

Learning Disabilities: Definition, Causes and Diagnosis

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ABSTRACT

The field of learning disabilities is one of the subjects of special education, which has expanded in the last two decades becoming a stand-alone specialty in developed countries. This interest has also been translated into research studies that try to identify the characteristics of these children in different contexts and assess the impact of this disorder on the children development and learning aspects. Furthermore, the researchers aim to test and evaluate the effectiveness of the programs offered to help these children. These programs might seem complex and strange to many non-specialists and non-professionals, resulting in either passive or non-professional response. The prevalence of the learning is an alarming problem as the researchers claim that about 7% - 11% of the children suffer from learning disability that pass undiagnosed during school. The impact of which will accompany the child for the rest of his life. This paper offers information about the different definition of learning abilities and review the causes, characteristics and diagnosis of learning disabilities.

1. Introduction

Learning disabilities become a very important issue in the present time in the field of special education. They also received considerable attention from those interested in different specializations such as doctors, psychologists and scientists, educationists, sociologists, teachers, parents and others. This great attention it received is due to the increase of the student with these disabilities and the development in the detection, diagnosis and assessment and increasing awareness of the parents, who start to compare their children with their peers, even in simplest things. Learning disabilities are relatively a modern category compared to the other traditional categories, but they make up a large population above all special education classes. This category is still vague due to the multiplicity of causes and manifestations. Learning disabilities represent a 15-20 percent in the society according to the American National Health Institute and this percentage is strikingly alarming, especially, when we consider the ignorance of the society and the sensitivity of diagnosis and treatment of these disabilities. Michael Webster (1999) found that there a real difficulty in identifying children with learning difficulty but he assured that there a significant difference between the performance of normal children their peers with learning difficulty in one or more of the following fields; speech production, comprehension, reading, writing and arithmetics. He concluded that a child is not considered as having learning difficulty if the lack of his performance can be ascribed to any of the following reasons: visual, auditory, or motor disorder, mental retardation, familial, social, cultural or economic barriers.

2. Questions of the study

This paper addresses the following questions:

- 2.1- What are learning disabilities? How prevailing is it?
- 2.2- What are the causes of learning disabilities?
- 2.3- What are the symptoms of learning disabilities?
- 2.4- What are the types of learning disabilities?
- 2.5- How are learning disabilities diagnosed and assessed?

- 2.6- What are the educational considerations to understand the children with learning disabilities?

3. Definitions of Learning Disabilities

Kirk (1962) was the first researcher who used the term *learning disabilities* and he defines it as a disorder or delay in one or more of the operations of speech, language, reading, Spelling, writing or arithmetics as a result of a potential defect in the function of the brain or emotional or behavioral disturbance. But it is not the result of mental retardation or sensory disability, cultural or educational factors.

Barbara Pittman (1964) states that children who suffer from learning difficulty are those who show significant education differences between their adequate cognitive abilities and their actual performance which may be caused by basic disorder in the learning process and which may or may not be associated with obvious deficiency in the functions of the central nervous system. Also it is not a result of mental retardation, an educational or cultural deprivation, severe emotional disturbance or loss of the senses.

National Advisory Commission for Handicapped Children (NACHC) provides the following definition; "children with specific learning disabilities are those who suffer from deficiencies in one or more of the basic psychological processes involved in understanding or using spoken and written language, manifested in listening, thinking, speaking reading, writing, spelling or/and arithmetic disorders."

4. The criteria of defining and identifying learning disabilities

4.1- Discrepancy criterion

Many definitions of learning disability were based on the discrepancy between the actual ability of a child and his performance in any of the psychological and linguistic functions. The child may grow normally in a function but has a disorder or delay in the other. For example, a child may grow

very well in psychological function but he suffers in the language function.

4.2- Exclusive criterion

This criterion takes into account the separation between learning disabilities and other disabilities like mental retardation, visual, auditory or motor disorders, hyperactivity, and any other obvious factors that may hinder the learning process like the social, cultural, economic deprivation.

4.3- Special education criterion

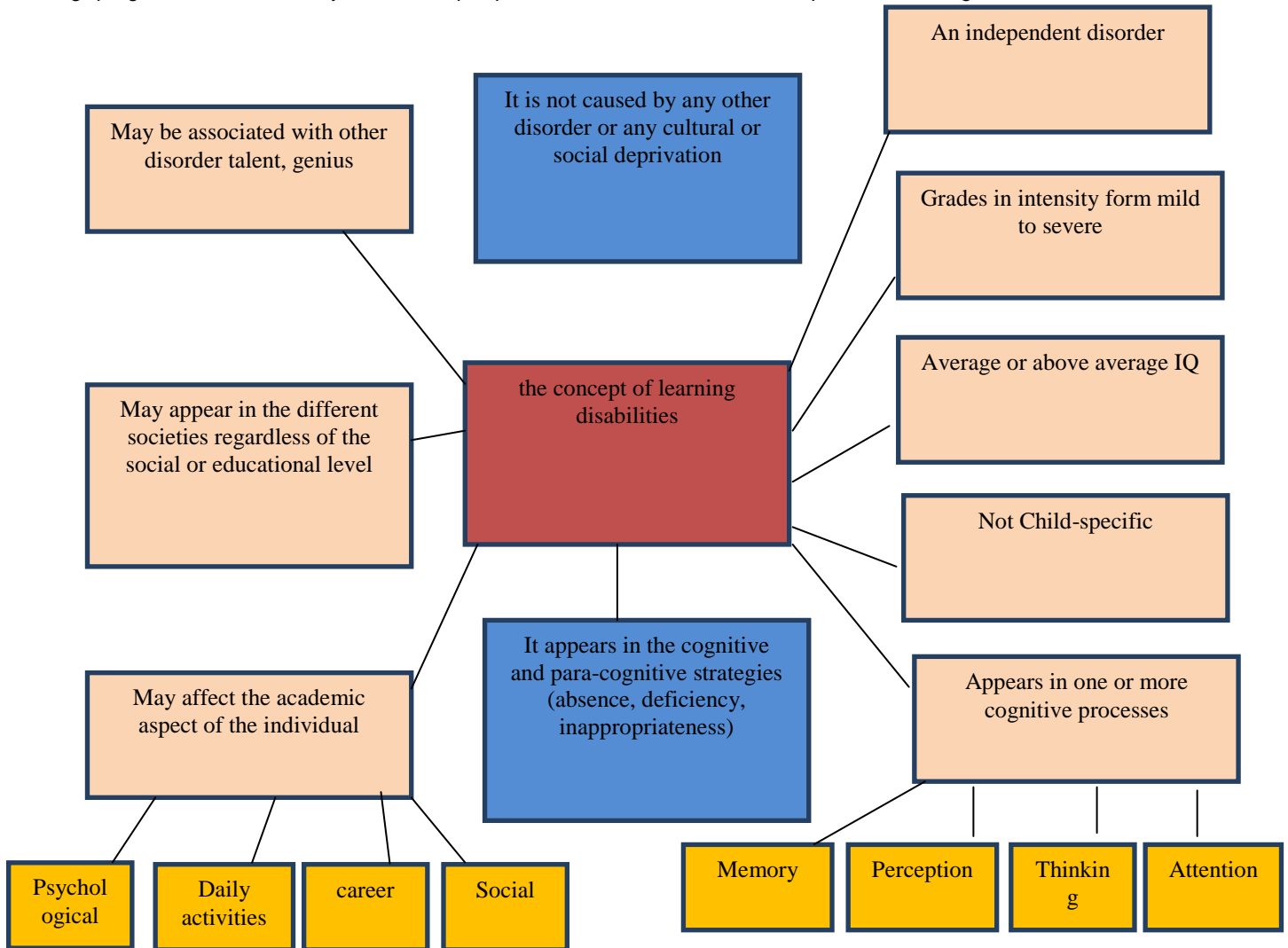
This criterion is connected to the previous two and it assures that the children with learning disabilities need special learning programs and that they cannot cop up with the

traditional education process that is meant for normal children. At the same time the education process that is designed for learning difficulty does not necessarily meet the need of the other disabilities.

4.4- Virological Criterion

This criterion state that learning difficulty can be as a result of any brain or nerve defect which will result in a disorder and disturbance in the mental processes. These disorders in the brain's functions results in delay or disorder in the social, education and individual growth.

The different results and interrelations of learning disabilities are depicted in the diagram below:



5. Causes of Learning Disabilities

Pathologists and psychiatrists confirm the difficulty of pinpointing the causes of learning disabilities and suggest that it is more important for the family and researchers to search for the best ways of treatment. However, the door is open to several possibilities for the evolution of such disturbance. Many studies show that the causes are varied and interrelated and assert that the new evidences manifested in many of the learning disabilities reveal the multiplicity and complexity of causes. The modern theory declares that learning disabilities are a result of structural and functional disorder in the brain and that this disorder happens before during birth. The factors and

causes leading to this disorder can be summarized in the following points:

5.1- Acquired brain injury

The child could have been exposed to some physical trauma, excessively direct sun, car accident, injury; mild epilepsy, seizures or suffering from high fever which lead to an imbalance in the functions of the brain causing slow learning or learning disabilities, because it affects the understanding comprehension and cognition in an integrated manner (Abdul Hadi et al., 2000)

5.2- Genetic factors

Learning disabilities prevail among families which have a history of learning disorders. Many studies on twins point out that 25-40% of the children with learning difficulty are born in families with language disorder. (Kuafeheh .2003)

5.3- Problems during pregnancy and childbirth

Some researchers attribute the learning disabilities to the presence of complications in the fetus development during pregnancy. In some cases, the immune system of the mother reacts to the fetus as if it were attacked by a foreign body, and this interaction leads to an imbalance in the nervous system of gens growth. The umbilical cord may get twisted around itself leading to a sudden lack of oxygen supply for the fetus leading to disability in the brain work and difficulty in learning in old age (Mustafa 0.2005).

5.4- The impact of smoking, alcohol and some other drugs

Most of the drugs consumed by pregnant mothers are transformed directly to the fetus. Therefore; many scientists believe that smoking, alcohol and drugs are destructive to the fetus and they should be avoided during pregnancy. It is also found that smoking mothers give birth to babies that are below the average weight and these babies are liable to many difficulties on of which is learning difficulty (Peterson, P. 2004).

5.5- Pollution and environmental factors

The brain continues to create nervous cells and nervous networks for about a year after birth. These cells are liable to breakdown and disruption if exposed to any pollutant like lead or scandium. The environmental surrounding of the child may encourage or discourage the linguistic development. The more the exposure to and interaction with language, the better the child will grow and overcome some the minor disabilities which may worsens if left untreated. The scholastic environment plays a basic role in the development or deterioration of linguistic abilities.

6. Symptom of learning disabilities

The symptoms that imply the existence of learning difficulty may be behavioral, virological or/and linguistic. The presence of one or more of these symptoms indicates the presence of learning difficulty. A child suffering from one or more of these symptoms may be diagnosed as having learning difficulty:

- 6.1- decline in attention to the task at hand
- 6.2- inability to follow instructions necessary for the completion of a task.
- 6.3- difficulty to locate the source and direction of sounds such as distinguishing between the phone ringing and the sound of the doorbell.
- 6.4- sounds substitution and the inability to realize the substitution
- 6.5- disorder in visual perception and loss of the ability to distinguish between the characters and figures such as reading 1984 as 1948.
- 6.6- difficulty in sensory and motor coordination and the inability to relate what he sees to action to be taken.
- 6.7- difficulty in dealing with numbers, shapes and letters within the context or within the normal locations.

6.8- difficulty in grasping the relationships between objects

6.9- disabilities in recognizing directions and places; to the right / left, up / down...etc.

6.10- disabilities in foresight and insight into the consequences of their behavior.

6.11- Suffering from the feeling of failure as a consequence of the difficulty to learn (Radwan.2009).

6.12- speech delay and speech disorder

6.13- difficulty in reading, writing, spelling, and calculation

7. Types of learning disabilities

As a result of the ongoing studies in the educational, psychological and neurological areas, Learning disabilities were classified into two main categories. Under each category, there are a number of subtypes as briefly mentioned below

7.1- developmental disabilities

The focus of the developmental disabilities is on the basic psychological processes needed for learning. These include: attention, memory, perception, thinking, language.

7.2- academic disabilities:

The focus of academic disabilities is one of the problems that arise in children in the schools during the learning processes and they include: reading, spelling, written and oral expression, Mathematics (account) (Batayneh, et .2005).

8. Diagnosing and assessment of learning disabilities

There are many keys to the early identification of learning disabilities the most important of which are the ones that recognized before school age. These keys are:

8.1- Observational diagnosis

8.1.1- The inability to use language at the age of three.

8.1.2- Motor disabilities such as un/buttoning a shirt, climbing a tree ...etc.at the age of five.

8.1.3- Inadequate skills compared to his age.

At the school age, the school has to take into account that there are the possibilities of learning disabilities among the children and avoid relating any failure or below standard achievement to laziness, negligence or mental retardation. Recognizing any deviation in the learning of child, the school has to consult pathologist and psychiatrist to test the case. It is also important to differentiate between learning disabilities and the disabilities that may stem from social, emotional or economical problems. (Levge, D. 1988).

8.2- Medical and psychological diagnosis

The medical diagnosis is necessary to exclude any other disorders and discover the physical or virological causes of the difficulty. These tests include:

8.2.1- brain and central nervous system chick-up

8.2.2 IQ tests to assess the cognitive capacity of the child.

8.2.2- Psychiatric tests to assess the perception, attention, memory and speech production of the child.

The psychiatric and psychological tools that are used to assess learning disabilities can be put into three major categories as follows:

- a- Test batteries
- b- Single instruments
- c- Teacher's perception and evaluation

The success of these batteries in identifying and assessing learning disabilities depend on its validity, reliability, and practicality. To secure a high level of precision and accuracy of the test results, a researcher must follow some procedural steps.

- a- Comprehensive educational evaluation in order to define the domains of the difficulty.
- b- Detailed report about the child's health and making sure that there is not any health disorder.
- c- Determining whether the child needs medical, surgical, psychological or educational treatment.
- d- Using standardized test in order to measure the level of performance and the academic progress.
- e- Comparing the child to his peers.
- f- Testing the reading skill directly and indirectly and recording the mistakes.
- g- Daily observation and measurement of the child performance in a defined task.
- h- Reporting his learning history in comparison to his age.
- i- Tracing back his learning performance in the previous years and see if it has any reflect on his present performance.
- j- Planning an appropriate treatment program.

9. Educational consideration in understanding children with learning disabilities

Every child has the right to receive proper education that suits his abilities, age and readiness. Therefore; the school programs must provide learning models that are appropriate for every single child and the school should consider helping the children with disabilities. It also must seek the possibilities of overcoming these disabilities to the best ways possible. The learning modules must provide equal opportunity for every child to meet his needs and interests. The traditional design of the school programs is theoretical and does not provide the base for identification of individual difference and disabilities. Any

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learning module must take into consideration the following aspects of learning:

9.1- Special education programs

Designing a special education program is the best and most useful choice to help the children with learning disabilities. Each program must be designed to suit the child the learning style of the child and the nature of his difficulty. This program must be worked out in collaboration with teachers, speech pathologists, psychiatrists and family and it must be reviewed and evaluated every year in order to edit and improve it.

9.2- Parents understanding

The parents must understand the nature of their children problems and help them to minimize the severity away from tension and stress of failure. The parents must alleviate the suffering of their children through encouragement, positive reinforcement and rewards.

9.3- Cooperation between the family and the school

9.4- Early diagnosis and intervention

10. Conclusion

Learning difficulty is a real serious problem that may affect each and every walk of the child's life. The complexity and mysterious causes and factor contributing to the existence of the problem require collaboration and cooperation of every single individual in the society as to alleviate and overcome its consequences.

11. Recommendations

- 11.1- Observation, diagnosis and assessment of learning disabilities scientifically and at an early age.
- 11.2- Taking into account the educational considerations that lead to understanding the children with learning disabilities.
- 11.3- Designing and distributing brochures and pamphlets that increase the awareness of the society about the nature and seriousness of the problem and the possible procedures to control it.
- 11.4- increasing the parent and children awareness about the problem.
- 11.5- benefiting from the advantages of today's technology.
- 11.6- establishing specialized center for children with learning disabilities.

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