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Asian Resonance

Effect of Individualized Intervention on Children Diagnosed With Spelling Difficulties

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Abstract

The research aims to study the effectiveness of the remedial intervention on performance of children having specific learning difficulties. It was hypothesized that the performance of the children on their spelling mistakes would improve after the remedial intervention. Two 3rd grade and one 4th grade student (aged 8-10 years), with average and above average Iq, studying under CBSE pattern of education, and having severe learning difficulties in spellings were selected for the study. One to one sessions of one hour each were given to the participants. 20 such sessions of individual tutorial were taken which were spanned over 4 months on an average. Pre test data was taken using the Schonnel's list of spelling test from the Nimhans SLD index.

The same words were again used to take the post test data at the end of 20 sessions with each subject. The remediation was given using individualized worksheets and test sheets which were designed according to the remediation given during the 20 sessions. The remediation was directed towards improving the errors in spelling of the children through teaching of phonics and giving various kinds of worksheets on phonics. Data analysis indicated around 44% to 77% improvement in the subjects after 20 hours of remedial intervention.

Keywords: Learning Disability, Spelling Disability, Phonology, Spelling Remediation.

Introduction

Learning disabilities is a dynamic and expanding field. Children with learning disabilities are found across all ages, socio-economic levels and races. The problem of these children may range from mild to severe. Professionals, parents and all others involved in this area continue to invest efforts to seek more knowledge about the nature and interventions of learning disabilities for enhancing academic success for children with learning problems (Chadha, 2001). Learning disabilities in a child or adolescent are characterized by academic underachievement in reading, written expression, or mathematics in comparison with the overall intellectual ability of the child. Children with learning disorders often find it difficult to keep up with their peers in certain academic subjects, whereas they excel in others. Professionals, parents and all others involved in this area continue to seek more knowledge about the nature and interventions of learning disabilities for enhancing academic success for children with learning disabilities.

The most recent version of DSM – V includes the following four diagnostic criteria of Learning disabilities:(adapted from APA,DSM,V, 2013) (Maslow, 2013)

A persistent difficulty learning academic skills for at least 6 months despite intervention targeting the area(s) of difficulty. Many schools use a RTI model of academic skill assessment and progress monitoring to determine the effectiveness of interventions.

The areas of documented academic skill difficulties include

1. Word decoding and word reading fluency
2. Reading comprehension
3. Spelling
4. Writing difficulties such as grammar, punctuation, organization, and clarity
5. Number sense, fact and calculation
6. Mathematical reasoning

The affected academic skills are substantially below expectations given the individual's age and result in impaired functioning in school, at work and in activities of daily living.

LD is readily apparent in the early years, however it is not to be diagnosed until the onset of school years; in some individuals the disorder is not apparent until the onset of a demand for higher-level skills.

The academic and learning difficulties occur in the absence of

1. Intellectual Disabilities
2. Visual or hearing impairments
3. Mental disorders (e.g. depression, anxiety, etc.) Neurological disorders
4. Psycho-social difficulty
5. Language differences
6. Lack of access to adequate instruction

Learning disabilities arise from neurological differences in brain structure and function and affect a person's ability to receive, store, process, retrieve or communicate information. While the specific nature of these brain-based disorders is still not well understood, considerable progress has been made in mapping some of the characteristic difficulties of LDto specific brain regions and structures (NCLD).

Estimates of the prevalence of children who suffer from learning disabilities vary ranging from 1-30% of the school population (Lerner, 1985), depending on the criteria used to determine the disability. Another study by Myklebust and Boshes (1969) estimated the prevalence of learning disabilities to be 7-8%. It affects up to 10 per cent school children according to a study conducted among Us children (Altarac & Saroha, 2007). In a review of Indian studies on prevalence of learning disability, prevalence of various types of deficits of scholastic skills was reported to be 3-10 per cent among students population (Ramaa, 2000). A few studies done on learning disabilities have shown the prevalence rate to be between 4- 11%. For example, a study conducted by the National Institute of Mental Handicap, Hyderabad, India, claimed the incidence of learning disabilities to be 4%.

Learning disabilities often make it agonizing for a child to succeed and in some cases, lead to eventual demoralization, low self-esteem, chronic frustration and poor peer relationships. Learning disabilities are associated with higher than average risk of a variety of co-morbid disorders, including ABHD, communication disorder, conduct disorders and depressive disorders. Adolescents with learning disabilities are about one and half times more likely to drop out from schools. Adults with learning disabilities are at higher risk for difficulties in employment and social adjustment (NCLD).

Almost all people with dyslexia, however, struggle with spelling and face serious obstacles in learning to cope with this aspect of their learning disability. Spelling is the forming of words through traditional arrangements of letters. The ability to spell is essential because it allows one to read correctly what is written. The children who had trouble recognizing words in reading had poor spelling skills (Carpenter and Miller 1982). The phonetic spellers mispronounced phonetically irregular words. It was suggested that child in order to spell correctly must be able to read the word, possess knowledge and skill in certain relationships of the word and use motor ability to write the word. (Ekwall 1985)

One common but mistaken belief is that spelling problems stem from a poor visual memory for the sequences of letters in words. Recent research, however, shows that a general kind of visual memory plays a relatively minor role in learning to spell. Spelling problems, like reading problems, originate with language learning weaknesses. Therefore, spelling reversals of easily confused letters such as 'b' and 'd', or sequences of letters, such as "wnet" for "went" are manifestations of underlying language learning weaknesses rather than of a visually based problem (Friend and Olson, 2011).

Poor phonological decoding and poor phonological awareness are also correlated with poor spelling ability (Shaywitz & Shaywitz 2005).A longitudinal study on spelling development by Caravolas, Hulme & Snowling (2001) demonstrated that proficient spelling depends on both phoneme awareness and letter-sound knowledge. Several previous studies have investigated whether normally progressing children make the same kinds of spelling errors as older spelling-level-matched children with Spelling Disability.Spelling-level-match comparisons typically involve pairing older spelling disabled (SD) children with younger normally progressing children on the number of words spelled correctly in a standardized spelling task. A few of these studies have found that normally progressing children tend to make errors that are more phonologically accurate than older children with SD. However, findings have been inconsistent.

Bourassa and Treiman (2003) conducted a study using a spelling-level matched design to compare oral and written spelling errors of children with SD (mean age 11 years and 1 month) from clinics specializing in tutoring for dyslexia, with that of younger children (mean age 7 years and 5 months) of normal reading and spelling ability.

Their initial analysis consisted of a spelling sophistication composite based on a point system that gives more points to spellings where most or all of the phonemes in the target word are represented and higher scores are given to spellings that follow graphotactic conventions (i.e., use of legal letter sequences) and conventional spelling. They failed to find any significant group differences on their composite measure for either words or nonwords. The groups also performed similarly on graphotactic acceptability, wherein graphemic sequences are checked for whether they occur in English, and on the phonological skeleton, which measures how closely consonant and vowel sequences match target words.

Aim of the study

The objective of the present research was to see the effect of remediation on children diagnosed with learning disabilities to overcome their spelling difficulties.

Methodology

Sample

Three students between the ages of 8-10 years were taken as the subjects. The students belonged to the Cbse pattern of education.

	Age	Grade
Subject 1	10 years	IV
Subject 2	8 years	III
Subject 3	8 years	III

Tools

1. Individualized remedial worksheets were used during the intervention based on the difficulties
2. Test worksheets to evaluate learning during the intervention.
3. MISIC and SLD Index for screening
4. Schonell's list for spelling test.

Variables

1. Independent variable: Individualized remediation technique
2. Dependent variable: Errors in spellings

Controls: Inclusion criteria

1. All the students taken for the study should be of average and above average IQ.
2. The students taken should be between the ages of 8-10 years
3. All the students are from the same pattern of education i.e., Central Board of Secondary Education (CBSE).

Experimental Design

Pre test – Post test design

Procedure

Six children were selected for the study from two CBSE pattern schools of Vadodara. Schools counselors of the respective schools were approached for the sample screening. Subjects were selected from the records of the school counselor of students having learning difficulties. The sample was recommended to the counselor by the teachers of the respective schools.

Malin's Intelligence Scale for Indian Children (MISIC) was administered on the subjects to check their IQ. NIMHANS SLD Index was also used to screen the difficulties faced by the students in various areas of learning. Once the screening was done, parents were approached for the consent of the remediation for their children. As a pre-test base line data, Schonell's list of words was used to identify the level of spelling difficulty for all the six subjects selected for the remediation. Intervention started with teaching phonics to the children individually. Visual, auditory and kinesthetic modalities were used to teach the phonics to the child.

Individualized remedial worksheets were designed accordingly to check the progress from time to time for each child. After the teaching of sounds of the individual letters of the alphabet, double letters and three letter sounds (blends) were taught. Each child was taken for one hour, twice a week. After five sessions, three parents withdrew their children from the remediation for their personal problems. In this way twenty one to one sessions were conducted for remediation. Teaching of phonics, blends and rhyming words, etc. were used in intervention with the children during the sessions. By the end of the twenty sessions, a final test sheet was designed, which included material from their remedial worksheets. The post test data was analyzed by using the Schonnel's list of words.

Results and Discussion

Subject 1

Table no. 1 shows the session wise remediation given to subject 1

DAY 1- To learn the sounds of vowels, 'a', 'e', and 'i'(short vowel sounds), and the words beginning with them. Eg., aeroplane, ant, egg, elephant, igloo, ink.
DAY 2- To learn the sounds of vowels, 'o', and 'u' (short vowel sounds), and the words beginning with them. Eg., octopus, orange, uncle, up.
DAY 3- To learn the sounds of consonants, starting from 'b' till 'f' and the words beginning from these sounds. Eg., bat, cake, doll, fan.
DAY 4 – To learn the sounds of consonants from 'g' till 'j' and the words beginning from these sounds. Eg., gate, goat, hat, hen, jug, jam.
DAY 5- To learn the sounds of consonants from 'k' till 'n' and the words beginning from these sounds. Eg., king, lion, mat, nail.
DAY 6- To recognize and identify the first sounds of the word through picture representation.
DAY 7- To learn the sounds of consonants from 'p' till 't' and the words beginning from these sounds. Eg., pot, pan, queen, rat, rope, sat, sand, tap, top.
DAY 8- To learn the sounds of consonants from 'v' till 'z' and the words beginning from these sounds. Eg., van, water, ox, yacht, zip, zoo.
DAY 9- To learn the sounds of Consonant-Consonant (CC) blends, (sm, sp, sw, sl, st, and sh) and the words beginning from these sounds. Eg., small, spoon, swan, slap, stand, shop.
DAY 10- To learn the sounds of Consonant-Consonant (CC) blends, (bl, fl, cl, ch, and th) and the words beginning from these sounds. Eg., black, flask, clock, chess, thin
DAY 11- To learn the sounds of CC blends, (gr, ck, gl, cr, and fr) and the words beginning from these sounds. Eg., grass, pick, glass, crow, frog
DAY 12- To learn the sounds of CC blends, (tw, pl, and sn) and the words beginning from these sounds. Eg., twig, plane, snail
DAY 13- To learn the sounds of CC blends, (br, dr, and spr) and the words beginning from these sounds. Eg., brass, drum, spring.
DAY 14- To recognize and identify the sound of blends appearing in the word through picture recognition.
DAY 5- To learn to arrange the words in their correct form from the given jumbled form of letters.
DAY 16- To learn the sounds of Vowel- Vowel blends (ee and oo) and the words beginning from these sounds. Eg., bee, see, book, look
DAY 17- To learn the families of rhyming words, ('all', 'ell', and 'ill') and the words beginning from these sounds. Eg., ball-call, bell-sell, kill-mill

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DAY 18- To learn the rhyming words (‘ake’, ‘ail’, ‘ass’ and ‘and’) and the words beginning from these sounds. Eg., cake-bake, pail-jail, grass- mass
DAY 19- To learn the rhyming words (‘ain’, ‘ame’, and ‘’ice’) and the words beginning from these sounds. Eg., pain-vain, game- came, dice-spice
DAY 20- To learn to differentiate between different classes of rhyming words.

Subject 2

Table no.2 shows the session wise remediation given to subject 2

DAY 1- To learn the sounds of vowels, ‘a’, ‘e’, ‘i’, ‘’o’, and ‘u’. and the words beginning with them. Eg., aeroplane, ant, egg, elephant, igloo, ink, orange, umbrella, uncle.
DAY 2- To learn the sounds of consonants, starting from ‘b’ till ‘d’ and the words beginning with them. Eg., Eg., bat, cake, doll.
DAY 3 – To learn the sounds of consonants from ‘f’ till ‘j’ and the words beginning from these sounds. Eg., fan, gate, goat, hat, hen, jug, jam.
DAY 4- To learn the sounds of consonants from ‘k’ till ‘n’ and the words beginning from these sounds. Eg., king, lion, mat, nail.
DAY 5- To learn the sounds of consonants from ‘p’ till ‘t’ and the words beginning from these sounds. Eg., pot, pan, queen, rat, rope, sat, sand, tap, top.
DAY 6- To learn the sounds of consonants from ‘v’ till ‘z’ and the words beginning from these sounds. Eg., van, water, ox, yacht, zip, zoo.
DAY 7- To recognize and identify the first sounds of the word through picture representation.
DAY 8- To learn the sounds of Consonant-Consonant (CC) blends, (sm, sp, sw,) and the words beginning from these sounds. Eg., small, spider, swim
DAY 9-To learn the sounds of Consonant- Consonant (CC) blends, (sl, st, and sh) and the words beginning from these sounds. Eg., slum, stall, shop.
DAY 10- To learn the sounds of CC blends, (bl, fl, cl, ch,) and the words beginning from these sounds. Eg., blue, flask, class, cherry.
DAY 11- To learn the sounds of CC blends, (th gr, ck, gl,) and the words beginning from these sounds. Eg., three, green, sick, glow.
DAY 12- To learn the sounds of CC blends, (cr, fr, tw, and pl) and the words beginning from these sounds. Eg., crow, frock, twin, plate.
DAY 13- To learn the sounds of CC blends, (sn br, dr, and spr) and the words beginning from these sounds. Eg., snow, brain, drum, spray.
DAY 14- To learn to arrange the words in their correct form from the given jumbled form of letters.
DAY 15-To recognize and identify the sound of blends appearing in the word through picture recognition.
DAY 16- To learn the sounds of Vowel- Vowel blends (ee and oo) and the words beginning from these sounds. Eg., see, bee, book, loop.
DAY 17- To learn the families of rhyming words, (‘all’, ‘ell’, and ‘ill’) and the words beginning from these sounds. Eg., tall-ball, bell-cell, bill-pill.
DAY 18- To learn the rhyming words (‘ake’, ‘ail’, and ‘and’) and the words beginning from these sounds. Eg., make- take, rail- sail, hand- band.
DAY 19- To learn the rhyming words (‘ain’, ’ice’, ‘ass’ and ‘ame’)and the words beginning from these sounds.Eg.,pain-vain,rice-dice,grass-brass,game-same.
DAY 20- To learn to arrange the words in their correct form from the given jumbled form of letters.

Subject 3

Table No.3 shows the session wise remediation given to subject 3

DAY 1- To learn the sounds of vowels, ‘a’, ‘e’, ‘i’, ‘’o’, and ‘u’ and the words beginning from these sounds. Eg., aeroplane, ant, engine, egg, igloo, ink, orange, umbrella, uncle.
DAY 2- To learn the sounds of consonants, starting from ‘b’ till ‘g’ and the words beginning from these sounds. Eg., bag, cat, den, fan, goat.
DAY 3 – To learn the sounds of consonants from ‘h’ till ‘l’ and the words beginning from these sounds. Eg., hat, hen, jam, jug, king, kite, lion, lamp
DAY 4- To learn the sounds of consonants from ‘m’ till ‘q’ and the words beginning from these sounds. Eg., man, mat, nail, nose, pot, pan, queen.
DAY 5- To learn the sounds of consonants from ‘r’ till ‘v’ and the words beginning from these sounds. Eg., rat, sand, tall, top, van, vase
DAY 6- To learn the sounds of consonants from ‘w’ till ‘z’ and the words beginning from these sounds. Eg., wall, water, ox, fox, yacht, yolk, zoo, zipper.
DAY 7- To recognize and identify the first sounds of the word through picture representation
DAY 8- To learn the sounds of Consonant-Consonant (CC) blends, (sl, st, sm, sp, sw,) and the words beginning from these sounds. Eg., slap, stall, small, spin, swan.
DAY 9- To learn the sounds of Consonant-Consonant (CC) blends, (sh, bl, fl, cl, and ch) and the words beginning from these sounds. Eg., sharp, blow, flow, clock, church
DAY 10- To learn the sounds of CC blends, (th gr, ck, and gl,) and the words beginning from these sounds. Eg., thing, green, kick, glass.
DAY 11- To learn the sounds of CC blends, (cr, fr, tw, and pl) and the words beginning from these sounds. Eg., crown, frog, twin, plate.
DAY 12- To learn the sounds of CC blends, (sn, br, dr, and spr) and the words beginning from these sounds. Eg., snow, brass, dress, spring
DAY 13- To learn to arrange the words in their correct form from the given jumbled form of letters.
DAY 14- To recognize and identify the sound of blends appearing in the word through picture recognition.

DAY 15- To learn the sounds of Vowel- Vowel blends (ee and oo) and the words beginning from these sounds. Eg., cook, look, bee, see.
DAY 16- To learn to arrange the words in their correct form from the given jumbled form of letters.
DAY 17- To learn the families of rhyming words, ('all', 'ell', 'ass' and 'ill') and the words beginning from these sounds. Eg., ball- tall, tell- fell, kill- mill.
DAY 18- To learn the rhyming words ('ake', 'ail', 'and', 'ame', 'ain' and, 'ice) and the words beginning from these sounds. Eg., bake- cake, snail-tail, hand-band, pain-vain, game- came, dice-spice
DAY 19- To learn to differentiate between different classes of rhyming words.
DAY 20- To know the singular and plural forms of words

Table No. 4 shows the overall results of pre and post test of all the three subjects

	No. of words given from the Schonnel's list	Correct responses in the pre-test	Correct responses on the post test
Subject 1	45	15	35
Subject 2	45	10	20
Subject 3	45	8	28

Discussion

The objective of the present research was to see the effect of individalised remediation on children diagnosed with learning disabilities to overcome their spelling difficulties.In this study, intervention for spelling disabilities was given to three children. At the beginning of the intervention a pre-test base line data was taken using the Schonnel's list for spelling test (NIMHANS SLD index).It was seen that out of the 45 words given from the Schonnel's list at the beginning of the intervention program, Subject 1 was able to spell only 15 words correctly, Subject 2, ten and Subject 3, 8 words. In other words, it can be said that proficiency of students to be able to spell the words correctly at the time of the pre-test ranged from 17-33%.

The results of the post-test reveal that there has been change in the number of words spelled correctly by the three subjects. Post intervention all the three subjects have improved on their ability to spell words correctly. The proficiency with which subjects were able to spell words correctly ranged from 44- 77%.

Studies investigating specific linguistic characteristics have typically found that children with SD do not differ significantly in the types of errors they make.Moreover, Cassar et al.,(2005) found that experienced teachers were not able to differentiate the spelling attempts of older children with SD from that of younger controls.

While increased opportunities to respond to educational materials have been associated with increases in achievement (Delquadri, Greenwood, Stretton, & Hall, 1983), too many remedial practice trials may be "boring" and aversive to students. One way to increase mastery of spelling words for students with disabilities is to find interesting and novel ways for students to engage in repetitive practice. Another method is to find more effective ways to practice, thereby reducing the number of training trials to mastery.

Conclusion

The change in the pre and post test results can be attributed to the intervention given to these children. These children were not used familiarized with usage of phonics, due to which it was difficult for them to break up the word and spell it correctly. Teaching them the letter sound identification helped thereby reducing common errors among the sounds of /t/, /f/, /b/, /d/, etc.. Thus, intervention in terms of teaching them phonics and the letter to sound association helped them to make few errors in their spellings and also in memorizing the spellings of the words.

1. long drawn sessions many students can show significant improvement even with as many as 25 sessions. This remedial education can be carried out within the school set up by the teachers. Training teachers for remedial education has to include assessing the educational needs of the students
2. The ability to design and implement suitable intervention programs
3. Developing the ability to work effectively and harmoniously with class teachers
4. And finally the remedial teacher has to be taught to help the students with behavioural problems and counsel the parents and teachers as and when necessary.

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