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Teaching Cursive Hand Writing As An Intervention Strategy For High School Children With Dysgraphia

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Abstract

The present study " Teaching cursive hand writing as an intervention strategy for high school children with dysgraphia" is under taken in selected private schools in Hyderabad, India. The investigator used experimental design The sample consist of 35 children (15 girls and 20 boys) from 8th out of a total 650 population and 42 children (20 boys and 22 girls)from 9th out of 710 population of these classes for each group(Experimental and control). A pre test is conducted after identifying the sample. A six months Drill and Practice in cursive hand writing along with multi sensory approach and activities to augment the fine motor, spellings and written expression skills is given as intervention and a post test is conducted. For control group without the intervention a post test is conducted after 6 months.The data is analysed and the results showed a significant improvement in the hand writing skills of the children of experimental group. Cursive hand writing helped children improve their hand writing, academic chievement and self confidence

Keywords: Dysgraphia, Intervention Strategies, Remedial Strategies, Cursive Hand Writing.

Introduction

Hand writing is a very important skill for all as an integral part of communication even in the present day of computer era. Handwriting practice is a key component of the motor learning necessary to form letters and numerals correctly (Asher, 2006).

Dysgraphia is a term used by some professionals to describe the disorder of written expression and incorporates various aspects, including spelling and handwriting (which includes both printing/manuscript and cursive writing) (Nicolson & Fawcett, 2011). Even when provided with an appropriate amount of instruction and practice, children with dysgraphia fail to progress typically in the acquisition of handwriting (Smits-Engelsman & Van Galen, 1997).

Many Studies indicated that 10–34% of school-aged children (Rubin & Henderson, 1982; Smits-Engelsman, Niemeijer, & Van Galen, 2001; Smits-Engelsman, Van Galen, & Michels, 1995) are failing to develop efficient handwriting performance required to cope at school.

The present study is to explore the effectiveness of cursive hand writing to overcome dysgraphia in high school children.

Need for the Study:

Effective teaching strategies make learning interesting and memorable when it caters to the needs of diverse intelligence of students of a class room. With the growing number of Sp LDS increasing in a class room there is a need for every teacher to enhance their teaching skills by incorporating effective teaching practices. In a 2007 survey of 200 teachers of first through third grades in all 50 American states, 90 percent of respondents said their schools required the teaching of cursive.

The present techniques of teaching hand writing in the class rooms is frought with many problems. The lack of training to teachers whose very knowledge of the hand writing techniques is minimum or none in India. The copy writing practice is very much in vogue in many schools. But there is no keen monitoring by the teachers on how a letter is connected to the next, and most of these books are never corrected with an eye for proper hand writing of the child by many teachers. A 2008 nationwide survey in USA found elementary school teachers lacking formal training in teaching handwriting to students. Only 12 percent of teachers reported having taken a course in how to teach it.

The nuance of writing techniques not been taken care at pre and primary level fixes the hand writing pattern of children in such a way that a later correction does not take place easily. The illiteracy, lack of knowledge, awareness and time to correct the hand writing of their children on the part of teachers and parents also is one of the stumbling blocks for correct hand writing practice of a child in India.

For many children with dysgraphia, cursive writing has several advantages. It eliminates the necessity of picking up a pencil and deciding where to replace it after each letter. Each letter starts on the line, thus eliminating another potentially confusing decision for the writer. Cursive also has very few reversible letters, a typical source of trouble for people with dysgraphia. It eliminates word-spacing problems and gives words a flow and rhythm that enhances learning. For children who find it difficult to remember the motor patterns of letter forms, starting with cursive eliminates the traumatic transition from manuscript to cursive writing. Writers in cursive also have more opportunity to distinguish b, d, p, and q because the cursive letter formations for writing each of these letters is so different.

Review of Literature

There are many research studies conducted on Dysgraphia. But few are available on intervention strategies fewer at high school level. The need for more and more research in this area specially in India where the multilingual nature of curriculum makes the learning of children with writing difficulties all the more tough.

Tamara Mceachern , 2013, conducted a study on "Hand Writing Intervention, an impact on the reading and writing abilities of high School students" a single subject recearch design on four hign school students using cursive hand writing using ez write program and found the intervention helped them to improve hand writing along with self perception.

Kushki et al., 2011, observed that Proficiency in handwriting is a skill that is required for full participation in school activities since children spend up to half of their classroom time engaged in paper and pencil tasks and is significantly correlated with academic achievement and is a predictor of general learning abilities.

Richards et al. (2011) claim that hand writing is rather a "brain-based skill that facilitates meaning-making as writers externalize their cognitions through letter forms, the building blocks of written words and text" (p. 512).

Alyssa L. Crouch Jennifer J. Jakubecy(2007), in a study on "Dysgraphia: How It Affects A Student's Performance and What Can Be Done About It", applied two techniques, drill activities and fine motor activities, to find whether they help improve the handwriting of a student with dysgraphia. This action research used an ABAB single subject design to find which technique worked better over an eight-week period. The results were inconclusive on which technique worked better. However, the combination of both improved the subject's handwriting and increased his score by 50%. Therefore, this study suggests that using both techniques can help improve the problems associated with dysgraphia, especially in the area of handwriting.

Schipani (2007) found that the Dysgraphia is a learning disability characterized by very poor handwriting and the kids who had disorder in handwriting were trouble in processing how to form letters on a page.

Berninger et al. (2002b) developed a model of writing to address the developmental processes of how children learn to write, is referred to as the "Simple View of Writing". It is illustrated as a triangle where transcription (handwriting and spelling) and executive functions (conscious attention, planning, reviewing, revising, strategies for self-regulation) are represented by the angles at the base and text generation (words, sentences, discourse) is positioned at the vertex of the triangle. Working memory (activating short- or long-term memory depending on the writing task) is considered to affect the whole writing process and this is represented by it being shown inside the triangle (Berninger & Amtmann, 2003)

There is a systematic technique that improves handwriting through direct instruction. One such remedial treatment is using drill and practice. Ediger (2002) suggested that the teacher should provide a clear example of good handwriting and then the children should practice and drill using the teacher's model. People with dysgraphia struggle with the display of letters because often the letter that is asked for in the brain is not the letter that is retrieved and produced (Richards,1998).

Graham, Harries, & Larson (2001), and Scardamalia & Bereiter (1986), observed that writing is a complex process, an admired skill , which involves planning content, selection, organization, sustained attention, revision and mastery of skills and these aspects were difficult for school going children.

Prema (2001) found that both children with writing disabilities and normal children committed errors in addition of letters, substitution, omission, insertion of words, detection of stressed and unstressed vowels

Research methodology

Design, The population, sample and sampling

For the present study the investigator used two factor experimental design on children with dysgraphia from 8th and 9th classes from private schools in Hyderabad. *Here the investigator followed experimental design where the experimental group is given a pretest , treatment, a post test where as the control group will undergo a pretest and post test without intervention strategies implemented.*

For the experimental group - Pre Test- Intervention Treatment for 6 months - Post test design.

For the Control Group- Pre test – Post test.

The sampling technique used for the present study is *purposive sample technique* to select the sample .
The sample population of this research consist of 35 children (15 girls and 20 boys) from 8th for experimental group and 35 children are selected for control group out of a total 650 population and 42 children (20 boys and 22 girls) from 9th for experimental group and 42 children for control group are selected out of 710 population of these classes with writing problems.

The tools used in this study, are Questionaire, checklist, Behaviour Skills monitoring Schedule, Pre and Post test scripts.

Intervention Strategy

Initially based on the class room performance, notes, journals, answer scripts of three consecutive criteria reference tests list of children with scholastic backwardness is made in both 8th and 9th classes. Raven's Progressive Matrices an intelligence test is used on these children identified with Scholastic Backwardness to make sure the children have average to normal intelligence. From the list children are screened with a Screening Test to identify the children with Dysgraphia.
A questionaire is given to the teachers on the hand writing practices that they have in their schools, the training of teachers to effectively teach hand writing practices to children, the awareness of teachers on the writing difficulties faced by children, the remedial practices for children with learning difficulties.
The investigator gave ten days training to the teachers in cursive hand writing and in other activities for sub skills who administered intervention to the selected children.The intervention is done in four stages. The intervention period is one hour for four days a week. The alphabets are taught in capital and small letters and Joining letters for two weeks. Writing words and sentences in cursive hand writing is taught for two weeks. Writing paragraphs in cursive hand writing is taught for one month. Organising ideas for the hints development is given for one month. Narrative exercises of developing stories based on the clues given by a drawing on the board, a picture shown and completion of stories and paragraphs using their own ideas is given for one month. Contextual conventions and developing contextual clues based on a passage given is done for one month. The self correction of frequently repeated mistakes from their self

assessment of their own stories under the guidance and monitoring of teachers for one month. The children with severe dysgraphia showed improvement but will benefit more with an extended intervention period.

Writing strategies for the children are writing readiness exercises, air writing, use of the vertical plane (chalkboard), simultaneous verbal cues, reinforcement with tactile input, instructions and practice using appropriate pencil grip, formation of symbol skills, copying of geometric shapes, practice to increase fluency and direct instruction to improve writing organization. Many auditory, fine motor memory, visual, spatial yoga, music & Dance, sports & games, drawing and kineasthetic activities are included which made a great impact on children whose education became so very fun filled and recreative and aesthetic way of learning.

A pre test is conducted to see the level of hand writing of children of control and experimental groups. The children are assessed in the pre test and post test after six months on certain sub skills like legibility, direction of letters and sizes, Capital and small letter mixing , capitalisation and punctuation, Reversal of letters and numbers, spellings, omission and addition of words, erasal and strike offs, grammatical mistakes, working on line within margins, skills in Alphabets in cursive, words sentences and paragraphs, hints development, spellings, contextual conventions,clues and picture comprehension.

The intervention strategy gave training keeping these factors into consideration. Drill and practice, correct posture of sitting and pencil grip, proper position of the paper, motor memory, dextirity of hands and fingers, orthography of words, adding of letters to form words etc , multi sensory approach of teaching using models, role plays, pictures, flash cards, graphic organizers, maths manipulatives to prevent reversals in numbers and in practicing writing works of maths to overcome writing difficulties are part of the intervention given to both classes.

An intervention is given for experimental group for 6 months on all the on all the aspects of sub skills. The method of teaching cursive hand writing to the children through Drill and Practice as the strategy for hand writing and many activities are incorporated for sub skills.

The Analysis of Data

The investigator used Descriptive statistics and inferential statistics such as t-test, anova and anacova and the Scheffe's Post hoc test to analyse the data.

Research Findings

First hypothesis A: There is no awareness on the part of teachers in the teaching techniques to teach children with dysgraphia.

First hypothesisB: There are no remedial practices to teach children with dysgraphia.

Second hypothesis : There is no significant improvement in the writing difficulties of children after treatment.

Third Hypothesis: There is no significant difference in the performance of children based on group.

Fourth Hypothesis A: There is no significant difference in the performance of children based on class.

Fourth Hypothesis B: There is no significant difference in the performance of children based on interaction between group and class.

Fifth Hypothesis A: There is no significant difference in the performance of children based on gender.
Fifth Hypothesis B: There is no significant difference in the performance of children based on interaction between group and gender.

Descriptive analysis:

1. 60% of the teachers donot have any training in teaching hand writing skills for a child with writing difficulties. The First hypothesis A that there is no awareness on the part of teachers in the teaching techniques to teach children with dysgraphia is accepted.
2. 76% of the schools have no remedial practices in their schools to teach children with dysgraphia so the First hypothesisB that there are no remedial practices to teach children with dysgraphia is accepted.

Inferential Analysis

Table 1: The mean scores of Cursive Hand Writing Skills–Pre and Post test for Group wise and Class wise.

Table 1		Cursive Hand Writing Skills (no of Class – Pre Test						Cursive Hand Writing Skills (no of Class Post Test					
		8			9			8			9		
		Mean	S.D	No.	Mean	S.D	No.	Mean	S.D	No.	Mean	S.D	No.
Group	Control	10.20	4.53	35	9.04	2.92	42	9.52	4.63	35	9.11	3.09	42
	Experimental	10.20	4.53	35	9.04	2.92	42	20.10	3.23	35	19.49	1.85	42
total		10.20	4.52	70	9.04	2.92	84	14.81	6.64	70	14.30	5.79	84

It is seen from the table 1 above that the pre test scores of control group for 8th class and 9th class are 10.20 and 9.04 respectively. These scores in post tests, have decreased to 9.52 and 9.11 for 8th and 9th class respectively.

In experimental group, the mean Cursive Hand Writing Skills pre scores for 8th class is 10.20 which has increased to 20.10 showing that they improved after intervention, writing skills has improved very much. Among 9th class in the experimental group, the mean scores are 9.04 in pre-test where as it increased to 14.30 after post-test which also shows that the they showed great improvement .

In order to find whether the Cursive Hand Writing Marks increased/decreased from pre to post-test, using ANACOVA (Analysis of Covariance) and if the group differences are found to be significant, the Scheffe's Post hoc test was conducted for paired comparisons.

Table 2: ANACOVA for Cursive Hand Writing Skills Post - Total

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Covariate- Hand Writing Skills	2,138.473	1	2,138.473	275.504	**
Between Groups	16,705.541	1	16,705.541	2,152.210	**

Between Class	.533	1	.533	.069	Ns
Interaction-	1.684	1	1.684	.217	Ns

** - Significant at 1% level, * - Significant at 5% level, Ns- Not significant

The ANACOVA results show that the covariate-Cursive Hand Writing Skills Pre-test scores is found to have significant effect on post test at 1% level of significance.

The F-test value(2,152) comparing the Control and Experimental groups shows that there is significant difference in the 'adjusted' post-test scores between Control and Experimental Groups therefore the intervention strategies helped the experimental group to do well than the control group. The F-test value (.069) comparing the 8th and 9th class children shows that there is no significant difference in the 'adjusted' post test scores at 1% level. The F-test value (.217) shows there is no significant interaction effect between Group and Class.

The results of the above tables show

1. There is significant improvement in the performance of 8th and 9th class children after the treatment therefore the secondt Hypothesis is rejected.
2. There is significant improvement in the performance of children from 8th and 9th class of experimental group after the treatment compared to control group who showed no significant change in the performance therefore the third Hypothesis that in comparision there is no significant difference between groups is rejected.
3. There is no significant difference in the performance of 8th class compared to 9th class children. So the Fourth Hypothesis A is accepted.
4. There is no significant difference in the performance of 8th class compared to 9th class children based on the interaction between group and class. So the Fourth Hypothesis B is accepted

Table3: The mean scores of Cursive Hand Writing Skills –Pre and Post Group wise and Gender wise

		CursiveHand Writing Skills						Cursive Hand Writing Skills					
		Gender						Gender					
		Boys			Girls			Boys			Girls		
		Mean	S.D	No.	Mean	S.D	No.	Mean	S.D	No.	Mean	S.D	No.
Group	Control	9.90	4.18	40	9.33	3.48	37	9.60	4.24	40	9.02	3.60	37
	Experimental	9.69	3.76	40	9.54	3.95	37	20.02	3.17	40	19.58	1.97	37
total		9.80	3.97	80	9.44	3.72	74	14.81	6.42	80	14.30	6.03	74

The mean scores of Cursive Hand Writing Skills of Pre and Post test are given above for Group wise and Gender wise comparison. It is seen from the table that the pre test scores of control group for boys and girls are 9.90 and 9.31 respectively. These marks reduced in post tests to 9.60 and 9.02 for boys and girls respectively thus they showed no improvement from pre to post test in their mean scores .

In experimental group, the mean scores of Cursive Hand Writing Skills of pretest for boys is 9.69 which has increased to 20.02 showing that after intervention, the performance improved very much. Among girls in the experimental group, the mean scores are 9.54 in pre-test where as it has increased to 19.58 after post-test which also shows that the Cursive Hand Writing Skills have increased very much after intervention.

In order to find whether the Cursive Hand Writing Skills increased/decreased from pre to post-test, using ANACOVA (Analysis of Covariance) and the results are given below.

Table 4:ANACOVA for Hand Writing Skills Post – Total Group Vs Gender

of variation	Squares	quare		
te- Hand Writing Skills	73	73		
n Groups	541	541	91	
n Gender				
on-Group vs Gender				
	61			
	741			

** - Significant at 1% level, * - Significant at 5% level, Ns- Not significant

The ANACOVA was conducted to remove the pretest effect from posttest and the comparisons were made for 'adjusted' post-test values. The results show that the covariate- Hand Writing Skills Pre-test scores is found to have significant effect on post test at 1% level of significance.

The F-test value(2,159.3) comparing the Control and Experimental groups shows that there is significant difference in the 'adjusted' post-test scores between Control and Experimental Groups. The experimental group children showed significant improvement in the cursive hand writing skills.

1. The F-test value(2.248) comparing the Boys and Girls shows that there is no significant difference in the 'adjusted' post test scores so the Fifth Hypothesis A that there is significant difference in the performance of children based on gender is accepted.

2. The F-test value (.022) to find whether there is any significant interaction effect between Group and Gender is also found to not significant. Therefore Fifth Hypothesis B is accepted.

Conclusion:

It has been observed from the present study that the teaching of cursive hand writing strategies to high school children of classes 8 and 9th showed a marked improvement in the hand writing skills of these children with dysgraphia.

1- There is no significant gender wise difference in the hand writing skills of children before and after intervention.
2- The intervention strategies brought significant improvement in experimental group and no significant difference to control group in 8th and 9th class children with dysgraphia.
3- Drill and Practice techniques in hand writing practices help a great way in correcting hand writing of children with writing difficulties.

4- Special provisions for remedial practices in hand writing help children to overcome hand writing problems at high school level.
5- Multi Sensory approach helped children to improve not only their hand writing but spellings and written expression skills as well.
6- There is no significant class wise difference in the comparitive analysis of hand writing skills of children after intervention. Both 8th and 9th classes showed significant improvement after intervention
7- The close monitoring of teachers during the intervention has a significant impact on the hand writing skills of children with dysgraphia.
8- The improvement in hand writing resulted in enhancement of confidence levels and an improvement in their behaviour and attitide towards writing.

The research findings reiterate once again the fact that the children with learning disabilities like writing and reading difficulties should be given proper intervention strategies to help them overcome their difficulties. Every school should be committed for the effective provisions and teaching practices for the children with writing difficulties so they learn like their normal peers. The schools should have training sessions for the teachers and awareness of the needs of children with learning disabilities.

The handwriting of children is a matter of concern whether they have a writing disability or not. The older generation took great care and pride in their art of cursive handwriting. With print being taught first in schools and many home school curricula, typical writing habits are acquired that are difficult to overcome. The shocking proportions of learning disabilities including Dysgraphia and Dyslexia in our generation may be to a certain extent, be related to print handwriting. Providing extra drilling in hand writing instruction to children experiencing difficulty with this skill may help to prevent hand writing problems.(Graham, 2000). Finally the growing menace of writing difficulties are a matter of great concern that needs to receive the full focus and attention of policy makers, educationists, administrators, teachers and parents as other wise an intelligent child will remain a non achiever.

Biblography

Asher, A. (2006). Handwriting instruction in elementary schools. *American Journal of Occupational Therapy 60*, 461–471.

Crouch, A. L., & Jakubecy, J. J. (2007). Dysgraphia: How it affects a student's performance and what can be done about it. TEACHING Exceptional Children Plus, 3(3) Article 5. Retrieved (28/12/2014)from http://escholarship.bc.edu/ education/ tecplus/ vol3/ iss3/art5

Does cursive handwriting have an impact on the reading and spelling performance of children with dyslexic dysgraphia: A quasi-experimental study by Lorene Ann NALPON & Dr Noel Kok Hwee CHIA

https://dr.library.brocku.ca/bitstream/handle/10464/5047/Brock_McEachern_Tamara_2013.pdf?sequence=1;retrieved on 3/4/2014.

Ediger, M. (2002). Assessing handwriting achievement. Reading Improvement, 39, 103-110.

http://www.gutenberg.us/articles/cursive_writing; retrieved on 20th Nov 2015.

How Should We Teach Our Children to Write? Cursive First, Print Later! By Samuel L. Blumenfeld http://donpotter.net/PDF/cursive-first.pdf; retrieved on 22/11/15

Hamstra-Bletz, L., & Blote, A. (1993). A longitudinal study on dysgraphic handwriting in primary school. *Journal of Learning Disability, 26*, 689–699.

Graham, S., & Harris, K. R. (1988). Instructional recommendations for teaching writing to exceptional students. Exceptional Children, 54, 506-512.

Graham, S., Berninger, V. W., & Weintraub, N. (1998). The relationship between handwriting style and speed and legibility. *Journal of Educational Research, 5*, 290–296.

Graham, S., Harris, K. R., & Fink, B. (2000). Is handwriting causally related to learning to writing? Treatment of handwriting problems in beginning writers. Journal of Educational Psychology, 92, 620-633.

Graham, G., Harris, K. R., & Larson, L. (2001). Prevention And Intervention Of Writing Difficulties Of Students With Learning Disabilities. *Research Practice, 1,* 1674-84.

Graham, S., & Harris, K. R. (2005). *Writing Better: Teaching Writing Processes And Self-Regulation To Students With Learning Problems*. Baltimore: Brookes.

Graham, S. (2008). Primary Grade Writing Instruction: A National Survey. *Journal Of Educational Psychology, 100,* 907–919.

http://indianapublicmedia.org/stateimpact/2011/09/29/why-schools-should-keep-teaching-handwriting-even-if-typing-is-more-useful/retrieved on 02/07/15

Kushki, A., Schwellnus, H, Ilyas, Ilyas, F & Chau, T (2011), Changes in Kinetics an kinematics of hand writing during prolonged writing task in children with and without Dysgraphia, Research in Developmental disabilities, 32, 1058-1064;doi: 10.1016/j.ridd.2011.01.026.

Learning Disabilities in India. http:// www.rehabcouncil.nic.in/ writereaddata/ld.pdf. Retrieved (28/12/2014)

Narayan, J. Et Al. (2003). *Educating Children With Learning Problems In Primary Schools.* Secunderabad: Nimh.

Nicolson, R.I., & Fawcett, A.J. (2011). Dyslexia, dysgraphia, procedural learning and the cerebellum. *Cortex, 47*, 117-127. doi:10.1016/j.cortex; from **http://ldatschool.ca/literacy/literacy-skills-handwriting/**retrieved:22/11/2015

National Joint Committee For Learning Disabilities (Njcld). (1987). Learning Disabilities: Issues On Definition. *Journal On Learning Disabilities,10*(2), 107-108.

Raven, J. C. (1998). *Coloured Progressive Matrices*. New Delhi: Manasayan.

www.rehabcouncil.nic.in/writereaddata/ld.pdf/ Retrieved on 9/1/2015.

Rubin, N., & Henderson, S. E. (1982). Two sides of the same coin: Variation in teaching methods and failure to learn to write. *Special Education: Forward Trends, 9*, 17–24.

Samuel L. Blumenfield, "How Should We Teach Our Children to Write? Cursive First, Print Later!" from http://donpotter.net/PDF/cursive-first.pdf. retrieved on 21/04/2015

Smits-Engelsman, B.C.M., & Van Galen, G.P. (1997). Dysgraphia in children: Lasting psychomotor deficiency or transient developmental delay? *Journal of Experimental Child Psychology, 67*, 164-184.

Understanding Why Students Avoid Writing, By: Regina G. Richards, http://www.ldonline.org/article/5892 taken on 24/12/2014