

Direct Instruction using CBM for Children with Learning Difficulties

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Abstract:

Learning difficulties and learning problems are often the first descriptive terms used when a child begins to have trouble in school. In India exclusive efforts are not made to find out the incidence of LD but it has been established that 10-12 per cent of our school children are with learning disabilities. These children require help are in an evaluation system predominantly based on written examination which is a disadvantage to the learning disabled child.

Many children with LD develop secondary inattention and behavioural difficulties; Attention Deficit Hyperactivity Disorder (ADHD), which is characterized by developmentally-inappropriate inattention, hyperactivity and/or impulsivity, is often co-morbid with dyslexia (Kadesjo & Gillberg, 2001). Assessment of academic skills using Curriculum Based Measurement/Assessment is one alternative that has recently gained popularity in countries like U.S through Implementation of Response to Intervention for testing the performance of children. Direct instruction is one specific teacher directed explicit instruction have witnessed a growing realization that many of the principles and concepts of direct instruction have wide relevance for special education populations in the last ten years (Bellamy, 1979; and Carnine, 1977). Choosing Direct instruction as strategy by identifying the problem using CBM grade level programme to enhance the learning among children with learning disabilities was the objective of the study. The proposed study was Single subject Experimental design (Pre-Posttest with experiment group). Children having learning difficulties were selected using non probability sampling technique through purposive sampling method. Research identified standardized CBM Measures (grade level passages) and used to identify the level of Reading among children with learning difficulties and intervention was planned according to the needs of children with learning difficulties. The implementation of intervention was given through direct instruction of teaching phonics, word recognition (two & three letter) and short stories. The results showed that the children with learning difficulties are improved in their reading fluency and sustaining attention. If we believe the inclusive education to better service the children with SLD, there is an urgent need for access to the learning opportunities, capacity building of personnel in the field of SLD.

Keywords: Specific Learning Disability (SLD), Curriculum Based Measurement (CBM), Direct Instruction

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I. INTRODUCTION

Learning difficulties and learning problems are often considered as trouble to manage children in school classroom and in Special education programme. According to RPwD Act (2016) included 21 disabilities; in addition to benchmark disabilities defining of 40 percent of disabilities in the types of disabilities to be certified are included. Under the Act, Specific Learning disability is one in such scenario, only few children in schools/centres have been identified. The RPwD Act states that Educational institutions must detect the children with specific learning disabilities at the earliest and take suitable measures to overcome them. Considering that 73 million children of primary school age were out of school in 2010, down from a high of over 110 million out-of-school children in the mid-1990s, according to new estimates by the UNESCO Institute for Statistics (UIS). In India it has been estimated that about 12.5 million children with disabilities are to be provided education in the school system. Out of which 3.6 million are children with learning disabilities in the age group 5-14 (Sample Survey, 1981). In India exclusive efforts are not made to find out the incidence of LD but it has

been established that 10-12 per cent of our school children are with learning disabilities. These children require help are in an evaluation system predominantly based on written examination which is a disadvantage to the learning disabled child. Specific Learning disability children are those who suffer from serious learning disabilities.

Many children with LD develop secondary inattention and behavioural difficulties; Attention Deficit Hyperactivity Disorder (ADHD), which is characterized by developmentally-inappropriate inattention, hyperactivity and/or impulsivity, is often co-morbid with dyslexia (Kadesjo & Gillberg, 2001). The two disorders occur simultaneously in 12% to 24% of individuals with dyslexia (Shaywitz, 2003). However, they do not appear to share a common cause (Doyle, 2001; Shaywitz, 2003). Under these circumstances, it becomes difficult to differentiate LD from a Primary ADHD (National Information Centre for Children and Youth with Disabilities, 2000). If the educational system were to incorporate extensive multi-sensorial teaching strategies and accept learning outcomes from students in

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modes other than visual, these children would have a greater chance to cope with the curriculum.

The children who have learning disability attending inclusive education programme are in need of intervention that may help to overcome their challenges. Assessment of academic skills (Curriculum Based Measurement/Assessment) is one alternative that has recently gained popularity in countries like U.S through Implementation of Response to Intervention (RTI) for testing the performance of children from the curriculum. Curriculum based measurement (CBM) and assessment is immediate measure to determine the difficulty for children in their learning. CBA is quick and offers specific information about how a student may differ from his peers. (National Information Centre for Children and Youth with Disabilities, 2000).

The assessment is completely tied to grade level curriculum content, it allows the teacher to identify student's current abilities and pinpoint the areas where curriculum adaptations or modifications are needed. CBA provides information that is immediately relevant to instructional programming. (National Information Centre for Children and Youth with Disabilities, 2000). The benefit of implementation reduces the rote memory on student's part and elicit the true potential. Research on effective teaching has shown that teachers should directly and explicitly teach students what they need to know (Rupley, Blair, & Nichols, 2009). Direct instruction is one specific teacher directed explicit instruction have witnessed a growing realization that many of the principles and concepts of direct instruction have wide relevance for special education populations in the last ten years (Bellamy, 1979; and Carnine, 1977). Choosing Direct Instruction as strategy by identifying the problem using CBM grade level programme to enhance the learning among children with learning disabilities was the objective of the study. This study attempts to find how effective is direct instruction and strategy to practice?

II. REVIEW OF RELATED LITERATURE

A recent review of 34 research studies comparing DI interventions to a variety of other instructional programs showed that (a) 87% of the post-treatment means favored DI, compared to only 12% that favored non-DI approaches, and (b) 64% of statistically significant outcomes favored DI, compared to only 1% that favored non-DI approaches and 35% that favored neither (Adams & Engelmann, 1996).

Statistical integration of the data from the 34 studies referred to above showed large DI gains for (a) both regular education and special education students, and (b) both elementary and secondary students. Large DI gains were found (c) in a variety of academic subjects, (d) whether gains were measured using norm referenced or criterion-referenced measures, and e) whether the studies lasted up to 1 year or over 1 year. Six of the 34 studies discussed above were targeted at improving the reading and/or math skills of students with learning disabilities. The average post-treatment performance of these students was more than one standard deviation above that of the comparison groups. Similar large positive effects were reported in three other sources: an earlier integrative analysis of the effects of DI in special education (White, 1988).

Swanson and Sachse-Lee (2000) found that when various instructional approaches are used in a single-subject-design, the significant beneficial effect for children and adolescents with learning disabilities resulted in a mean effect size of .90 using Cohen's threshold. When looking specifically at a drill-repetition-practice-review segmentation model used in small group instruction, the analysis yielded the highest effect size.

Ross, Steven M.; Nunnery, John A.; Goldfeder, Elizabeth; McDonald, Aaron; Racher, Robert; Hornbeck, Matthew; Fleischman, Steve(2004) examined the effectiveness in an urban school district of 2 of the most widely used Comprehensive School Reform (CSR) programs-Direct Instruction (DI), implemented in 9 district elementary schools, and Success for All (SFA), implemented in 2 elementary schools. In examining impacts on student achievement and school change outcomes (e.g., teacher buy-in, school climate), a mixed-method research design was employed, encompassing both quantitative and qualitative analyses. Student achievement results on the reading sections of the Ohio Proficiency Test and the Stanford Achievement Test showed that both DI and SFA schools performed comparably to other district schools after statistically adjusting for school and student variables. Qualitative measures indicated generally positive support for both models by teachers, principals, and parents. However, in the case of DI, findings indicated weaknesses in implementation due largely to uncertainties involving school versus district roles and inadequate training. Results are discussed with regard to the influences of contextual and implementation variables on judging CSR model effectiveness in general and for specific schools and districts.

Shippen et al. (2005) conducted a study that sought to investigate the effects of two direct instruction reading programs on the performance of struggling, middle school readers. The study specifically looked at the differential effects on skill improvement in word reading efficiency based on the type of direct instruction that the students received. The participants in the study were students who were reading significantly below grade level. After a six week intervention, the students showed gains in word recognition and reading fluency regardless of the direct instruction that was implemented. The researcher indicated that if the direct instruction program had been implemented for a longer period of time, the students could have reached even higher levels of improvement. This study further validates that highly structured, explicit, teacher direct instruction for struggling readers is an effective practice (Shippen et al., 2005).

Osman Özokcu, Gönül Akçamete, Mehmet Özyürek(2017) reveals whether or not the social skills teaching program based on the direct instruction approach is effective on the ability of mentally retarded students in regular classroom settings to gain social skills such as apologizing, asking for help and finishing a task on time, and to generalize these abilities. This study used the model of multiple-probe design between subjects which takes place in the research methods of single-subject design. The researchers carried out this study with one 12-year-old male student and two female students, ages 12 and 11. To collect study data, this study used the teacher interview form, the social skills checklist,

criterion-referenced measurement tools and data record tables. Graphical analyses were used to analyze data. To use target social skills (skills of apologizing, asking for help and finishing a task on time) in education, instructional plans that included acting as a model, guided practice and independent practice steps, which are the basic stages of the direct instruction approach, were prepared. In the social skills program, teaching sessions were held separately and conducted 3 days per week. At the end of the teaching sessions, generalization sessions took place. After this study, it was seen that the social skills teaching program based on the direct instruction approach was effective on the ability of three mentally retarded students to gain the target social skills and to generalize these abilities.

III. RESEARCH QUESTION

What is the effect of direct instruction on Reading skills of children with learning difficulties?

IV. METHODOLOGY

The present study was Single subject Research Design (Pre-Post test design with only experiment group) under the special education programme. Children having learning difficulties are selected (N=4) using non probability sampling technique through convenient sampling method. The Inclusion Criteria of the study involves the children having learning difficulties (ADHD, Autism), Age ranging from 6-14 years among male children in the Special Education services. Research tools used was standardized CBM Measures (grade level passages) to identify the level of Reading among Children with learning difficulties. Pilot study conducted with children to examine the feasibility and suitability of the study. An informed consent and permission got for the ethical issues. Pretest data was collected to calculate their reading rate to begin intervention. Direct instruction as a strategy was implemented for reading which includes teaching Phonemic awareness, word recognition (two & three letter), short stories for a period of 24 sessions (2 times a week for 40 minutes). Progress monitoring is a critical factor that was done once in month during intervention period. Post test was conducted in order to find the improved in reading fluency and word recognition.

Information about the participating students are given below.

The subject numbered one (Lower KG) is a 6-year-old student studying in main streaming school. When Special Education records were examined, according to the Stanford Binet Intelligence Scale, his intelligence quotient was determined to be 120 (above average intellectual functioning), and it was reported that he had mild Autistic disorder. Previous intervention was helped him to overcome sensory issues and currently having attention deficit disorder and has significant reading skills. According to school records, information received from his special education teacher and the evaluation carried out by the researchers, child had reading skills at his grade level but difficulty to maintain sustained attention.

The subject numbered two (4th grade) is a 8-year-old student studying in main streaming or inclusive school. When school records were examined, according to the Stanford Binet

Intelligence Scale, her intelligence quotient was determined to be 62, and as a result of the Oral Reading Test administered by the researchers, it was found that 4th grade child have reading skills at one-grade level. It was reported that he had skills of solving operations in mathematics.

The subject numbered three (8th grade) is an 14-year-old studying in eight-grade inclusive student. When Special Education and school records were examined, according to the Stanford Binet Intelligence Scale, her intelligence quotient was determined to be 68. The Oral Reading Test was administered to the subject by the researchers, and it was found that she had reading skills at lower KG level could able to identify alphabet letters

The subject numbered three (2th grade) is an 7-year-old studying in inclusive school. When Special Education and school records were examined, according to the Stanford Binet Intelligence Scale, her intelligence quotient was determined to be 69. The Oral Reading Test was administered to the subject by the researchers, and it was found that she had reading skills at lower grade level, difficulty in sustaining attention and less interested in academic.

V. DATA ANALYSIS

The investigator of the study was collected the data over the period of time from the sample chosen for the present study. The results as follows:

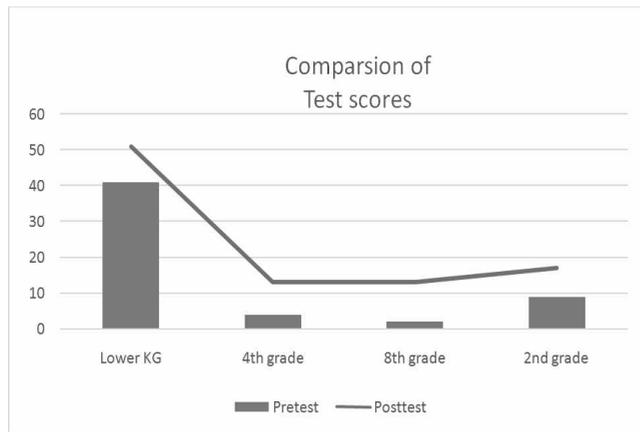
Table 1: Letter-Sound Fluency (Phonemic Awareness)

Subject	Grade level of the child	Pretest (per min)			Post test (per min)		
		Correct	Incorrect	Total	Correct	Incorrect	Total
1	Lower KG	5	10	15	32	3	35
2	4 th grade	2	5	7	5	3	8
3	8 th grade	0	3	3	10	3	13
4	2 nd grade	2	4	8	14	3	17

From the table, the results revealed that the children with Learning difficulties performed better compared to pretest through direct instruction in the intervention. Children with learning difficulties have increased their speed upto 60% of accuracy. The researches expresses that all children learnt the sound of letters (phonemic awareness) through the intervention. DI reading curricula emphasized the phonic generalization and letter-sound correspondences are introduced (in a logical sequence) and integrated with the phonemic awareness skills.

Table 2: Reading Fluency

Subject	Grade level	Pretest (per min)			Post test (per min)		
		Correct	Incorrect	Total	Correct	Incorrect	Total
1	Lower KG	41	5	46	51	3	54
2	4 th grade	4	5	9	13	6	19
3	8 th grade	2	9	11	13	7	20
4	2 nd grade	9	10	29	17	19	27



From the table it is evident that the children with learning difficulties have improved in their reading fluency and sustaining attention. The phonemic awareness helped children to write and read 3-4 letter (CVC, CVCC) words. Blending and decoding was achieved by repeated readings using DI. The study included the sample are having different learning style and competency but direct instruction proves to be significant

VI. CONCLUSION

Learning Disability children requires a intensive individualized instruction to overcome the learning difficulties in special education and regular classroom Considering the educational intervention of SLD, Direct instruction used in the research study which benefits to all grade level children and all kind of learning disabilities. A Country like India having 472 million children population under the age of 18 years that constitutes 39% of country's total population as per census 2011. If we are to authentically include children with SLD in our education system, there is an urgent need for capacity building of trained personnel in the field of SLD. It is vital to train psychologists, special and regular school teachers in understanding and helping these children. In addition, awareness has to be created about SLD amongst policy makers, parents and community bodies.

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