

Guidelines for Rehabilitation of Learning Disabilities

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Abstract

This study tended to determine the effectiveness of art therapy on learning disabilities of students. Learning disabilities are the most common reason for students to go to psychiatric clinics; these students are at higher risk for mental disorders such as anxiety, aggression, depression, and vague fears, etc. and neglect to treat learning disabilities leads to negative effects on their lives. Thus, this study tended to address these disabilities. The method was quasi-experimental pretest-posttest design with control group. The statistical population consisted of male and female elementary school students. The samples were 30 male and female students in two case and control groups who were matched based on gender and grade. The instruments were the Colorado Learning Disabilities Questionnaire and the Art Therapy Protocol, which included twelve painting and language learning sessions that were online due to closure of schools during the pandemic. The results of this study showed that art therapy had a positive and significant effect on learning disabilities of students and reduced these disabilities in students.

Keywords: Art Therapy, Learning, Disabilities, Students

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1. Introduction

Learning disabilities are the most common reason for students to refer to psychological clinics with a prevalence of 6 to 18% [1]. Students with learning disabilities exhibit a variety of learning and behavioral characteristics that may not all be seen; these characteristics include moderate or higher IQ, difference between potential and academic achievement, perceptual and social problems, inability to develop cognitive strategies for learning, metacognitive deficits, and language disorders [2]. These students need longer time to process data. Delays in responding to a lesson expose them to problematic situations such as neglect, stigma, and physical or psychological punishment. These students are at higher risk of developing mental disorders such as anxiety, aggression, depression, vague fears, etc. [3] If learning disabilities are left untreated, they can have a negative effect on a range of behaviors and

serious damages, such as dropping out of school, academic failure, isolation, loneliness, low self-esteem, and harming oneself and others. What is very important today in relation to educational problems of students is the type of virtual education and learning, which in addition to advantages, also has irreparable disadvantages and complications. A student who attends the classroom in person not only establishes direct visual, auditory, etc. communication with the teacher, but also makes emotional communication. In this environment, the teacher knows students better and monitors their verbal and non-verbal behaviors better. Under these circumstances, parents have more responsibilities in detecting learning problems of children, and students with learning disabilities may not be detected and diagnosed in time. Therefore, this study tends to identify and introduce problems related to learning disorders so that they can be diagnosed and addressed as soon as possible. Learning Disabilities

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Association of America [4] defines this disorder as a heterogeneous group of learning difficulties that manifests itself in a variety of forms, including hearing, speaking, reading, writing, reasoning, and difference between learning capacity and academic achievement of children with learning disabilities. Second, learning disabilities are related to brain disorders [5]

Strauss and Lehtinen [6] consider learning disabilities to be caused by brain damage. The term brain-damaged child, which refers to children with learning disabilities, was later coined as Strauss syndrome. Gradually, experts began to use the term learning disabilities in search of a term related to education of these children. Those children have learning disabilities that there is a huge difference between their mental ability and their performance in the learning process; these disabilities are not caused by mental retardation, cultural and educational deprivation, developmental problems or various sensory impairments. Children with learning disabilities have slower cognitive development than their healthy peers. If children with learning disabilities fail at a task, they usually stop trying because of feelings caused by persistent failure. Repeated failures leave these children with learned helplessness, thus their academic motivation decreases. Children with learning disabilities have fewer skills and abilities in strategic use to solve problems [2]. The term learning disabilities is often used by mental health professionals for learning, communication, and motor skills disorders [7]. Children with learning disabilities usually look normal in all aspects of life, and it is only learning disabilities that limit their progress in school. They prefer to skip school because of repeated failures [8].

2. Literature Review

2.1 Prevalence of learning disabilities

The prevalence of learning disabilities is reported to be 5 to 15 percent in the Fifth Statistical and Diagnostic Guide to Mental Disorders [9]. Learning disabilities affect 5 to 30 percent and, on average, 10 to 20 percent of the student population, and are more common in boys than girls, varying from 2:1 to 4:1. Reading disability (dyslexia) is the most common learning disability that accounts for about 80% of learning disabilities; it is three times more common in boys than girls. Math learning disability (dysarithmia) accounts for 8 to 15 percent of learning disabilities, and the ratio of boys to girls is about 1.6 to 1 percent; 5 to 8% of children with learning disabilities also have writing disability (dysgraphia). Writing disability is usually three times more common in boys than girls (Twenty-Ninth Annual Report of the U.S. Congress of Education, 2010).

2.2 Characteristics of children with learning disabilities

Despite normal and acceptable intelligence, they are poor at learning, and there is a discrepancy between children talents assessed by intelligence tests and what they can learn.

Children academic failure is not related to economic factors, family, deprivation, absence due to illness and going to school earlier than legal age. There is no sensory impairment in vision and hearing and motor disabilities that hinder children's academic progress.

Learning disabilities in these children have been confirmed in association with restlessness, inattention, and attention deficit, and the theory of brain dysfunction [10]. Silver [11] showed that the problem of children with learning disabilities is not due to hyperactivity or inattention, but this group has a problem with brain intervention.

2.3 Effective factors on education and rehabilitation of students with learning disabilities

The role of motivation in learning of children with learning disabilities

People need motivation for any activity. Different people have different motivations. Students with higher motivational abilities have better academic achievement compared to students with lower motivational abilities because high motivation in those with less intelligence leads to better academic achievement than students with more intelligence but with lower motivation. Therefore, an intrinsic motivation for learning is very important, particularly in students with learning disabilities. Helping to increase the motivation of students with learning disabilities is important given that they will have lower than average academic achievement. To achieve this goal, teachers can focus on points such as creating situations in which students have the ability to express themselves. Expectations of teachers from students must fit their abilities; over-expectation will cause them to fail and humiliate them, and under-expectation will make them frustrated with education. The teachers should avoid situations that create competition for students. Evaluation criteria should be based on efforts of students rather than their grades, particularly for students with learning disabilities who have fewer chances in competition with their classmates. In teaching these students, visual, comprehensible and varied methods and examples should be used and students should not only be listeners but also have the opportunity to express themselves [12].

The role of teacher in educating students with learning disabilities

If students believe that they can learn with acceptable effort, they will focus their effort on their problem. In addition, teachers should pay

special attention to students with learning disabilities, and ensure that they learn in the classroom. If students do not understand the lesson, they must be given private lessons [13]. Regarding the important role of teacher intervention on mental health in elementary schools, three points are emphasized. A) Teacher performance is related to their higher education; B) Trained teachers have a high potential for participation and have the greatest impact among students; C) Early educational intervention can improve children performance and behaviors [14].

C) The role of family in educating students with learning disabilities

Students are at home longer than they are at school. Therefore, using this opportunity and time is very important to compensate for educational deficiencies of students with learning disabilities, and has a serious impact on their education and learning. Significantly, it is necessary to identify strengths and weaknesses of students and to communicate continuously with the teacher. Teaching students with learning disabilities at home is not limited to a specific time or exam period. On the other hand, the purpose of educating students with learning disabilities is not only to acquire educational abilities, but also their social abilities should be considered. The family must be safe and embracing; children should not be humiliated and disrespected by the family and parents, despite all the limitations and academic failures that students face. The role of family in academic achievement of students with learning disabilities is to help reduce academic problems and reduce their harm in both psychological and educational aspects [15].

2.4 Types of learning disabilities

Learning disabilities are divided into two categories: developmental and academic. Developmental learning disabilities include attention and perception disorders, memory disorders, cognitive-motor deficits, and mental and linguistic disorders. Learning disabilities include writing, reading, dictation, and math learning disabilities. In most cases, learning disabilities are caused by developmental conditions [5].

2.5 Effective factors on learning disabilities

Physiological factors: Many experts believe that the cause of learning disabilities is severe or partial brain injury or damage to the central nervous system.

Genetic factors: Family patterns play a role in development of learning disabilities.

Chemical agents: Various metabolic disorders related to metabolism can impair learning, such as calcium deficiency and hypothyroidism.

Prenatal factors: maternal-fetal blood mismatch, maternal exposure to radiation, and use of illicit drugs during pregnancy

Factors at birth: Low birth weight and head injury, premature placental abruption, and breech at birth

Postnatal factors: lead poisoning, nutritional deficiencies and deprivations

Educational factors: Inadequate and incorrect teaching can lead to learning disabilities.

Hyperactivity: Active children often have learning disabilities in all subjects, particularly conceptual subjects, due to lack of concentration.

Diseases: Physical and mental diseases of children predispose them to learning disabilities [9].

2.6 Language learning skill

Language is a tool for expressing perception and understanding emotions. Language is a set of acoustic and conventional signs that facilitates the understanding of meanings and concepts [16]. Irwin [17] estimates that 50% of children with learning disabilities have language deficiencies. Because learning abilities and academic performance are closely related, many researchers such as Carrell, Pharis, and Liberto [18] are interested in language and reading. They believe that language and reading are the most important skills among the four main ones, namely listening, speaking, reading and writing. Speaking and reading are skills that everyone needs. Although the importance and application of reading is clear to everyone in learning and communicating with others, its definition is not clear. Language and reading is not just about giving meaning to words and recognizing printed or written symbols, it is an active interaction of language comprehension between author, text, and reader. Children who are unable to achieve the effective presence of their parents or important people in their social life do not feel competent, and this can have consequences in all aspects of life [19]. Reading literacy is the ability to understand and use written language symbols. Reading and speaking skills begin in preschool and expand with the start of education. The ability to understand language and read is one of the most important learning needs of students in their lives. The ability to understand academic and non-academic content introduces students to new ideas and helps them learn to think better and live better and say better [20]. Language and reading problems are one of the most common problems of students. Dyslexia people have difficulty in most of their lessons due to reading disorders and verbal and non-verbal speech problems. These students, despite the fact that they have high IQ in most cases, cannot have a good academic achievement and continue to study with great difficulty or drop out, which leads to social, communicational, economic, and mental problems for them [13].

2.7 The importance of language and reading

Language and reading skills are one of the main factors in development of people; language and reading not only enhance life skills and knowledge, but also affect perception of the world. This process starts when people start decrypting the data. The process of language and reading is usually discussed beyond visual, cognitive processing and printed materials. In visual reading, screen light radiates on the retina, from where the message is transmitted to the brain for processing. By performing the above cognitive functions, the brain translates written and conventional symbols into words and sentences, in a way that represents the most obvious thinking in the form of speech. Therefore, language and reading are the most important human inventions. People share information with each other in an effective way; If for any reason a person cannot use the sense of sight to read, it is necessary to use other methods and senses to obtain information [21]. If a child reads or writes poorly, he or she will sooner or later have academic problems. Students with learning disabilities have problems with speech expression, auditory and visual memory, attention, clear auditory and visual perception, poor motivation, poor generalization and data organization, distraction, visual-motor coordination, restlessness and hyperactivity. These students cannot be educated with usual teaching methods, because they hate to study and may drop out. Students with learning disabilities need special training in special training centers. These centers provide a variety of visual, auditory, speech, and sensorimotor educational services for students with learning disabilities, and purposeful planning provides these students with appropriate academic conditions [22].

2.8 Importance of anxiety in learning

Behavioral anxiety is characterized by restlessness and stress, and conscious fear associated with activation of the autonomic nervous system. Preparing to perceive certain situations as threatening and responding to these situations is associated with high anxiety. Anxiety involves severe panic attacks that are focused and limited to a specific situation or goal. Symptoms include palpitations, shortness of breath, excessive sweating, dizziness, cold hands and feet, pale face and hands, chest pain, a strong desire for finesse, stomach upset, and a latent feeling of imminent death. Anxiety occurs in students several times a day or occasionally; its purpose is limited and its beginning and end are sudden [16]. By stimulating the nervous system, anxiety is a preparatory behavior through which a person perceives situations that are safe as threatening and responds to these situations with anxiety; a situation that is

not commensurate with the risk can be a barrier to learning [9,23].

2.9 Objective of the study

Numerous studies show that implementation of appropriate and early intervention programs and early diagnosis improves verbal and non-verbal speech, language development, and fluency in many dyslexics [24]. Therefore, an intervention was performed in this regard, the statistical report of which is as follows.

This study tended to determine the effectiveness of an intervention on common childhood disorders, particularly learning disabilities.

3. Materials and Methods

The methodology used was a quasi-experimental pre-test-post-test design with a control group. The statistical population consisted of male and female students in the second to fifth grades of elementary school. The samples were 30 students who were selected by convenient sampling method and matched based on gender and grade and were assigned to two experimental and control groups. Demographic variables included: 1) 8-11 years old students; 2) living in District 5 of Tehran with learning disabilities.

4. Results

The results of the intervention on social anxiety, reading, social cognition, spatial perception, and mathematics of male and female students in three stages of pre-test and post-test in two case and control groups, then follow-up in the case group, were reported as mean and standard deviation separately for each stage and each group, as shown in the table below.

The results of the table show that the mean scores of the case group decreased in learning disabilities, and this decreasing trend can be seen in the follow-up stage. But in the control group, these changes do not seem so noticeable.

Table 1. Summary of results of ANOVA with repeated measures

	Wilks lambda	F(2, 13)	Sig	η^2
social anxiety	0.347	12.211*	0.001	0.653
reading disability	0.295	15.553*	0.001	0.705
Social cognition disorder	0.217	23.430*	0.001	0.783
Spatial perception disorder	0.227	22.082*	0.001	0.773
Math learning disability	0.259	18.622*	0.001	0.741

*p<0.001

The results of ANOVA with repeated measures in Table 2 indicate that there is a significant difference over time, at different time intervals, in reading disabilities (F = 15.553; P<0.001), social anxiety (F = 12.211; P<0.001) and social cognition (F = 23.430; P<0.001), spatial perception (F = 22.083;

$P < 0.001$) and math learning disabilities ($F = 18.622$; $P < 0.001$). Based on η^2 , 65% of the variations in social anxiety score and 70, 78, 77 and 74% of variance of the variations in the scores of reading disabilities, social cognition, spatial perception, and math learning disabilities, respectively, can be explained by the independent variable

5. Discussion and Conclusion

This study tended to determine the effectiveness of an intervention on learning disabilities of children. The results of this study showed that this intervention reduced the mean scores of learning disabilities in pre-test, post-test and follow-up compared to the control group. Considering the different effects of group and stage, it was shown that there is a significant positive difference between the means of pre-tests, post-tests and follow-up test of all variables of the case and control groups. The intervention was effective on learning disabilities (social anxiety, reading, social cognition, spatial perception, and math) of students.

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