

*Research Article*

# Effectiveness of MURDER Method on the Improvement of Academic Performance of Children with Spelling Learning Disorder

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## Abstract

**Introduction:** One of the most important strategic goals for actualizing learners' potential abilities is using meta cognitive skills. The purpose of the present study is to examine the effect of education of Murder on the improvement of academic performance among children with learning disorder of spelling.

**Methods:** Study Design was Experimental, of the pre-test post-test type with the control group. The statistical population on the study included all students of grade 3 with dictation learning disorder in Isfahan province during the academic year 2012-2013. The sampling method was assigned by cluster random sampling. Following Delavar (2000), the study assigned 30 students with dictation learning disorder and divided them into two groups, each with 15 students. The tools used for data collection was the Yarmohamadian's and Kosanj's impairment test (2011) and Wechsler Intelligence Test. The content validity of the test based on the degree of agreement using Kendall's correlation coefficient was 0.75 to 0.82 and its reliability based on the coefficient  $\alpha$  was reported as .76 to .84. Test of Yarmohammadian and Kosanj was given to both groups as the pretest. Then, the test group was educated by MURDER method for 10 weeks and the data was analyzed by the statistical covariance analysis (Ancova), using SPSS software, version 22.

**Results:** The results showed that improvement in the experimental group's spelling was more than that in the control group who didn't receive the educational program ( $p < 0.001$ ).

**Conclusion:** In general, according to the results of the research it can be concluded that meta cognitive intervention is one of the basic skills for effective learning and can be fruitful as an effective approach in clinics, schools and even in preschools and also for families to prevent the emergence of learning disabilities and to help their treatment.

## Keywords

Learning Disabilities, Dictation, MURDER Method

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## **Introduction**

Learning inability is a common expression referred to a heterogeneous group of disorders that may appear in the form of serious difficulties in learning and applying the basic skills of listening, speaking, reading, writing, reasoning, or in the form of mathematical inabilities. It is assumed that the above-mentioned disorder may happen because of the central neural system disorder. Although learning inability may occur because of certain physical, social, and emotional conditions as well as mental deficiency or a number of environmental factors like cultural differences and improper educational facilities, it cannot be directly related to these factors [1].

There are different types of learning inabilities, dividing into two general groups: evolutionary learning inability and educational learning inability, the latter consisting of mathematical, reading, and writing inabilities. And major problems in writing are divided into the following three disorders: 1) bad or unclear handwriting; 2) disorders in writing dictation; 3) disorders in writing essays [2]. Dictation disorder is the most prevalent writing disorder [3] that was discussed in the DSM III as an important disorder in 1980. Based upon the revised 4th edition of DSM, the principle feature of the aforesaid disorder is that dictation skills are not matched with a person's calendar age, measured intelligence, and education. However, it will remarkably affect educational improvement and daily activities for which writing skills are required [4]. Ability in writing dictation is determined by language abilities like phonemics and eye movement skills especially visional-motor coordination [5]. Writing and dictation mistakes in children with dictation learning inability include omitting a part of syllables or alphabets, words scanning, pasting words or alphabets to each other, and writing words in a customized style for which there is no choice but memorization [6]. In the newest study on 8-11 year old Indian children, learning disorder prevalence was totally 15.17% and writing, reading, and mathematical disorders break out was 12.5, 11.2, and 10.5%, respectively. In Iran, Ilam Province after studying 600 students in elementary school grades three, four, and five, the prevalence rate for learning disorders was 11.4% [7, 8]. Various findings indicated that the etiology of dictation learning inability include lack of visional and hearing senses, phonological problems [9], problems in visual memory [2,10-12], problems in auditory memory [11], and problems in sensory memory [5,11]. As such, scholars in the field of learning disorders have defined a series of features for this type of disorder consisting of the difference between potential ability and actual performance, difficulty in educational learning, language disorders, special learning disorders, social-emotional problems, sensory problems, attention deficit and hyperactivity disorder, and metacognition disorders [13]. Metacognition is considered to be one of the newly appeared implications in psychology and educational science that has been widely welcomed by training planners and other educational experts. Metacognition is defined as "learning of how to learn, and more technically, how to supervise thinking and its practical application". This means awareness of self-learning or how to learn [14]. Metacognition is divided into two dimensions: metacognition knowledge and metacognition experience. Metacognition knowledge consists of three knowledge layers about "self, task, and cognitive guidelines" [15]. There are two types of interconnected metacognitions, namely "knowledge about metacognition" and "cognition adjustment and its supervision". Cognition occurs when a person is completely aware of his cognitive abilities. The second type of metacognition is the way of thinking that supervises on it [16]. Metacognition knowledge and awareness are different from each other. Metacognition knowledge is the person's clear

knowledge about cognitive weak and strong points, while metacognition awareness refers to our feelings and experiences [17]. By means of metacognition guidelines, a learner learns how to cope with a specific subject, and which approach to take; the learner also examines his/her mistakes, shapes his/her attitude towards that subject, and reflects the same in the conclusion. Metacognition guidelines help the learners to find out if they have realized what they have read or done, and which techniques to use in order to understand the subject in a better way. These skills assist the learners to refer to “what, how, when, where, and why” of learning process for their complicated cognitive activities [14].

Theoretical basis and research results indicate that metacognition and its relevant factors have direct relationship with educational success. Moreover, educational success is teachable and acquired, and is the final product of active learning process. Educational success and performance depend upon various items, each of which may affect the person’s performance in educational environment under certain circumstances. Metacognition is one of those variables having positive relationship with educational performance, learning, and comprehension. Control and review processes have interactive relationship with each other [18]. Therefore, recognizing a person’s abilities and his/her awareness about cognitive and metacognitive guidelines will lead to the improvement of learning and educational performance [6, 17, 19-28]. Metacognition has positive relation with learning and those students who believe themselves as more proficient enjoy better cognitive and metacognitive guidelines. Furthermore, they are more successful in problem solving [6, 29-33]. There are various types of metacognition guidelines. Some of these methods leading to positive results in different studies which include SQ4R, reciprocal teaching, partnership study, partnership learning, reciprocal asking, and MURDER method.

MURDER method is the abbreviation form for Mood, Understand, Recall, Detect and Digest, Expand, Review and Respond [34]. This method is the newest and the complemented form of SQ4R method that has been derived from psychological theories and studies [35]. Earlier studies on the efficacy of MURDER method have indicated its positive influence on learning improvement. For example, Danserau [34] has stated in his research that efficacy of training programs based on the above method leads to the increase in the application of knowledge in people. Taking into account the fact that the MURDER method is designed for the university and high school students and that there is still no other such method inside or outside Iran designed for elementary levels with learning disorder, the aim of this research is to examine the efficacy of metacognition training on the improvement of children’s dictation with dictation learning deficits. Is metacognition training based on the MURDER method effective for the improvement of dictation in the students with dictation learning deficits?

## **Methods**

Research method in this study was an experimental one using pre-test and post-test plan with the control group. Statistical society consisted of all the students with dictation learning deficit in elementary level in Isfahan in the education year 2013-2014. To select the sample, the researchers applied the multi-stage sampling method [36] for both test and control groups and total 30 students were selected randomly. As such, four educational regions were selected randomly from six regions.

Of these four regions, 10 elementary schools were selected and 2 classes were chosen randomly from the elementary schools of each region (totally 10 elementary

schools and 20 classes). Dictation deficit pre-test was taken from the 30 selected persons. The test group received teaching via the MURDER method, but the other group was taught as the control group without any educational program (within 10 weeks, 2 hours per week).

The criteria for entering this research included having normal intelligence, dictation disorder, lack of hyperactive disorder and physical, mental, sentimental problems. In addition, the student should not be put under any therapies and psychological intervention to improve his/her dictation disorder. He must have complete satisfaction for participating in this study. The exit criteria included having intelligence problems and having psychological, physical, sentimental, and temperament disorders, being put under medical or behavioral therapies for the improvement of dictation disorder, being absent in three therapy sessions, and not having satisfaction for entering the research groups. We have to acknowledge that all the students were assured that all educational and personal data would be kept confidential and that they would be informed of the research process. Likewise, the control group was put under psychological intervention after the training course. The test group, after receiving the training course, took the dictation disorder post-test. In the present study, Wechsler Intelligence test (Wechsler, 1949) was applied in order to collect data. Reliability of the above-mentioned test was 44-94% in the re-test stage and reliability coefficients of sub-tests division was reported from 43 to 94% [37]. Wechsler Test for Children was applied for the verification of normality of the students' intelligence in test and control groups. Another tool was the dictation disorder test. This test was proposed by Yar Mohammadian & Koosanj [38] for the second, third, and fourth grades at elementary level, including 9 sub-scales. Content validity of the aforesaid test by means of Kendall's Coefficient of Concordance was 75-82%. Face validity for this test based upon MANOVA analysis and Co-variance analysis was 85%. Reliability of this test as per Alpha Coefficient was 0.76 to 0.84% and the same was 0.78 to 0.81% according to the re-test. In addition, children were interviewed by clinical experts in order to verify their dictation learning disorder. In the present study, descriptive statistics including Average and Standard Deviation and the inferential statistics consisting Co-variance Analysis (in order to increase internal validity and control the influence of pre-test on dependent variable) were applied. SPSS Software Ver. 21 was used for data analysis.

## Results

In this section, two separate parts will discuss the classification of the collected data and their analysis. First, descriptive analysis (table of average and standard deviation values) is provided and inferential analysis of the findings (Co-variance analysis) is given consequently.

Table 1: Mean and standard deviation of the experimental group before and after the test

stage	source	Image writing	Error tracking	Error tracking	Correct tracking	Word making	Filling-in	Recognition of unisnant alphabets	Words recognition	Dictation text
Pretest	Mean	1.60	3.86	1.73	2.66	1.46	1.93	1.46	0.86	17.40
	SD	0.63	1.72	0.88	1.49	0.63	1.03	0.83	0.35	5.82
Posttest	Mean	3.73	10.53	4.13	8.13	2.86	4.40	5.60	2.66	42.73
	SD	0.45	1.24	0.74	1.50	0.35	1.18	2.02	0.81	5.75

Table 2: Mean and standard deviation of the control group before and after the test

stage	source	Image writing	Error tracking	Error tracking	Correct tracking	Word making	Filling-in	Recognition of unisnant alphabets	Words recognition	Dictation text
Pretest	Mean	1.33	2.86	1.13	1.33	1.06	1.86	1.60	0.86	16.73
	SD	0.97	1.80	0.83	0.72	0.45	0.74	1.05	0.74	6.23
Posttest	Mean	2.26	4.46	1.93	2.13	1.53	2.93	2.60	1.80	20.66
	SD	1.03	1.59	0.88	0.83	0.51	1.03	1.35	0.94	5.61

Table 3: Mean and standard deviation of the experimental group before and after the test

group	Pre-test		Post-test	
	Mean	SD	Mean	SD
experimental	33.26	6.38	84.66	8.55
control	28.80	8.78	40.26	9.61

Taking into account the preceding tables, compared with the score of the control group, the average score of the test group at the pre-test stage increased for dictation disorder test performance. As such, ANCOVA test was applied for the examination of its meaningfulness.

Table 4: Summary of analysis of covariance based on Effectiveness of education Murder on improvement of academic performance spelling

source	Sum of squares	df	Mean of squares	F	Sig	Eta square	Power
Pretest	1004.817	1	1004.817	20.624	0.001	0.43	0.99
Group	11515.544	1	11515.544	236.298	0.001	0.89	1
Error	1315.450	27	48.720				

As table 4 shows, there is a statistically meaningful difference between the control and test groups ( $p < 0.001$ ). The influence amount was 0.89, i.e. 89% of post-test variance for dictation performance related to the metacognitive interventions. Statistical power of 100 indicates the adequacy of the sample size. Therefore, it can be concluded that metacognition, as one of the fundamental guidelines towards the optimization of abstract skills including dictation in children with dictation learning deficits, has a positive effect.

## Conclusion

The aim of this study was to examine the efficacy of training on educational and dictation performance optimization in the students with dictation learning deficits based upon metacognition. Research findings indicated that metacognition guidelines can be considered as the most suitable strategies for enhancing educational performance and hence students' improvement. In the theoretical aspects and research results, it has been stated that metacognition and its relevant factors have direct relation with educational improvement. More importantly, educational improvement, as the final product of active learning, is acquirable and learnable. Having optimal educational performance depends upon various factors that may, under special circumstances, affect a person's performance in educational environment. Metacognition is one of those variables that have positive relation with learning and reading comprehension, and control and metacognitive review processes have interactive relation with each other. This is in line with our research results.

As such, a person's understanding of his/her capabilities and awareness of cognitive and metacognitive guidelines will lead to the learning optimization and educational performance increase [6, 16, 18-26, 30-32]. In addition, metacognition has direct relation with learning and those students who consider themselves more proficient than others will take more cognitive and metacognitive guidelines and they are even more successful in problem solving [28, 29].

Consequently, metacognition guidelines may be able to increase the students' learning and optimize their educational performance. To state the research results, we have to point out that education will be influential by the time two fundamental poles (student and teacher), having positive interaction, take action in the line with each other. This means that the student must get sufficient readiness in all mental, physical, intellectual, social, and moral aspects and the teacher also has to facilitate conversion of potential skills into action with sufficient experiences and expertise. This important issue is only possible through the awareness of the personal differences and the application of suitable educational methods towards expediting learning and improvement aspects of the students' personality. Therefore, enabling the students in the field of reading, writing, and mathematics provides learners with vital and fundamental basis for acquiring required skills and capabilities. In contrast, failure in developing these basic skills is the main reason for educational downfall, interpersonal problems, and serious abnormalities in the field of mental health and academic self-concept. Therefore, we have to seek for suitable strategies that not only prevent serious crises in the students but also make the students competent. One of these guidelines is metacognitive training since metacognition or complete recognition of insight is related to the weak and strong points of neural growth aspects (i.e. for the learner to realize which item is difficult and which item is easy for Him/her [35]). Cognitive guidelines help us to save new and old information in our long term memory and metacognitive guidelines are considered to be the tools for moving and supervising cognitive guidelines. In fact, the learner uses his/her cognitive guidelines by means of metacognitive ones as much as possible. The purpose of teaching cognitive and metacognitive guidelines to the children with learning disorders is to make them skillful learners who are able to maintain cognitive improvement and review this improvement through control tools, such as metacognitive guidelines, progressively and fundamentally. Teaching these guidelines to the children with learning skills disorder and study deficits is provisional to having the external factors like expert teachers available since cognitive and metacognitive guidelines will enable the teachers to gradually target learning process for their students and support them in the process of learning. Thereafter, the students will be able to apply the acquired cognitive and metacognitive skills in a completely intentional and targeted way and reach the optimum educational purposes. This bilateral teaching relationship will provide excellent learning opportunities for the students and from then on the teacher's engagement in the student's learning process will tend to a normal condition so that more utilization of educational materials will be provided for the student. This improvement will reduce changing the students into self-esteemed persons with weak academic self-concept that may affect their school satisfaction. In fact, this will be a good factor for improvement. MURDER training program, like other metacognitive training programs, evaluates students' learning deficit and even normal students' capabilities regarding suitable application of metacognitive needs. The findings of this research have confirmed that above-mentioned training programs may lead to the improvement of potential capabilities. MURDER method, compared with other

methods, is noticed to be the only method that has paid attention to the students' real tendency for learning helping them up to the end of learning process. This will develop other educational areas and guarantee the students' full engagement in learning. However, in other training methods, the presence of a second person, as partnership learning and bilateral asking, is necessary. Or PQRTS method, for example, begins with pre-reading and learners have to pass a long way to develop their reading comprehension ability, but owing to the limited opportunities of this method, it is not considered an ideal method by the students. In addition, the efficiency of the PQRTS for the programs like dictation and mathematics has not been verified yet. In contrast, by teaching educational skills via the MURDER method to those students having such skills but not having any possibility of using them, the method will engage them and make them responsible for their own learning and from then on the students themselves will realize their learning circumstances and exercise learning proportionate to their capabilities. Therefore, the main factor leading to the above-mentioned influential power is a deep understanding that is being created in students as the result of their learning interest and binding, which is called self-realization and self-awareness. This means that the student will be able to qualify his/her interest in learning and that learning will begin with the student's knowledge. The student will be able to realize his/her weak and strong points and will try to resolve the weak points at each learning stage.

Therefore, taking into account the efficacy of the MURDER method in improving and optimizing students' dictation performance, the followings are proposed:

- 1) It is suggested to apply this method for the dictation training to elementary students and even pre-school children as well as those referring to psychological clinics.
- 2) It is required that Education Organization provide special courses and workshops during servicing period for teaching study skills, particularly metacognition for the teachers at different stages so that they teach dictation training methods to the children with and without dictation learning deficits.
- 3) It is proposed to use the aforesaid method in pre-school and preparation centers to prevent learning disorders during further educational stages.
- 4) It is suggested that children's parents be informed about metacognition and its relevant influences on educational success and performance.

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