



Improving Third Grade Primary School Dictation Disorder

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ABSTRACT

The present study was to compare the effects of *Fernald multi-sensory teaching method* and *sensory integration* on improving the dictation disorder on third grade primary school students with dysgraphia in Tehran. Pretest posttest method was done on control group. The study population consisted of all the primary third grade female students suffering dictation disorder in normal schools in Tehran (2011-2012). The study samples were selected through multi-stage random sampling from some schools and randomly divided into three 10-person groups. The dysgraphia test and Raven's color IQ test were conducted. Data were analyzed via analysis of variance. The results showed that the multi-sensory approach and sensory integration were effective in improving their dictation. In other words, the hypothesis was accepted with 95% confidence. On the contrary, the results of both tests showed there was no significant difference between improvement in accuracy and mirror dictation disorder. Therefore, the hypothesis was rejected with 95% confidence. The findings can be effective in enhancement and retention of training the students who cannot progress through the implemented methods in schools.

Keywords: Fernald vs. sensory integration, dictation disorder

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INTRODUCTION

There are many students who have difficulty in dictation and get lower marks with regard to the number of errors they commit. Teachers and parents often resort to the following ways to enhance their dictation. For instance, they children advice and ask them to do more effort. Or they humiliate, blame and punish them. Plus, they start blaming and criticizing teachers, other parents and even other family member. They also ask children to write correct form of the words they have problem with several times. Parents ask students to look up the words in newspaper or magazines and write the correct form of the misspelled word. She/he is asked to write the correct form of the misspelled words or just copy written texts containing the same words with a different color to sustain them in his/her mind.

Now this question is raised whether repeated practices can lead to the child's learning. Can these advice or blames, and other reactions be generalized to other categories and word groups? The answer to the questions is: the types of errors done by children in spelling and dictation are not one type so that they can correct them and progress (Iranikhah, 2006). The most common writing disorder is failure in spelling (dictation). Spelling difficulties may indicate the fundamental problems in phonological processing, especially in cases where the child is unable to identify the phonetic units of a word. This child will most probably not be able to accurately combine letters to make words (Lerner, Egan, & James, 1997). Spelling is sorting letters to form words. Spelling plays an important part in writing and classroom activities. Students with learning disabilities compared to their normal

counterparts commit more errors in spelling and it is possible to use educational spelling strategies. Awareness of phones affects the correct spelling (Shokohi Yekta Parand M, 2006). However, it should be noted that most of the letters in various words are pronounced with different tones, so we should not only rely on phonology in teaching spelling (Shokohi Yekta Parand M, 2006). Clinical results revealed that students suffering the problem are not able to write words with similar phoneme but different letters. For example, the phoneme /t/ has two forms, or /s/ has three letters in Farsi. While writing, they might miss or skip some letters and words, or they add or remove some letters in some words. Therefore, the necessity of applying the appropriate teaching methods to improve students' spelling problems is raised (F. Baezzat, 2008).

These students have difficulty in almost all stages of the writing process because writing requires the use of various skills and cognitive abilities. It is noted that studies on meta-cognitive knowledge of learning strategies have shown that the students suffering learning disabilities are less developed in meta-cognitive processes related to the selection and use of learning strategies. For example, students with learning disabilities are less aware of writing strategies and discipline their writing processes less than others. In writing the dictation, sounds are converted to the corresponding characters. Here, the child should be fully aware of the paradoxical rules for converting sounds to proper characters.

Ellis (2014) introduces a two-root model for reading and spelling (dictation) and also two phonemic routes (Auditory) and orthography (visual). She believes that one uses one of the two paths in reading and spelling. Accordingly, the child's errors are either due to deficiency in auditory track, visual track or both (M. Baezzat & Izadpanah, 2008). Nabifar's study on the frequency distribution of spelling errors of second graders showed that most of the children's errors were related to visual information (Nabifar, 2006). As well, a study where dictation was evaluated textually and word by word showed that: a) The wrong application of homophonous letters is among the most is important and frequent dictation errors which cover more than half of all the spelling errors. b) There is a direct relationship between the number of characters of each phoneme and the frequency of errors occurring in the characters of that phoneme. c) Students relatively tend to use just one letter from among homophonous letters.

Also, studies have shown that most errors made by a child result from problems in orthography. Processing the forms of Persian dictation which are written by using linguistic information is easier than those which are written by using non-linguistic (visual) information. Snowling (1998) carried out a study to develop a standard dictation test. It was found that retention of words is done with a higher speed and more accuracy when students' experience and the learning rate of their dictation skills increase.

As a result, the number of dictation errors will decrease. Thus, writing dictation entails numerous sub-skills and abilities, including word reading, awareness, complete skillfulness in phonetic relations and word parts, fulfillment of optimal vocal generalizations, visualization of the shape

and appearance of the word, movement flexibility, and/ or easy writing. Dictation difficulties may be due to a defect in any of the above sub-skills or a combination of them. Writing skill needs such skills as the proper understanding of the word, legible writing, and grammar.

However, colloquial expressions of words and formal writing of them do not match each other. In many instances, the difficulty of learning is combined with other difficulties and problems such as insufficient teaching, long and frequent absences of children, crowded classes, and similar items. Hooper, have noted that the studies carried out on the epidemiology of writing disorders are very few, and this has made it difficult to determine the possibility of prevalence of the disorders. In DSMIV, this problem is due to the fact that most studies have referred to the frequency of learning disabilities in general without distinguishing specific reading, arithmetic or written expression disorders. However, disorder of written expression, without cooperating with other learning disabilities, is enormous. The outbreak of the disorder of written expression is unknown, but similar to reading disorder it includes 4% of school-aged children. This disorder happens to boys 3 times as common as in girls. This disorder is known to be diagnosable from the second grade of primary schools onwards, but it will also be diagnosable in the first grade students where the disorder is severe. The current therapies to treat this disorder are very trivial and almost useless in all the students suffering written expression disorder and it is hoped that this technique can be effective in improving the above disorder in children. It is worth noting that this technique will possibly be able to effective in reducing the cost of training these students and will be also appropriate in changing the method of teachers in teaching students with special needs. In (Ayres, 1972), helping children with learning disabilities is addressed which is referred to as treatment based on sensory integration in this theory. He claims that integrated processing results from perceptions and the ability of making sensory information in effective interaction with the environment will help the sufferer. He contributes to the brain to reach optimal performance with improving nervous dysfunction that might interfere with the child's learning ability. After receiving sensory information, the central nervous system filters, mixes, and then matches them. As an ongoing process, it continues in all life circumstances of the person. The mixed and coordinated sensory information that leads to the production of meaningful packages of sensory information is known as sensory integration (Sanandaji, 2006). Given the importance of this subject, this study is an attempt to compare the effects of Fernald multi-sensory teaching method and sensory integration on improving the dictation disorder in third grade primary school students with dysgraphia in Tehran.

The findings of this study particularly can be used at schools and institutions that attempt to hold extracurricular classes for children with learning disabilities and generally can bring about a big change in the overall system of education for improving writing dictation disorders. It is hoped that these findings can help us achieve this important goal.

METHOD

The study population of the present study consisted of all the primary third grade students suffering dictation disorder who were studying in female normal schools of all the educational districts in Tehran in the educational year 2011-2012. For data collection, due to the characteristics of the subject, limitations arising from the subject and also the scope of the variables of the study population; an experimental method was used. Since monitoring the intervening and irrelevant factors in a lot of scientific researches is difficult, if not impossible, using random assignment has many obstacles. Very serious and continuous efforts should be made so that the groups under study become comparable. In addition, the reasons for criticisms leveled against randomization, particularly in pedagogical studies are crystal clear.

The present sample consists of all the primary third grade students suffering dictation disorder who were studying in female normal schools of all the educational districts in Tehran in the educational year 2011-2012. With regard to present research method, 30 primary third grade students suffering dictation disorder of Tehran constituted the study sample that were selected through multi-stage random sampling from some schools and were randomly divided into three 10-person groups. The first group received Fernald multisensory treatment and the second group sensory received sensory integration treatment. One group was also selected as a control group. It is noted that the three groups were randomly and purposefully selected at one stage. The design of the present research is a pretest posttest method with control group. First, the above schools were identified in different areas of Tehran.

After examining the educational records of students and talking with teachers about the students are suffering dysgraphia and dictation disorder, we identified these individuals. Thereafter, dysgraphia test was conducted on these individuals one by one and the obtained results were separately recorded in a special table. Finally, they were randomly divided into three 10-person groups based on their IQ (first and second experimental groups and control group). And students with IQ from 90 to 110 were identified through IQ test. The therapy program of sensory integration was administered to the experimental group; Fernald multisensory treatment method was administered to the second experimental group; and no treatment was administered to the control group. At the end, the three groups were given the necessary posttests. In Fernald multi-sensory approach, using all of the senses (the visual, auditory, and tactile senses) is at play for children suffering learning disabilities. This method is called "intuitive prosecution". Through this prosecution method, fingers add to the visual and auditory senses for learning.

INSTRUMENTATION

Dysgraphia test and Raven's IQ test for children were the instruments used in this study. Many techniques are available to evaluate dictation. Compared to published tests, informal tests provide more usable results for training these children

due to the strengths and weaknesses of the students. Through informal scales, deeper information is often obtained from dictation progress. The method is widely used. It defines the spelling error patterns well. However, in the study, Tabrizi's Dysgraphia test (Tabrizi, 1997) was conducted. This test is dysgraphia which has been constructed by Mostafa Tabrizi in Tehran Psychiatric Institute Center (Centre for Mental Health Research) in 1995 and contains 65 questions. This test has been developed to measure visual memory, auditory sensitivity, accuracy of mirror writing, visual sequencing memory, visual differentiation, accuracy, and dysgraphia. The test was administered to each individual separately and its scoring was done based on the scores obtained in the mentioned applied items. The reliability of this test is 74%. Raven's Progressive Matrices are used for respondents of 5-65-year age group. This test was developed in 1928 by Panrooz and Raven and consists of 60 pictorial questions. In 1974, the second version of the test- known as Raven's coloured IQ test for children- was proposed to create motivation in children, attract the attention of children, and retain their accuracy. In doing so, a large number of pictures in color were provided so that the nature of the picture can become clearer for children. The best application of this test is for 10-18-year age group and is appropriate to measure the mental development of children in junior high school and senior high school. This test can be performed individually or in groups.

DATA ANALYSIS

According to the research findings in relation to the present research hypotheses, the followings are discussed below:

Research Hypothesis 1- There is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment. The result of statistical test of research hypothesis showed a significant difference with interval confidence of 95 percent between the improvement degree of Fernald multisensory approach and that of sensory integration method on third grade primary students with dysgraphia.

Tukey and LSD test results (multiple comparisons of means two by two) showed that there is no significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment. In contrast, the effectiveness of both teaching methods (Fernald multisensory and sensory integration methods) to improve dictation disorder (educational) in students with dysgraphia is significant. However, the effect of Fernald multisensory method on improving dictation disorder (educational) slightly outweighs the other one.

Table 1. One-way ANOVA table (difference between pre-test and post-test)

Sources of change	Sum of squares	Degree of freedom	Mean squares	f value	Significance level
Between groups	79.40	2	39.70	18.04	0
Within groups	59.40	27	2.20		
Total	138.80	29			

Table 2. Output table of Tukey test, two by two multiple comparisons of the means

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0.5	0.640
	c	2.0	0.004
Sensory integration	a	0.5	0.640
	c	1.5	0.031
Control	a	2.0	0.004
	b	1.5	0.031

Table 3. Output LSD multiple comparisons of means and determining more successful methods in improving dictation

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0.5	0.370
	c	2.0	0.001
Sensory integration	a	0.5	0.370
	c	1.5	0.012
Control	a	2.0	0.001
	b	1.5	0.012

Research Hypothesis 2- There is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of visual memory. The result of statistical test of research hypothesis showed the existence of a significant difference with interval confidence of 95 percent in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of visual memory. LSD and Tukey test results (multiple

comparisons of means two by two) showed that there is no significant difference in the degree of dictation disorder between third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of visual memory. In contrast, the effectiveness of both teaching methods (Fernald multisensory and sensory integration methods) to improve dictation disorder (visual memory) in students with dysgraphia is significant. However, the effect of Fernald multisensory method on improving dictation disorder (visual memory) slightly outweighs the other one.

Table 4. One-way ANOVA table (difference between pre-test and post-test)

Sources of change	Sum of squares	Degree of freedom	Mean squares	f value	Significance level
Between groups	55.40	2	27.70	10.54	0
Within groups	70.90	27	2.62		
Total	126.30	29			

Table 5. Output table of Tukey test, two by two multiple comparisons of the means

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	B	0.5	0.77
	C	3.10	0.001
Sensory integration	A	0.5	0.77
	C	2.60	0.004
Control	A	3.10	0.001
	B	2.60	0.004

Table 6. Output LSD multiple comparisons of means and more successful methods in improving dictation disorder

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0.5	0.49
	c	3.10	0
Sensory integration	a	0.5	49.0
	c	2.60	0.0001
Control	a	3.10	0
	b	2.60	0.001

Research Hypothesis 3- There is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of auditory sensitivity. The result of statistical test of research hypothesis showed the existence of a significant difference with interval confidence of 95 percent in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of auditory sensitivity. LSD and Tukey test results

(multiple comparisons of means two by two) showed that there is no significant difference in the degree of dictation disorder between third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of auditory sensitivity. In contrast, the effectiveness of both teaching methods (Fernald multisensory and sensory integration methods) to improve dictation disorder (auditory sensitivity) in students with dysgraphia is significant. However, the effect of Fernald multisensory method on improving dictation disorder (educational) slightly outweighs the other one.

Table 7. One-way ANOVA table (difference between pre-test and post-test)

Sources of change	Sum of squares	Degree of freedom	Mean squares	f value	Significance level
Between groups	48.26	2	24.13	19.62	0
Within groups	32.20	27	1.23		
Total	81.46	29			

Table 8. Output table of Tukey test, two by two multiple comparisons of the means

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0.8	0.25
	c	3.00	000
Sensory integration	A	0.8	0.25
	c	2.20	000
Control	A	3.00	000
	b	2.20	000

Table 9. Output LSD multiple comparisons of means and determining in improving dictation disorder

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0.8	0.118
	c	3.00	000
Sensory integration	A	0.8	0.118
	c	2.20	000
Control	A	3.00	000
	b	2.20	000

Research Hypothesis 4- There is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been

treated with sensory integration method, and those peers who have not received any treatment in terms of accuracy and mirror writing.

Table 10. One-way ANOVA table (difference between pre-test and post-test)

Sources of change	Sum of squares	Degree of freedom	Mean squares	f value	Significance level
Between groups	0.06	2	0.03	0.50	0.61
Within groups	1.80	27	0.06		
Total	1.86	29			

Table 11. Output table of Tukey test, two by two multiple comparisons of the means

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	B	0.0	1.00
	c	0.1	0.66
Sensory integration	A	0.0	1.00
	c	0.1	0.66
Control	A	0.1	0.66
	b	0.1	0.66

Table 12. Output of LSD multiple comparisons of means and determining in improving dictation disorder

Group (I)	Group (J)	Mean difference(I-J)	Significance level
Fernald multisensory	b	0	1
	c	0.1	0.39
Sensory integration	a	0	1
	c	0.1	0.39
Control	a	0.1	0.39
	b	0.1	0.39

The result of statistical test of research hypothesis showed the existence of a significant difference with interval confidence of 95 percent in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of accuracy and mirror writing. LSD and Tukey test results (multiple comparisons of means two by two) showed that there is no significant difference in the degree of dictation disorder between third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of accuracy and mirror writing. Similarly, the effectiveness of both teaching methods (Fernald multisensory and sensory integration methods) to improve dictation disorder (accuracy and mirror writing) in students with dysgraphia is not significant

DISCUSSION AND CONCLUSION

The results of this study showed the existence of a difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment. The present research findings were consistent with those of Mandani and Gharehbaghi. In Mandani's study on investigating the effect of therapy interventions of visual motor integration for children with specific learning disabilities, 23 patients from second, third, and fourth grade primary students referring to the special problems learning center in Tehran were chosen. The experimental results showed that therapeutic interventions on visual motor integration skills in children with specific learning disabilities have been significantly effective. On the other hand, Gharehbaghi examined the effect of sensory stimulation (vest and saddle) on the motor skills and attention of children with learning disabilities. He found that sensory stimulation based on vest and saddle was

statistically effective in motor skills, but the effect was not that much great. Therefore, this technology can be benefited to improve motor skills in children with learning disabilities. The results of this study showed the existence of a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of visual memory. Sourtchi (2008, cited in Sanandaji) a research investigated the simultaneous effects of both superficial and deep senses on the dexterity of children (6-7) years old with Down syndrome. The results indicate that superficial sensory stimulation is revealed earlier while the effects of deep sensory stimulation on dexterity are more effective in the long run. In total, the group who had benefited from the stimulation of the mentioned simultaneous senses showed more progress than other groups. According to the results of this study, it is suggested to use simultaneous and deep stimulation of the skin surface. As well, it is possible to increase the amount of sensory stimulation. In a review article concerning the relationship between theory and diagnosis of sensory integration therapy, Human and Bamister suggest the existence of serious doubt for treatment while validity and usefulness are at play for treatment. It implies the treatment of clinical population in the question of learning disabled children and is used for other groups diagnosed with sensory integration function with extension. Turgsen conducted a research on children suffering severe learning disabilities. This study compared the effectiveness of various interventionist methods to improve children. One group benefited conventional plans in normal classes. The second group was trained with phonemic substitutions and movements on reading texts. The third group was treated with direct instruction in phonemic awareness using a multisensory approach. Individuals who were trained with direct phonemic instruction through multisensory approach and embossed letters and sounds outperformed those who were trained with phonemic substitutions with the emphasis of words on reading texts in decoding and encoding of words and also showed superior ability of abstract thinking.

The results of this study showed that there is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of Hearing sensitivity. Stanfield & Stein (1998) found SI an effective method in contributing to the progress in the performance of children with learning disabilities in the 12 different areas of their study. They did this by means of the implemented techniques of sensory integration for children with learning disabilities, responses received from parents, teachers and therapists' investigation.

Regarding the effect of training via Fernald multisensory approach on the reduction of dictation errors, ShahiniYeilagh et al (2002) showed that this method leads to the reduction of their dictation errors. Also, the results of the follow-up test after 1 month showed that this improvement was significantly stable in the experimental group. In this regard, FatemehShiri conducted a study on the effect of Fernald multisensory approach on the elimination or reduction of dictation disorder in male students of Tehran. The result was indicative of the positive effect of Fernald method on the elimination and/ or reduction of dictation disorder with the interval confidence of 95 percent. The results of this study showed that there is a significant difference in the degree of dictation disorder among third grade primary school students with dysgraphia who have been treated with Fernald multisensory approach, their peers who have been treated with sensory integration method, and those peers who have not received any treatment in terms of accuracy and mirror writing. These research findings carried out a study entitled "comparative study of Delacato treatment method and Fernald multisensory approach in order to solve the dictation problems of second grade students of Kashan. The effect of Fernald multisensory approach was proved with the interval confidence of 95 percent. A research study on the frequency of dictation errors was conducted. This study entitled "examining the causes of dictation problems in children" was done on all second, third, and fourth grade students (6111 students) of schools of district 5 of Tehran. The results indicated that the most frequent causes of dictation problems were educational-based, accuracy, auditory sensitivity, visual memory, dysgraphia, auditory memory, sequential visual memory, respectively. On the other hand, NikiJafarian did a study entitled "comparative investigation of the effect of Sina

teaching method and Fernald multisensory approach on betterment of dysgraphia in second grade students of Mashhad". The results were suggestive of the superiority of Sina teaching method in the elimination and reduction of dictation disorder with the interval confidence of 95 percent.

In a study entitled, the application of Sina teaching tool in training students with dysgraphia, Bahari (2006) showed that it is possible to reduce different errors such as deletion and dropping of letters and substitution errors by using new words and letters. In a study entitled the impact of multisensory teaching on writing skills in primary school students with dysgraphia, concluded that practicing restorative multisensory program for 13 weeks, 2 45-minute sessions per week by special teachers promote reading and writing skills.

LIMITATIONS OF THE STUDY INCLUDE

Limiting the study population to Tehran Time constraints of running the project, School officials did not cooperate, despite numerous attempts made by project partners. For example: the experienced psychologist in partnership was bound to offer advisory services as an honorary to all the grades (especially the third, fourth, and fifth grades) one day a week during the school year so that teachers opt for the required cooperation. Some parents objected to the selection of their child as the sample, for example, (students with dictation disorder). Our psychologist attempted to placate the parents that the sample selection was done randomly and their child has no difference with other students. Small sample size precluded their random selection; therefore, generalizability declined. Since the students' exams were to start and there was little time for practicing the education programs, it was carried out in the shortest possible time. Other projects are suggested to be done in other cities. Sensory integration training needs to be done in schools and learning disabilities centers so that the incorporation of this sensory integration training and learning centers can get activated in higher brain levels and lead to processing improvement. In conclusion, it can bring about the betterment of performance and behavior. Effect of sensory integration therapy on other learning disorders occur at different ages should be evaluated. Research should be continued and the sustainability of the treatment result should be checked. Research on this therapeutic method should be done in other areas and different school grades.

REFERENCES

- Ayres, A. (1972). Sensory integration and learning disabilities. *Western Psychological Services. Los Angeles.*
- Baezzat, F. (2008). The Impact Of Neuropsychological Interventions In Effective Reading And Writing Skills, Final Report of Research Project. *Research and Technology Department, Shahid Beheshti University, Tehran, Iran.*
- Baezzat, M., & Izadpanah, M. (2008). *Flow-injection chemiluminescence determination of hydroxyl amine hydrochloride.* Paper presented at the Luminescence.
- Ellis, A. W. (2014). *Reading, writing and dyslexia: A cognitive analysis.* Psychology Press.
- Iranikhah, M. (2006). *Comparison of the impact of educational methods.* Fernald. Master thesis Sina and common error dictation as second to fourth grade primary school students, Islamic Azad University, Semnan, Iran.

- Lerner, J. W., Egan, R. W., & James, K. W. (1997). *Learning disabilities: Theories, diagnosis, and teaching strategies*: Houghton Mifflin Boston.
- Nabifar, S. (2006). Study and Description of in Second Grade Elementary School.
- Sanandaji, H. (2006). *Effects of sensory integration intervention of reducing symptoms of dyslexia reading 7-10 years – old school children in Tehran* MS thesis of psychology, Islamic Azad University, Tehran, Iran.
- Shokohi Yekta Parand M. (2006). *A.Learning disabilities*, . Tehran: TaiebPublication House.
- Snowling, M. (1998). Dyslexia as a phonological deficit: Evidence and implications. *Child and Adolescent Mental Health*, 3(1), 4-11.
- Tabrizi, M. (1997). *Dictation and writing disorders*. Tehran.