

THE EFFECTS OF PUPOSIVE DRAWING ON DYSGRAPHIC DISORDER

Assist. Prof. Dr. Zahra NIKMANESH
University of Sistan and Baluchestan
Zahdan, IRAN

Assist. Prof. Dr. Yahya KAZEMI
University of Sistan and Baluchestan
Zahdan, IRAN

Zahra KHERADMAND
Islamic Azad University
Birjand, IRAN

ABSTRACT

Learning Disability (L.D) may be a neurobehavioral disorder that causes defects in speaking, writing, listening, thinking, reading, spelling, or mathematical calculation. Handwriting is an important skill, related to school performance and the child's self-esteem. The present study explores the effectiveness of the Purposive Drawing Program (PDP) to treatment dysgraphia disorder. The population of this research includes 493 girl students in first grad of primary schools with dysgraphia disorder. A sample comprised of 40 subjects that were randomly assigned into two experimental and control groups, 20 subjects in each one. *Wechsler* Intelligence Scale for Children (WISC-R), the Attention Deficit Hyperactivity Disorder (ADHD), Conduct Disorder test (CD) and a research made spelling test were research instruments. Results of t-test and Analysis of Covariance showed that that change in the dysgraphia disorder for the experimental group is significantly more than the control group and the PDP reduced disorders of writing and spell Deficits. Thus, the PDP is effective in dysgraphia disorder treatment.

Key Words: Learning, Dysgraphia, Purposive drawing program.

INTRODUCTION

In the last decade, there has been increasing importance to investigate on LD (D'Amico and Passolunghi, 2009). The National Joint Committee on Learning Disabilities (NJCLD) defined LD as a neurological dysfunction that may be reflected in cognitive problems, such as understanding, reading, writing, and doing math. This definition was accepted by most researchers now (Freilich and Shechtman, 2010). Discrepancy, heterogeneity, and exclusion are the essential components in the definition of LD (Fletcher, Foorman, Boudousquie, and Barnes, 2002). The assessment of LD is influenced by the operational definition that accepted by the United States Office of Education. Accordingly LD is a discrepancy between achievement and mental ability in one or more of the following subjects: 1) oral expression; 2) listening understanding; 3) written expression; 4) basic reading skill; 5) reading understanding; 6) mathematics calculation; or 7) mathematic reasoning. Therefore, if the inconsistency between intellectual ability and achievement be affected by a visual, hearing, or motor handicap; mental retardation; emotional disturbance, or social difficulties or economic disadvantage are not identified as LD Freilich and Shechtman, 2010).

Dysgraphia is an LD; in which children with normal intelligence have difficulties in writing by hand and visual-motor deficiency. Dysgraphic children may have difficulty in required speed of writing and doing homework needs continuous long hours that results in unreadable handwriting (Rosenblum and Aloni, Josman; 2010). Dysgraphia may stem from neurological damage (Del Castillo, et al, 2010) and organizational ability deficits

(Rosenblum and Aloni, Josman; 2010). The children with dysgraphia learning a shallow orthography suffer deficiencies in delayed acquisition of the sub-word-level routine together with deficiency in orthographic lexical acquisition (Zoccolotti and Friedmann, 2010). Smits-Engelsman and Van Galen (1997) revealed that control of spatial accuracy rather than allograph retrieval or size control differentiates dysgraphic children from normal differences of psychomotor development. Rosenblum, Dvorkin and Weiss (2006) indicated that dysgraphic children have not a completely automated process, and their handwriting may be slow and unclear. Therefore legibility, performance time and visual-motor skills are important in dysgraphic assessment (Fletcher, Foorman, Boudousquie and Barnes, 2002). The dysgraphic measures include the number of the raw segments, reverse segments, letters per minute, and the mean of "In-Air" time between letters. Writing problems are pervasive in children with dyslexia and spelling problems (Ibid).

On the other hand, art therapy contributes to children with LD. For example, Freilich and Shechtman (2010) indicated that art therapy influences in adjustment of children with LD and their academic achievement. Art therapy brings to consciousness repressed emotions and allows exhibiting them through the images created. Drawing therapy is a suitable replacement for behavior modification programs (Carrigan, 1993). It is also argued that free drawing and painting can treat Dysgraphia (Tabrizi, 2009, and Alizadeh, 2007).

Accordingly, this study investigated the effect of the Purposive Drawing Program (PDP) on treatment dysgraphia disorder in spelling tests in first grade children. Therefore, a hypothesis that was examined in this research is that "Significantly different effects on the dysgraphia disorder of Grade 1 students will result from the PD program."

METHODOLOGY

The study employed an experimental method with the design of two groups of control and experimental and pretest. The participants were matched in two groups according to their dysgraphia disorder in spelling in the pretests. Each group was assigned randomly to the control or experimental group. Only the students in the experimental group participated in the PDP. The PDP ran for forty five days over twelve sessions. During this time the control group participated in a regular artistic program. The design of the research can be presented as follows:

$O_1 O_2 M R \rightarrow X \rightarrow O_3$ — Experimental Group
 $O_1 O_2 M R \rightarrow Y \rightarrow O_3$ — Control Group

O_1 — pretest, O_2 — *distinguisher* tests, O_3 — posttest, M — matched by results of pretest, R — random assignment, X — participated in the PD program, Y — no participation the PD program.

The statistical population for this research comprised of 493 female students in first grad of primary schools with dysgraphic disorder. Sampling was conducted purposively. The pretest showed that 87 students had severe dysgraphic disorder that the sample selected from this group. A sample comprised of 40 subjects that randomly, 20 subjects were assigned into experimental and 20 subjects in control groups. Statistical analysis was conducted using the t- test for two independent samples.

Instruments

Wechsler Intelligence Scale for Children (WISC-R), the Attention Deficit Hyperactivity Disorder (ADHD), and Conduct Disorder test (CD) as *distinguisher tests were conducted in the pretest. Validity and reliability of these tests are obtained by a lot of researches.* A researcher made spelling test was administrated in the pretests and posttests as a research instrument to assess dysgraphia disorder. Its validity was obtained by 6 primary teachers and its reliability obtained 0.85 by using retest.

Content of the Purposive Drawing program (PDP) was conducted in 20 hours and 10 sessions that are outlined as follows:

1) *First session, enhancing the accuracy:* Drawing teacher gave practices to students in working with pencil, seating in the proper manner on the bench; putting sheet on the table in the proper manner. She also taught the students to learn an practice on painting, working with pencil; drawing various shapes of border boxes by small shapes such as square, triangle, circle, plus and cross signs, and small flowers.

2) *Second session, enhancing the accuracy and enhancing visual and auditory perception:* Around the paper that is provided in the first session training, was decorated as a cadre according to students' interest by using shapes such as small squares or circles and triangle. Then Drawing teacher trained the students to draw familiar and simple shapes such as people, houses, trees and balloon in the border box.

3) *Third session, Learning and conducting of order, enhancing accuracy and visual and auditory perception:* students learnt to draw the border box around paper with consecutive triangles and circles. They also drew inside the cadre two similar trees and a different tree, and two consecutive short and long mountains.

4) *Fourth session, enhancing visual memory:* a cadre was prepared with trained shapes such as small flowers or small squares or other shapes. Whales and fish were drawn on the class board by using a few curved lines on wave. The students were asked to look at the drawn shapes. Then painted shapes were erased from the class board and the students were asked to remember what they had seen and draw it.

5) *Fifth session, enhancing auditory memory and enhancing accuracy:* two simple, short and attractive stories were narrated and the students were asked to listen and then, to draw one of the two stories that they had heard.

6) *Sixth session, assessment and enhancing perception and accuracy of students:* First, an image that represents the desert and drought, with which full of thorns and rocks and snakes were introduced and described for students, then they were asked if the drought ends and it rains, how will this change and what Things will be replaced by the desert and drought. The student drew new situation according to description.

7-10) *Seventh to tenth sessions, enhancing accuracy, enhancing visual and auditory perception and enhancing visual and auditory memory:* in four sessions drawing by words and numbers were taught to facilitate the students' drawing. This task was very interesting and attractive for the students.

RESULTS

The results of comparing the pre tests showed there were no significant differences between the two groups in regards to the dysgraphia disorder ($M_e = 1$, $M_c = 1$, $t = 0.06$, $df = 38$, $p \geq 0.05$) This result shows that the two groups were matched at starting of the study.

Hypothesis: Significantly different effects on the dysgraphia disorder of Grade 1 students will result from the PDP.

For this analysis, the subtractions of pretest from posttest were obtained (changes from pretest to posttest) and the mean scores of experimental and control groups were compared by using t test for two independent groups. The use of the t test with Equality of Error Variances, $F = 0.0$, $p \geq 0.05$ showed the following results.

Table 1: Results of the changes in dysgraphic disorder from pre test to post test

Groups	Mean	Std. deviation	df	t	Sig.
Experimental	-3.73	4.1	38	2.87	0.007
Control	-0.05	4.9			

Table 1 shows that the mean score of changes for the experimental group, $M = -3.73$, $Sd = 4.1$, is significantly more than the mean score of changes for the control group, $M = -0.05$, $Sd = 4.9$, $t(38) = 2.87$, $p \leq .007$. That is, change in the dysgraphic disorder for the experimental group that participated in the PD program, become significantly lower than the dysgraphic disorder in the control group.

DISCUSSION

The learning disorder (LD) may involve speaking, listening, and basic reading, reading comprehension, math calculations, math reasoning and written expression. Therefore its treatment is important and this research is to investigate on effects of the Purposive Drawing Program (PDP) in treatment of dysgraphia disorder.

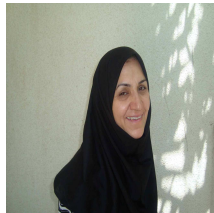
Hypothesis: Significantly different effects on the dysgraphia disorder of grade 1 students will result from the PDP.

Results of examination of this hypothesis indicated that change in the dysgraphic disorder for the experimental group is significantly more than the control group. That is, the PDP reduced the dysgraphic disorder in the spelling of first grade students more than control group. Therefore it can be suggested that the PDP is influence in reduction of the dysgraphic disorder.

This finding supports Edalati (2005) results that showed drawing is effective to improve students' spelling and their interest toward it. Tabrizi (2009) argued that drawing desirable lines by using fine liner pen, small whiteboard and smooth chalk is effective for treatment of dysgraphic disorder. Furthermore, this result is in agreement with Freilich and Shechtman (2010) findings that showed that art therapy contribute to progress in academic achievement. Carrigan (1993) argued that drawing therapy can be a good replacement for behavior modification programs. Alizadeh (2007) argues that dysgraphia is treated through free drawing and painting.

This research indicated that the PDP reduced the dysgraphic disorder in the spelling of first grade students. Therefore, learning and conducting of order, enhancing accuracy, enhancing visual and auditory perception and enhancing visual and auditory memory is an effective program for reducing of dysgraphic disorder in students of first grade of primary schools.

BIODATA AND CONTACT ADDRESSES OF AUTHORS



Zahra NIKMANESH is assistant Professors at psychology in University of Sistan and Baluchestan. She graduated in Ferowski of Mashhad University. She received his PhD in Alzahra University. Her research interests are thinking style, risk taking behavior, spirituality and attachment. She co-authored a book and authored, co- authored, or presented lots of articles in journals and conferences.

Dr. Zahra NIKMANESH
Assistant Professors,
University of Sistan and Baluchestan,
Zahdan, IRAN
E. Mail: zahranikmanesh@yahoo.com



Yahya KAZEMI is assistant professor at Education in University of Sistan and Baluchestan. He graduated in Ferowski of Mashhad University. He received his PhD in Tarbiat Moallem University. His research interests are thinking, self control and emotional development. He authored or co-authored four books and authored, co- authored, or presented lots of articles in journals and conferences.

Dr. Yahya KAZEMI
University of Sistan and Baluchestan,
Zahdan, IRAN
E. Mail: Yahya_kazemi@yahoo.com



Zahra KHERADMAND is a postgraduate student in Islamic Azad University, Zahdan Branch. She received her bachelor degree in Azad University. Her field of study has been Primary Educational. She received her postgraduate degree in Birjand Azad University and her field of study was exceptional children. Her major research interests are methods of counseling and exceptional children.

Zahra KHERADMAND
Azad University, Birjand Branch,
Zahedan, Iran
E. Mail: tmresalat@gmail.com

REFERENCES

Alizadeh, H. (2007). *Drawing Applicability in treatment of Exceptional Children. Journal of Exceptional Education, 30(3)*, 3-11.

Carrigan, J. (1993). Painting Therapy: A Swiss Experience for People with Mental Retardation. *American Journal of Art Therapy* 32 (20), 53 – 59.

D'Amico, A. and Passolunghi, M.Ch. (2009). Naming Speed and Effortful and Automatic Inhibition in Children with Arithmetic Learning Disabilities. *Learning and Individual Differences*. 19 (2), 170–180.

Del Castillo, M.C.F., Jesus Maldonado Belmonte, M., Luz Ruiz-Falcó Rojas, M., Ángel López Pino, M., Bernabeu

Verdú, J., Suárez Rodríguez, J.M. (2010). Cerebellum Atrophy and Development of a Peripheral Dysgraphia: A Paediatric Case. *Cerebellum* London England, 9(4), 530-536. Available from: www.ncbi.nlm.nih.gov

Edalati, S.S. (2005). Teaching Spelling to Deaf Student through Drawing. *Exceptional Education Journal*, 30 (1), 60-68.

Fletcher, J.M., Foorman, B.R., Boudousquie, A., Barnes, M.A. (2002). Assessment of Reading and Learning Disabilities A Research-Based Intervention-Oriented Approach. *Journal of School Psychology*, 40 (1), 27–63.

Freilich, R. Shechtman, Z. (2010). The Contribution of Art therapy to the social, emotional, and academic adjustment of children with learning disabilities. *The Arts in Psychotherapy*. 37 (2), 97-105.

Rosenblum, S., Aloni, T., Josman, N. (2010). Relationships between Handwriting Performance and Organizational abilities among Children with and without Dysgraphia: a Preliminary Study. *Research in Developmental Disabilities*. 31 (2), 502–509.

Rosenblum, S., Dvorkin, A.Y. and Weiss, P. L.(2006). Automatic Segmentation as a Tool for Examining the Handwriting Process of Children with Dysgraphic and Proficient handwriting. *Human Movement Science*. 25 (4-5), 608-621.

Smits-Engelsman, B.C.M., and Van Galen, G.P. (1997). Dysgraphia in Children: Lasting Psychomotor Deficiency or Transient Developmental Delay? *Journal of Experimental Child Psychology*, 67 (2), 164-184.

Tabrizi, M. (2009). *Treatment of Spelling Disorder*. Tehran: Agah Publication.

Zoccolotti, P., and Friedmann, N. (2010). From dyslexia to dyslexias, from Dysgraphia to Dysgraphias from a Cause to Causes: a Look at Current Research on Developmental Dyslexia. *Cortex*. 46(10), 1211-1215.