Effectiveness of Individualized Cognitive Intervention for Slow Learners

Dr. Rajendra Kumar Sharma[1], Prof. (Dr.) Eirene Leela Rout[2]
[1]Associate Professor & Head of Clinical Psychology Department, Amity Institute of Behavioral & Allied Sciences , Amity University Gwalior. Madhya Pradesh, India.
[2]Director, Head of Institution, Amity Institute of Behavioral & Allied Sciences, Amity University Madhya Pradesh, India.
Email - rajcer@gmail.com

Abstract: *Objective: To evaluate the effectiveness of cognitive intervention for children with for slow learners. Methods: 20 Children selected from Manovikas Rehabilitation Center-Bhopal. On the basis of study rationale prerequisite, 12 slow learner included. Who were diagnosed as slow learners based on current level of academic functioning and IQ, and 08 children having mild mental retardation? All the preferred children's were given individualized cognitive intervention for a period of three months. Independent assessors evaluated the cognitive intervention at the beginning of the training and at the end. Results: The results showed that the children had significant improvement in their cognitive, academic functioning and self esteem after the training. Conclusion: The present study can be a model to set up inclusive resource persons and room in normal schools to provide individualized cognitive intervention to children who are slow learners/scholastic backward.*

Key Words: *Scholastic backwardness; Individualized cognitive intervention; Resource room.*

1. INTRODUCTION:

According to Samuel Kirk (1962) defined learning disability as retardation, disorder or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic or other school subjects resulting from a psychological handicap caused by a possible cerebral dysfunction or emotional or behavioural disturbances. It is not the result of mental retardation, sensory deprivation or cultural and instructional factors. According to IDEA (2004), SLD is defined as follows: The term ''specific learning disability'' means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, read, spell, or do mathematical calculations. Such a term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such a term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage. (IDEA 2004, § 602.30, Definitions).

Slow learning condition is which manifest in childhood as persistent difficulties in learning to efficiently reading, writing, or do simple mathematical calculations despite normal intelligence, conventional schooling, intact hearing and vision, and adequate motivation and socio-cultural opportunity. Up to 5 to 15%-APA of "seemingly normal" school children are believed to have this disability. Because of a general lack of awareness, children with SLD often remain undetected leading to chronic poor school performance, class detention, and even dropping out of school.
One of the reasons for scholastic backwardness is below average intelligence. It was observed that 8-9 percent of primary school children scored below average in standard IQ tests. Children with intelligence level in the low average or borderline IQ range can be grouped together as slow learners (ICD-F81) - These children do not get sufficient attention in the mainstream education. They usually fail repeatedly in examinations and finally become school dropouts. Establishing special schools for children in this category is not practical and also not advisable. It is ideal to evolve strategies to provide education to these children in normal schools itself. The aim of the present study was to evaluate the effectiveness of an Individual cognitive Intervention (ICI) for children who are slow learners and to evolve a long-term strategy to provide individualized education to such children in normal schools. Rozario (2003) prepared an informal reading inventory by carefully selecting graded reading passages and identifying specific reading errors. She used a similar procedure for assessing spelling and writing disorders. She also recommended that each individual's strengths and weaknesses must be identified in order to develop a highly individualised profile of that person's cognitive and personality styles. Kannaiyam (2002) found higher achievement in post test group in prewriting skills when children were taught to draw straight lines by connecting dots, practicing various strokes viz lines, circles, curves in clockwise and anti clock wise direction and practice them. The study was conducted on 80 rural students studying in 1st standard of Thanjavoor district.
Valivambal (2002) studied the impact of remedial teaching in the achievement of standard II mathematics competency; additions of two digit numbers with and without carry over. The sample was a heterogeneous group of

students from an adopted rural panchayat union elementary school, comprising eight 2nd standard and ten 3rd standard students who scored less than 95 per cent in the diagnostic test conducted by the investigator. The investigator planned remedial teaching which required repetition of old knowledge and additional graded exercises drill work. The use of graded, activity based learning involving games, songs, individual and group activities had considerably improved the competency of class 2nd and 3rd standard students to do addition of two digit numbers. Mudalingammanavar (2004) found significant improvement in academic competence among children who were academically backward with behavioral problem in terms of difficulty in reading, writing, arithmetic intellectual functioning. Planned activities such as attention enhancing activities among experimental children enhanced the skills of perceiving, discriminating the numbers, words and situations correctly.

In 2004, Das and colleagues developed two remedial programmes using the principles of PASS theory. The PASS remedial training programmes named COGENT and PREP are based on the remedial principles of Hebb, Luria, and Vygotsky (Das, 2009). Krishnakumar, Geeta and Palat (2006) investigated 18 children who were attending the child guidance clinic with scholastic backwardness, all 18 children were assessed for IQ using Seguin form board test and draw a man test. The selected children were divided into four groups with 5 children each in the first three groups and 3 children in the group 4. They were given individualized education for three hours from Monday to Friday for two months. Teachers were the special educators, with diploma in special education. One teacher was assigned to each group. At the end of the two months test papers in reading, writing and mathematics were conducted and evaluated by two external teachers who were blind to the initial level of functioning. 12 children had significant improvement in their academic functioning, as evidenced by the outcome of the final test paper and also the parents' opinion. 84% of parents said that the children developed more self esteem and that their aptitude for studies had improved.

Das, Hayward, Samantaray, & Panda, (2006) developed Cognitive enhancement training (COGENT) was successfully used with a group of 11 disadvantaged Indian children in the age group four to seven. The children were screened for cognitive and academic difficulties and were identified as being at risk of developing reading disorders. After the intervention programme 54% of the children showed gains in all four cognitive processes; the changes were also reflected in their behaviour and motivation. Malhotra et al (2010) conducted, pre-post experimental design with forty children (between seven to ten years of age), with diagnosis of mixed disorder of scholastic skills (ICD-10). Subjects in Group1 (n=20) were given 36 hours of manualized CR package over 18weeks, consisting of activities for sustained attention, visuospatial skills, visual memory; and verbal learning and memory. Subjects in group 2 (n=20) were given 36-remedial education sessions. Pre and post intervention assessment; was done using NIMHANS Index for Specific Learning Disability, Grade Level Assessment Device (GLAD). Remedial education sessions included exercises to improve phonic awareness, paired reading, oral spelling, teaching in mathematics, cognitive retraining produced significant enhancement in children's performance on mathematics. Thus, it seems to be most desirable to club these two intervention approaches to effectively manage the deficits of LD.

2. MATERIALS AND METHODS:

The study sample was taken from Bhopal Manovikas Center (BMC) –Bhopal. The Manovikas Center caters to the needs of children with developmental disabilities and mental health. The study period was three months from 1st April, 2016 to 31st June 2016 (summer vacation time in Madhya Pradesh). Twenty children attending BMC with scholastic backwardness and suppressed intellectual functioning, inclusion and exclusion criteria were done ,only suitable children's were included for the study. Scholastic backwardness for this study was defined as repeated failures in all subjects or academic performance two classes below the class in which the child was studying at the time. The children were identified, based on teacher's reports and parents' opinion.

The inclusion criteria were:

(1) Children should be regular students attending normal school.

(2) Their IQ level should be between 50 and 90.

(3) Parents should give consent for inclusion in the study and they should make arrangements to take the child to the training center regularly during the three month training period.

(4) Children in the 50 – 70 IQ range were included, because a considerable percentage of children in normal schools with scholastic backwardness fall under this category. These children are potentially educable:

The following exclusion criteria were chosen:

(1) Children with emotional disorders like anxiety disorders or depressive disorders

(2) Children with hearing or visual defects

(3) Physical illnesses that will affect the training program.

The IQ and cognitive functioning was determined by the 'Seguin Form Board' test and the 'color progressive matrices' test. Only children whose IQ level was in the 50-90 range and Grade 3rd were included in the study. To assess the academic functioning, a four level scale was designed (Table 1). It consisted of assessment of reading

ability, writing ability and mathematical ability. DSM-V diagnostic criteria were used for diagnosis of psychiatric disorders.

The selected children were divided into four groups with 5 children each. They were given individualized cognitive intervention (ICI) at the Manovikas Center for Developmental Disabilities from 4 pm to 7 pm, Monday to Friday for three months. Teachers were the special educators at Manovikas with B.Ed,M.Ed in special Education and rehabilitation Psychologist and Psychologist. One teacher was assigned to one group. At the beginning of the training, a meeting of the parents was called and problems of each child discussed.

Parents of 6 children had primary school education only. 14 parents had education of 10^{th} standard and above. An awareness class about the causes of scholastic backwardness and what should be done at home was taken. The academic functioning of each child was noted. At the end of the first 75 days , a meeting of the parents was called again and the progress discussed. At the end of the 90 days test papers in reading, writing and mathematics were conducted and evaluated by two outsource expert teachers who were blind to the initial level of functioning. The opinion of the parents regarding an overall change in academic functioning was noted.

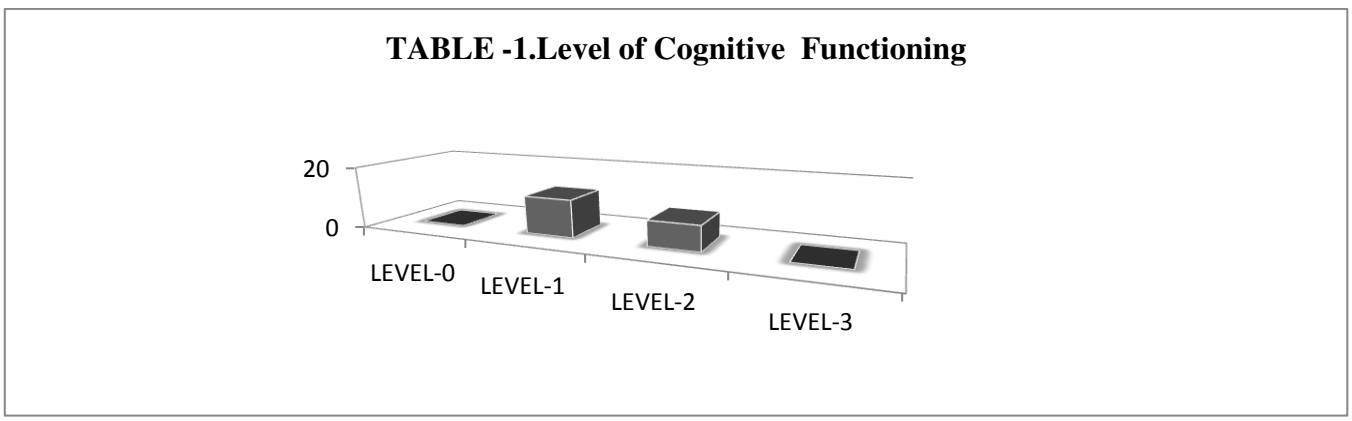
Paired't' test was used to assess the improvement in academic functioning after the end of the training program.

3. RESULTS:

Twenty children participated in the training program. There were 12 boys and 8 girls. The youngest child was 6 years-old and the oldest was aged 12 years. The minimum number of years of normal schooling was three years and the maximum 6 years. Six children had IQ in the 60 - 70 range and others had IQ levels between 70 and 90. Cognitive functioning at the intake was level 0 in 4 children, level 1 in 12 children and level 2 in 8 children. There were no children in levels 3 and 4.

TABLE 1. Level of Cognitive Functioning

Level	Reading Comprehension	Listening Comprehension	Mathematics Calculation	Written Expression
0	Not able to comprehended	Not able to get receptive information	Not able to calculate numbers	Not able to write simple content
1	Can comprehend one or two simple words.	Can get small audio/ Video stimulation	Can only calculate one or two digits /numbers.	Can write one word writing
2	Can read and comprehend 3 word sentences	Can get prolonged audio/ Video stimulation	Can do three four digit calculations with prompting	Can write two three word writing
3	Can read with mistakes	Can get prolonged audio/ Video stimulation and express it	Can do five digit calculations and explanation	Can write simple stances without external prompting



It is clear from Table 1.a. which gives descriptive information about the level of cognitive baseline. Level of entire sample was divided into three groups –0, 1, 2, and 3.

TABLE 2. Cognitive Improvement on Different Stimulation

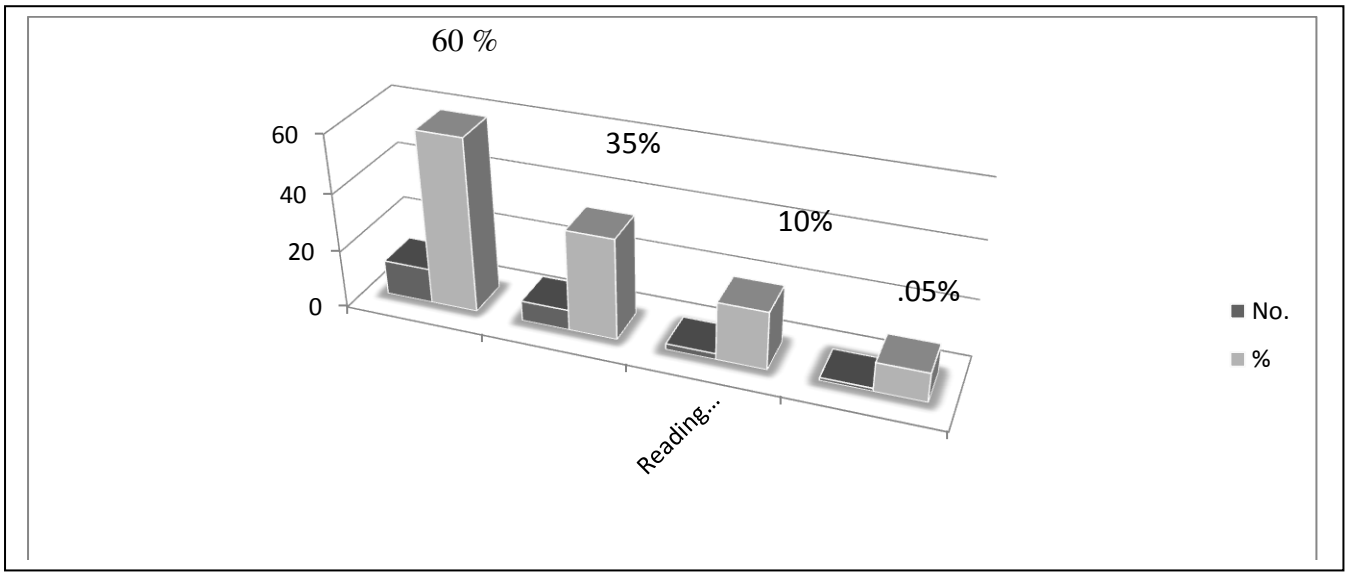
Level	Intake	Final	No.	%
0	01	02	10	50
1	00	01	04	20
2	02	03	02	10
3	00	00	02	10
4	02	02	02	10

(Paired t test: t= -8.84; df-8; p-0000)

(Table 2). Psychological assessment showed varying degrees of attention deficit hyperactivity disorder.

67% (12) of children had significant improvement in their academic functioning, as evidenced by the outcome of the final test paper (Table 2). This was also the parents' opinion. 84% of parents said that the children developed more self esteem and that their aptitude for studies had improved

TABLE 3. Parents' view on cognitive Improvement



4. DISCUSSION:

The findings of the present study established that impact of cognitive intervention on slow learners. It was hypothesized that can suppress cognitive impaired or slow learner children's significantly improve if; they are given individualized cognitive intervention exposure and

5. RESULT:

After the training and cognitive intervention program, majority of children had improved self-esteem and aptitude for learning. It has been observed that improved self-esteem is the first step towards successful remedial cognitive education. In the present sample, the children gained more from the individualized cognitive intervention program than from several years of normal schooling. This is a pointer to the fact that these children are grossly ignored in the mainstream education. In a class of 50 or 60 students, the teacher will not be able to provide individual attentions that lag behind in studies. Ideally, facilities to provide cognitive education and intervention to children who are slow learners and children with learning disorders should be available in all schools. One practical suggestion is to have a resource room in every school, where appropriate remedial education can be provided to those in need. Children with scores between 70 and 90 can be given individualized cognitive intervention in the school itself. Ideally, a child with scholastic backwardness needs detailed psychological and educational evaluation by a team consisting of clinical psychologist, child psychiatrist, special educator and other experts. Facilities for such a detailed assessment are not available in majority of the schools in developing countries. The present experiment provides the model for a resource room that can be set up in a normal school with minimum expenditure. The slow learners identified by the class teacher can go to the resource room for remedial cognitive education for fixed hours. The resource room should have a Clinical Psychologist, special educator who should be able to give appropriate education to the child, taking into consideration his strengths and weaknesses.

6. CONCLUSSION:

The present study represents model of recourse facilitation and inclusive intervention need. It is found that improved self-esteem is the first step towards successful remedial cognitive education. The children gained more from the individualized cognitive intervention program than from several years of normal schooling. This is a pointer to the fact that these children are grossly ignored in the mainstream education. In a class of 50 or 60 students, the teacher will not be able to provide individual attentions that lag behind in studies. Ideally, facilities to provide cognitive education and intervention to children who are slow learners and children with learning disorders should be available in all schools. One practical suggestion is to have a resource room in every school, where appropriate remedial education can be provided to those in needed children's.

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