International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2020): 7.803

Effect of Discrete Trial Training on Language Skills of Children with Attention Deficit and Hyperactivity Disorder

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Abstract: ***Aim: The purpose of the study was to evaluate the effect of Discrete Trial Training on language skills in children with Attention Deficit and Hyperactivity Disorder. Methodology: Total of 30 subjects with Attention deficit and hyperactivity disorder, 15 in experimental group and 15 in control group with age of 4 to 6 years participated in this study. Both control and experimental groups were assessed using Receptive-Expressive Emergent Language Scale (REELS) for the measurement of language skills in children. Result: Statistical significant is present (t = 3.8) in the experimental group with regard to effectiveness of Discrete Trial Training on language skills among ADHD children. Conclusion: The conclusion of this study indicates that the Discrete trial training activities are effective in improving language skills in ADHD children.***

Keywords: ADHD, Discrete Trial Training, Language skills, Speech Therapy

1.Introduction

Attention deficit hyper activity disorder (ADHD) is a developmental disorder characterized by persistent hyperactivity, inattention and impulsivity that significant impairs educational achievement as functioning. According to the Diagnostic and statistical manual of mental disorders criteria published by the American Psychological Association (ADA) symptoms must be displayed before the child reached 7 years as behavior that are indicator of the disorder must be seen at least through two different fields and destruct considerably social, occupational or educational performance of the patient. The symptom varies among patients and includes behavior problems such as inattention, hyperactivity, impulsivity.

Research has reported ADHD prevalence estimate of approximately 5.9%-7.1% in children and adolescence with a male and female ratio of approximately 3: 1 in population sample. Many children with ADHD may have various kind of communication difficulties even if they do not have a diagnosed language disorder symptoms of in attention and hyperactivity frequently co-occur with language difficulties. Impairments in executive function give rise to both behavioral and social communication problem and additional or alternative deficits in other cognitive abilities.

Early identification and treatment prevents or minimize many of the negative effects of the disorder. The evaluation and management of a child with ADHD involves a multi-disciplinary effort.

Discrete Trial Training is a one to one instructional Approach used to teach skills in a planned, controlled, and systematic manner. Discrete trial training is used when a learner needs to learn a skill best taught in small repeated steps. Each Trial or teaching opportunity has a definite beginning and end, thus the descriptor discrete trial. Within Discrete trial training the antecedents and consequences is carefully planned and implemented. Positive praise and tangible rewards are used to reinforce desired skills or behaviors. In this study the researches intend to find out the effectiveness of Discrete trial training on language skills of children with ADHD.

Aim

The Aim of the study is to find out the effect of Discrete Trial Training on language skills among children with ADHD.

Objectives

- To assess the language skills of children with Attention Deficit and Hyperactivity Disorder.
- To evaluate the effect of Discrete Trial Training on language skills of children with Attention Deficit and hyperactivity Disorder.

Alternative Hypothesis

There will be significant change in language skills after giving Discrete Trial Training to children with ADHD.

Null Hypothesis

There will be no significant change in language skills after giving Discrete Trial Training to children with ADHD.

2.Review of Literature

1. Charlop-Christy, M. H., (2000)

In their study it was designed to compare the effectiveness of video modeling with in vivo modeling for teaching

developmental skills to children with autism. A multiple baseline design across five children and within child across the two modeling conditions (video and in vivo) and across tasks was used. Each child was presented two similar tasks from his or her curriculum; one task was used for the video condition, while the other was used for the in vivo condition. Video modeling consisted of each child watching a videotape of models performing the target behavior, whereas in vivo modeling consisted of the children observing live models perform the target behavior. After the observations, children were tested for acquisition and generalization of target behaviors. Results suggest that video modeling led to faster acquisition of tasks than in vivo modeling and was effective in promoting generalization. Results are discussed in terms of video modeling's motivating and attention maintaining qualities.

2. Barbro Bruce (2005)

The purpose of the study is to evaluate ADHD and language impairment. The parental questioner FTF was given to parents of 76 children (mean age 11 Years) diagnosed with ADHD about half and the children heal at least once been referred to a speech and language pathologist measurement by the FTF questioner most of them have not received any interventions or follow up. A factor analysis identified problem areas. Which explain close to 75% of the total variation. Communication and language comprehension caused these children many more problems of reading and writing are very frequent. IQ score was associated with maths and reading writing. Additional item reflecting language skill, in particular language comprehension and pragmatic were also found in other domains in FTF problem with language this seem to be associated with the typical problems.

3. Nancy. J. Cohen (1994)

The purpose of the study to evaluate the interface between ADHD and language impairment, an examination of language achievement and cognitive processing data for this study were collected as part of a larger research project examining 20 subjects with, the kaufman test of educational achievement (KTEA) was administered to obtain standardized scores on subscales that measured reading decoding. It was concluded that caution must be exercised in attributing to children with ADHD what might be reflection of problem for children with language impairment generally.

4. Babel, D, et al (2008)

They have used a modified multiple-baseline design across pairs of newly hired tutors to examine the effectiveness of a self-instruction package for teaching them to conduct discrete-trials teaching (DTT) to a confederate role-playing a child with autism. During Baseline, DTT skills were assessed while participants taught three tasks to the confederate. They then completed a training package that included self-instructional manual, video demonstrations, and self-practice. During Post-training, participants were assessed while they taught the same three tasks to the confederate. Participants required an average of 3 hours and 56 minutes to master the manual, and DTT accuracy increased from 46.2% to 85.5%. One participant took part in a generalization phase with a child with autism, and her DTT accuracy averaged 80.1%. The results suggest that the self-instructional package is an effective tool for teaching newly hired tutors to conduct DTT with a confederate role-playing a child with autism.

5. Jeniffer L Crokket (2007)

This study examined the effects of an intensive parent training program on the acquisition and generalization of discrete trial teaching (DTT) procedures with two parents of children with autism. Over the course of the program, parents applied the DTT procedures to teach four different functional skills to their children, which allowed for an assessment of "free" and programmed generalization across stimulus exemplars. Parent training was conducted by the first author utilizing instructions, demonstrations, role-play, and practice with feedback. Parents' use of DTT skills and children's correct and incorrect responding were measured. A within-subject multiple-baseline across stimulus exemplars (functional skills taught) design was employed both to demonstrate control of the training program over parents' correct use of DTT, and to allow a preliminary investigation of the generalized effects of training to multiple stimulus exemplars. Results demonstrate initial control of the training program over parent responding, and the extent to which each parent extended her use of DTT procedures across untrained and topographically different child skills. The potential for designing more generalizable and thus more cost-effective parent training programs is discussed.

7. Robert. M. Kanter (1982)

The purpose of the study was to evaluate the vestibular stimulation effect on language development in mentally retarded children. The sample size was 30, subjects were assigned to three treatment groups on the basis of the rank order of overall score on the porch index of communicative ability in children (PICAC) samples were divided into three groups and the treatment was given during 6 weeks period. Group 1 was given vestibular and specific speech therapy, group 2 was given speech therapy, group 3 was given only general speech stimulation. Results indicated that all three treatments produce some improvement in general communication skills but the group 1 shows higher mean percentage gain in all areas of the PICAC.

8. W. Micheal Magrun (1981)

The purpose of the study on effects of vestibular stimulation on spontaneous use of verbal language in developmentally delayed children. The relationship between vestibular stimulation and language development in a group of 5 primary trainable mentally deficient and five developmentally retarded preschoolers was studied. Subjects received vestibular stimulation prior to a free play situation and were monitored for spontaneous

recognizable language use. Results indicated an increase in spontaneous verbal language use for both groups immediately after the stimulation periods, and suggest vestibular stimulation as an effective non verbal intervention method for the facilitation of spontaneous language.

3.Methodology

The purpose of the study is to determine effectiveness of Discrete Trial Training on language skills among ADHD children.

Research Design

The present study was two groups, pre test and post test quasi-experimental design.

Study Setting

Srinidhi Speech and Hearing Centre and Government medical college Hospital, Karur.

Sample Size

30 subjects.

- 15 subjects in control group
- 15 subjects in experimental group

Sample Technique

Convenient sampling technique was adopted.

Study Duration

Total duration of study is 6 month.

Intervention Period

Total period of intervention was 6 week; sessions were given for one Hour Per day in alternative days, total of 18 sessions were administered.

Selection Criteria

Inclusion criteria:

1. Children diagnosed as ADHD by paediatrician or clinical psychologist
2. ADHD children with the age range of 4-6 years.
3. Both genders were included.

Exclusion criteria:

1. Children with seizure episodes.
2. Children below 4 year and above 6 years.
3. ADHD children with any other associated medical conditions.

Variable

Independent Variable

- Discrete Trial Training

Dependent Variable

- Language skills of ADHD Children

Measurement of Tool and Materials Used

THE BZOCH-LEAGUE Receptive-Expressive Emergent Language Scale (REELS).

Procedure

Totally 30 subjects who met the selection criteria have been included in this study, they are equally divided into control and experimental group by convenient sampling method. Both control and experimental group was assessed using receptive-expressive emergent language scale (REELS). Pre test data was obtained. The control group received Conventional Speech Therapy treatment, where as the experimental group received both the Conventional Speech Therapy and Discrete Trial Training for 6 weeks and in an alternative days for 1 hour sessions. Training Program on Providing Discrete Trial Training was organized by analyzing similar programs and their components which was mentioned in the relevant literature. Discrete trial training program was composed of eighteen sessions for each child separately and family members attended along with their child. Written and visual materials, video samples, were used in the program. The first four sessions mainly aimed to teach developmental based language skills training later with oral motor stimulation and sentence formation with Flashcards followed by asking “Wh” Questions, Every correct repetition was rewarded.

After the intervention period the post test data was obtained with the same tool. Scores are tabulated and statistically treated with “t” test.

Data Analysis and Interpretation

Table 1: Comparison of pre test scores between control group and experimental group

Group	Test	Mean	S D	“t” value	“p” value
Control group	pre-test	4.000	0.802	1.2444	0.2237
Experimental group	Pre-test	4.367	0.812		

Graph 1

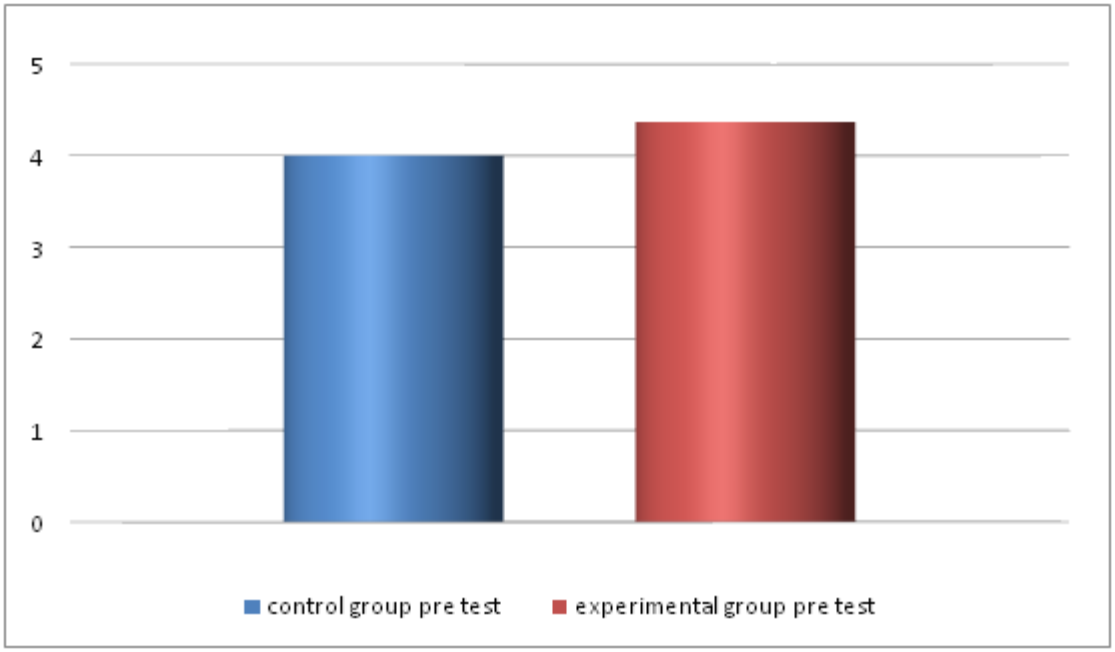


Table 2: Comparison between pre test and post test value of control group

Group	Test	Mean	S D	"t" value	"p" value
Control group	Pre-test	4.000	0.802	0.1280	0.8999
Control group	Post-test	3.967	0.834		

Graph 2

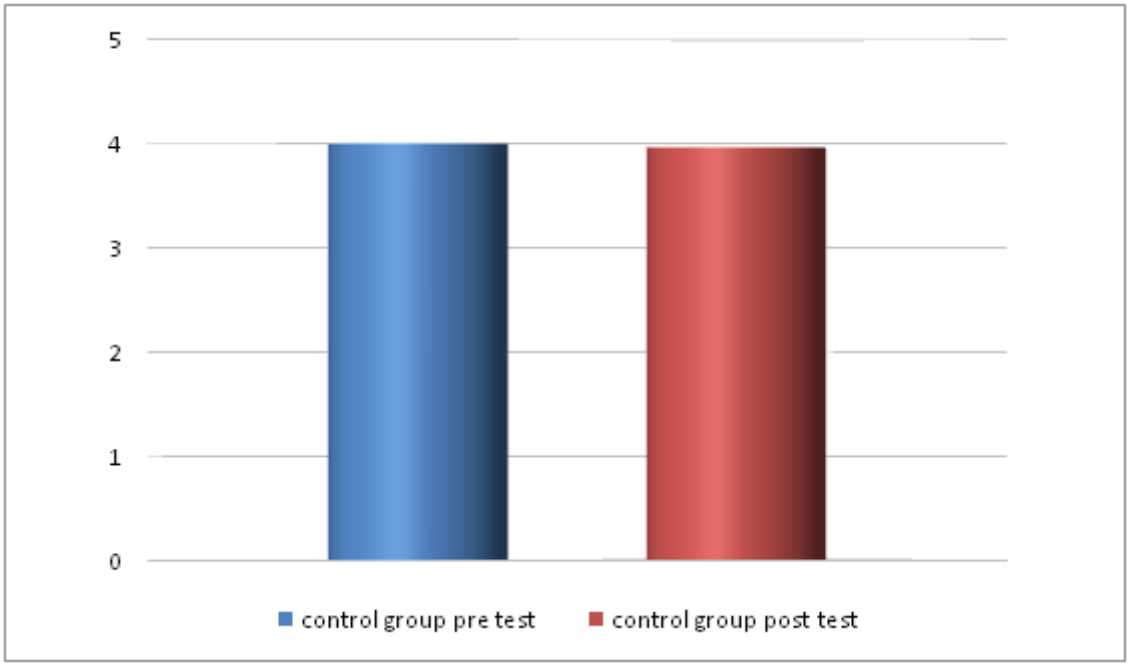


Table 3: Comparison between pre and post test values of experimental group

Group	Test	Mean	S D	"t" value	"p" value
Experimental group	Pre-test	4.367	0.812	3.8258	0.0019
Experimental group	Post-test	5.133	0.550		

Graph 3

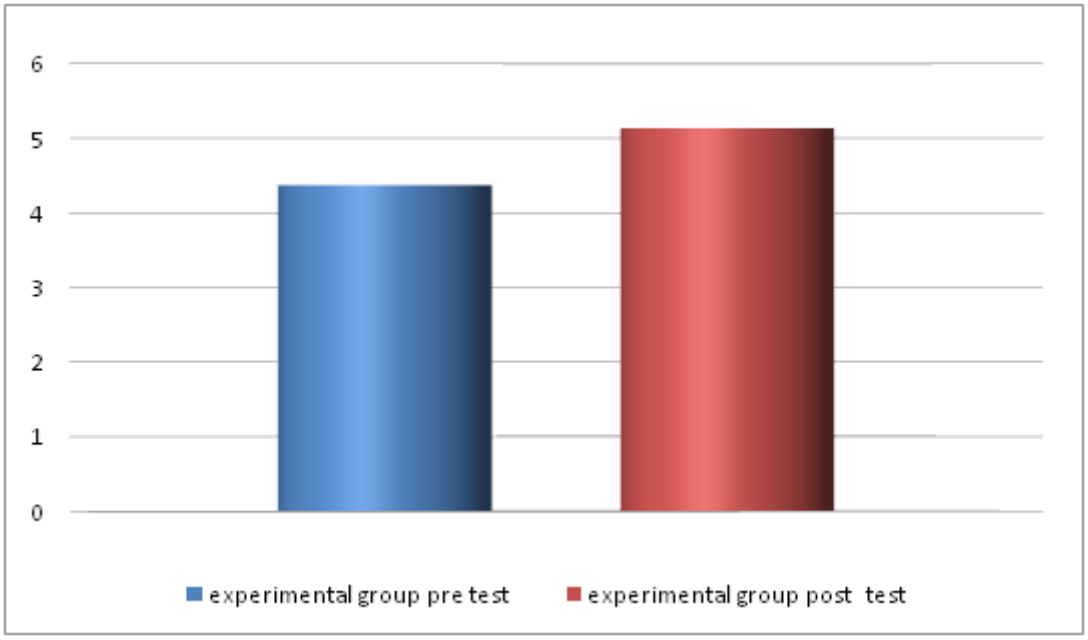
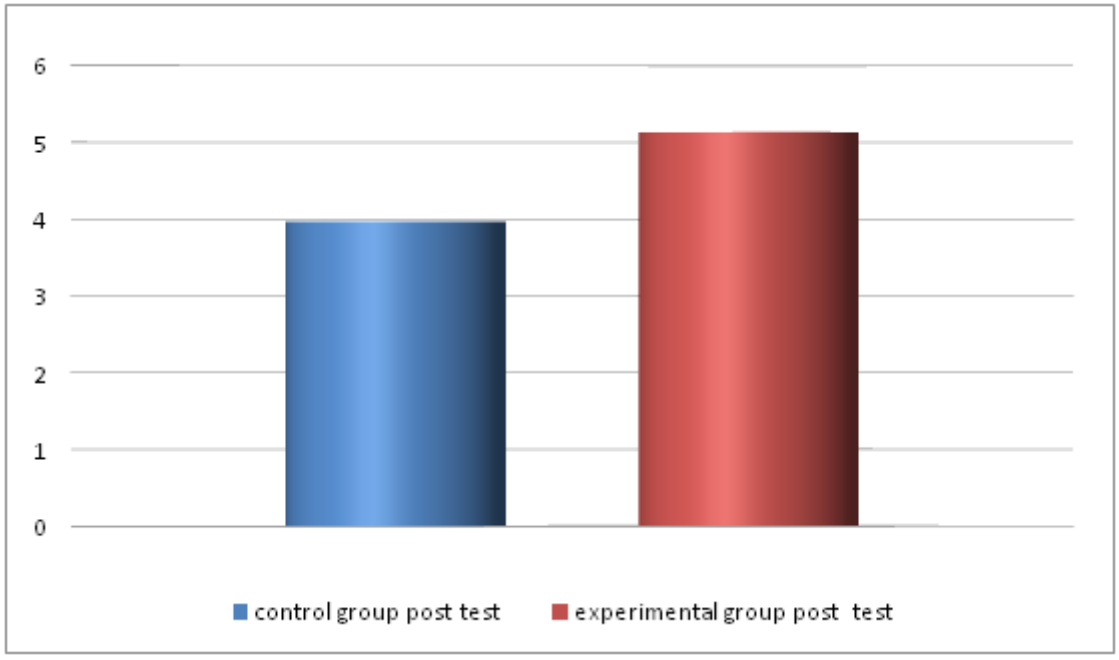


Table 4: Comparison of post test scores between control group and experimental group

Group	Test	Mean	S D value	"t" value	"p" value
Control group	Post test	3.967	0.834	4.5239	0.0001
Experimental group	Post test	5.133	0.550		

Graph 4



4.Results and Discussion

The purpose of the study is to determine the effectiveness of Discrete Trial Training on language skills among children with ADHD.

The subjects were selected using convenient sampling method. In this study 30 subjects were involved, out of which 15 subjects were under experimental group and 15 subjects under control group. REELS test has been used to assess the language skills of ADHD Children.

The duration of the intervention was 6 month, session were given one hour per day in alternative days, total of 18 sessions of Discrete Trial training activities were administers for experimental group along with Conventional Speech therapy whereas control group received only Conventional Speech Therapy. Pre and post

test scores of REELS were statistically analyzed with "t" test.

Table 1 The unpaired 't' test was done between control group and experimental groups, the mean values are 4.00 and 4.36vrespectively, "t" values is 1.244. This indicates the experimental group and control group were homogenous and can be compared for the study. In table 2 the paired 't' test was done in control group, the result signifies that the control group has no significant difference in the pre-test and post-test scores, the mean is 4.000 and 3.963 respectively, 't' value is 0.1280 and 'p' value is 0.8999. It indicates that there is no difference in the language skills of ADHD children in the control group.

Table 3 the paired 't' test was done in experimental group, mean values are 4.367 and 5.133, "t" value is 3.825, its shows the significant difference between pre and post test of experimental group. This findings suggests that the discrete trial training improved language skill in children with ADHD. These findings are also supported by Babel (2008).

Table 4 the unpaired 't' test was done between control group and experimental group the mean values are 3.964 and 5.133 respectively and "t" value is 4.5, it shows there is significant difference is present. While comparing the pre test scores between the groups there was no significant difference, whereas in post test comparison there is significant difference between groups. Hence the null hypothesis was rejected and alternate hypothesis is being accepted.

5.Conclusion

The conclusion of this study indicates that the discrete trial training programme are effective in improving the language among ADHD children.

6.Limitation and Recommendations

Limitations

- Study was done on small sample size
- Only limited age group were selected
- Study was conducted on shorter duration
- Male and Female comparison is not included in this study

Recommendations

- The study can be done on large sample size
- Study can be done on different age group
- Study can be done for longer duration
- Male and female comparison can be included in further studies.

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