analyzed individually and in groups based on pre test and post test performance data. The experimental group (72%) gained more than the control group (53%).

It shows that teaching through music is more effective than the traditional way of teaching. The individual performance of the experimental group is better than control group. After the intervention of both groups post-test is also analyzed by using t-test and the results showed significant difference (0.05 level). The learning level of the experimental group (37.6) was higher than control group (30.8).

After the intervention, the retention of the taught concepts was measured in every alternative day and performance was recorded. The pre test and post test results were analyzed by t-test. The results show that the retention is better in experimental group (27.6) than the control group (19.6). The retention level of the experimental group was increased than control group. It was apparent in the study that experimental group children were more retained the taught concept for the longer duration though the gain was gradually falling.

### Research Findings

1. The students of experimental group who were taught music was found faster in learning the concepts than the control group.
2. Each student in the experimental group performed faster than control group.

3. The researcher observed that experimental group students showed more attention, concentration and interest in learning than the control group though it has not been measured as a part of the study.
4. The retention level of the experimental group (Mean 27.6) was higher than the control group (Mean 19.6). A significant difference was found in the retention level the retention of the learned concepts was gradually falling.
5. Whenever the rhyme with musical background was played, the experimental group of students was able to show the actions and to relate the concepts of directions- up & down, front & back, left & right.

### Limitations

1. The sample was very small. Therefore generalization of the findings may be difficult.
2. The duration of the study was very short especially for the recording the retention.

### Recommendation

The study shows that teaching through music is more effective in learning and retaining the concepts among the students with mental retardation. Based on this result the following suggestions were made

1. Through research appropriate rhymes with music can be composed.
2. Concepts, which may be taught through music, also can be listed and tested.
3. This study can be conducted for different groups of children belong to various levels of intelligence, socio economic status and educational.

### Conclusion

The study shows the effect of teaching mentally retarded children through music. It is more effective than the conventional way of teaching. The educational system has been revolutionized in 21<sup>st</sup> century that using innovative teaching strategies to enhance the learning and change the style of present schooling. Review of the related literature collected show that there has been a dearth of such researches in India, Also there are very few research done to prove effectiveness of music for the children with mental retardation. The researches cited in the present study do not provide conclusive to support or reject the effectiveness of music.

The present study involved ten participants from the primary class of a NIMH school secunderabad. The students were divided into two groups. The students were assigned groups randomly. They were intervened for ten sessions and performance was evaluated after that. Data collection occurred on every 2<sup>nd</sup> day. Means and standard deviations were calculated for the following parameters: pre test and post test scores. These means were compared by groups with of t-test. Results indicate that means scores of experimental group is (37.6) more than the control group (30.8). The positive effect of instruction through music is revealed in the study. A significant difference in retaining

the taught concepts of direction also was found between the experimental group (Mean is 27.6) and that of control group (mean is 19.6).

The results of the study support the fact that special educators can use rhymes with music component to teach concepts, which are more relevant in the day to day life of people with mental retardation. This method would help the students with mental retardation to learn the concepts which they find difficult to learn due to low intelligence level. The retention is also a positive contributing factor as an outcome of teaching through music.

### Future Directions

Additional research could extend the scope and the scale of the current study in several ways.

1. This intervention programme study could be utilized to verify the effectiveness of the music with different concepts and thereby determine whether it has policy implications.
2. Extension of the current study would be a follow-up study to explore the long-term effects of the intervention with music.
3. Research direction includes an examination of difference measures of quality. Current study might incorporate measure such as effects of soft background music with teaching subject, use of music will with difference concepts etc, these would provide additional useful data for the determining the impacts of music in academic intervention.

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3. [www.questia.com](http://www.questia.com)
4. [www.musictherapyworld.ed](http://www.musictherapyworld.ed)
5. [www.muisctherapy.org](http://www.muisctherapy.org)

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