

Effectiveness of Differentiated Learning Strategies to Reduce Some of the Difficulties Associated with Developmental Motor Synergy (Dyspraxia) for Learning Disabilities Students

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Abstract--- *The current study aimed to verify the effectiveness of applying a differentiated learning strategy to reduce some of the difficulties associated with developmental motor disorder (dyspraxia) among a sample of (25) students with academic and developmental learning disabilities at the American Academy of Ras Al Khaimah, in the Emirate of Ras Al Khaimah at UAE, their ages ranged between (4) - (7) years, who were diagnosed as suffering from a developmental motor syndrome disorder according to the questionnaire of the developmental motor disorder that was prepared by Khasawneh and Khawaldeh (2016), the study depended on the semi-experimental approach based on the one group and the application pre and post, researchers prepared test for the difficulties associated with the developmental motor disorder (dyspraxia), which included three axes: verbal communication, reading and attention. Findings of the study indicated that there are statistically significant differences between the average scores for the applications before and after in favor of post-implementation in the three axes, which indicated the effectiveness of strategies Differentiated Learning in alleviating some of the difficulties associated with dyspraxia in those with academic and developmental learning difficulties.*

Keywords--- *Learning Difficulties, Dyspraxia, Progressive Motor Synergy Disorder, Differentiated Learning.*

I. INTRODUCTION

Differentiated Learning aims mainly to raise the level of all ordinary and extraordinary students, and it is not only concerned with students who face problems in achievement, but also takes into account the needs of all students, as it is a school policy that takes as the characteristics of the individual and his previous experiences and it is a way to provide a suitable learning environment for all students To increase the capabilities and capabilities of the student, while the interest in differentiated learning focuses on teachers' expectations of students and students' attitudes towards their capabilities and capabilities.

And since students with learning difficulties are among the students most in need to diversify their learning strategies, as studies have confirmed, because most of these groups may be able to excel and innovate if their educational problems are dealt with efficiently and expertly, and identify their requirements and problems, and this is available in the distinct learning that has emerged Students with dyspraxia are among the groups with learning disabilities that interest them in the current study, where researchers believe that the reason for this is that the neurons that control the muscles do not develop properly, and since they are not able to establish a correct

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connection, blood will need G. more time to analyze the information. A person can develop dyspraxia at any stage of his life due to trauma, stroke, accident, or disease.

From the above, it was necessary to apply a differentiated learning strategy to students with learning difficulties who were classified as suffering from dyspraxia, as this strategy is an effective and purposeful strategy through which they can develop their skills and overcome their problems, especially verbal communication, reading and attention.

II. STUDY OBJECTIVES

The main objective of the study is to verify the effectiveness of some differentiated learning strategies to develop some motor skills accompanying developmental motor disorder (dyspraxia) among a sample of people with learning difficulties, in addition to a number of other goals:

1. Understand and overcome the problems of children with learning difficulties.
2. Applying educational best practices with students with educational difficulties
3. Merging students with educational difficulties with their comrades better.

Study Importance

The importance of the current study can be illustrated from two aspects:

First: Applied Importance: The importance of the current study stems from measuring the impact of differentiated learning strategy on relieving some of the difficulties associated with (verbal communication - reading - attention) for visual disturbance of motor movement (dyspraxia) for a sample of people with learning difficulties.

Second: Theoretical significance: The importance of theoretical study stems from the employment of the differentiated f strategy as one of the modern educational strategies that take into account the differences between learners and is interested in their inclinations and preparations for learning, which many studies care about.

The importance of the theoretical study also comes as it searches for disorders associated with dyspraxia for people with learning difficulties due to the lack of studies in the Arab environment - within the limits of researchers' knowledge, as Arab studies that dealt with these disorders were scarce, in addition to providing a theoretical background on the variables of the current study.

Study Problem

Categories of special needs suffered from a lot of neglect and lack of benefit from the application of modern learning strategies, especially those with special needs, as Zahran & Edabour mentioned (2014: 960), while the development of dynamic motor synergy skills is important and vital for children with special needs, which confirmed a lot of Studies that people with special needs suffer from these disorders, and need to develop them.

The problem of developmental motor synergies for autistic people is evident as a result of the paucity of tests that actually determine the disorder in this group, and that group needs continuous training to improve the levels of developmental motor synergy for them, as this group suffers from immaturity in organizing movement and problems

related to verbal communication and perception thought and problems are related to the skills necessary for many tasks related to the learning process, which affect concentration, memory and reading for people with special needs.

Researchers in the field also agrees of caring for people with special needs that they suffer from low levels of skills related to daily life activities. They suffer from many and varied problems in self-care and advanced skills, and sometimes they are unable to complete the advanced tasks of them without helping others, According to Bimbrahw (2012: 286), it follows that they suffer from severe psychological problems that make their condition worse and make it difficult for them to integrate into society and school, and as a result these children throughout their lives remain in urgent need of their support in all life activities, including mobility, social and cognitive.

Study Concepts

The study included several terms that can be dealt with separately as follows:

A- Differentiated Learning: An educational strategy that aims to create an educational environment suitable for all students that meets their capabilities, needs and interests in different ways, so that it takes different forms and educational methods such as teaching according to theories of multiple intelligences and teaching according to the patterns of learners and cooperative learning, and the learner can distinguish the learner between Objectives, content and results. Nasr (2014: 38).

B- Dyspraxia: Ashur (2016) noted that dyspraxia, according to the British Association of Dyspraxia in England, is a hindrance or immaturity in the organization of movement that leads to problems related to verbal communication, perception, and thought and is related to the skills necessary for many tasks related to the learning process, which affect concentration, memory, and reading.

C- Learning Difficulties: Learning difficulties are defined as a heterogeneous set of disorders that appear as significant signs of acquiring the ability to listen, speak, read, write, think, or athletic ability, and occur because of an impairment in job performance For the central nervous system, they appear as a deficiency in the ability to perceive, remember and pay attention to. Edabour&Zahran (2013: 12).

Theoretical Framework

Study framework addresses the main variables separately as follows:

First: Differentiated Learning

The differentiated learning approach is one of the modern approaches to teaching that takes into account learners' abilities, interests and needs, and also takes into account the individual differences between them, where differentiated learning aims that each student learns with his appropriate teaching strategies, educational activities, educational methods and evaluation methods, and in this way the student accepts the scientific subject in a way Better than if offered to him in the traditional way, just as this entrance is one of the entry points that takes into account the conditions of each student in learning, where each student provides the appropriate methods of learning and teaching strategies and educational activities commensurate with his capabilities and capabilities, and therefore, differentiated learning from The most prominent strategies that appeared in the educational field and gained wide fame because it provides good educational opportunities for learners. Abdelkader. (2019: 343).

Carol Ann has made it clear that differentiated learning is a response from the teacher to the diverse learning needs of students in the classroom, in addition to that it is based on the need to take into account the special nature of each student separately taking into account the elements of strength he possesses that can be built upon as well as his educational needs that can be met, With the aim of achieving the maximum success in achieving the learning process, and one of its most important advantages is that it is based on observing the interests, tendencies, capabilities and learning patterns of students as well as their psychological, social, environmental and economic backgrounds, and in general it can be said that differentiated learning considers Just give a number of teaching methods, but it is a way of thinking about teaching and learning. Abdel-qader (2017).

The results that were applied to differentiated learning indicated that individuals learn best when they are exposed to a kind of challenge as differentiated learning is mainly based on the foundations of the multiple intelligence theory of "Gardner", which was able to define a set of different human intelligence that exist in all Individuals, however, to varying degrees, and the fact that the multiple intelligence theory is fully consistent with the concept of differentiated learning where the teacher tries to present the same subject to learners in more than one method so that these methods fit with the different intelligences of learners as these studies have confirmed.

Differentiated Learning is also based on several assumptions made by Atiyah (2009: 146), including:

- Students differ from each other in characteristics, tendencies, learning priorities, abilities and degrees of response to learning.
- Differentiated Learning provides a suitable learning environment for all students, as it is based on a diversification of procedures and activities.
- The inability of teachers to achieve the required level of learning for all students by relying on one teaching method.
- It is not possible to have a single method of education for all students.

Among the justifications that called for the use of this type of education and the extent of the need to apply it in our schools, including the different nature of learners, human rights, the theory of the human brain and learning patterns, in addition to the goals of the educational process and motivation of the learner, and the problems of education facing the learner, activity and movement that the learner has in Differentiated learning strategy. Kojak (2008: 18).

Differentiated Learning is based on several steps that the teacher must follow, and Al Nabhan and Al-Kanani (2016) have identified them in several steps represented in the following:

- Determines the previous information, scientific capabilities and capabilities of each learner.

In light of what was mentioned in the first step, the learners are placed in groups, each group includes individuals close to each other.

- Determines learning objectives.
- Choose materials, activities, educational tools and learning resources.
- Organizes the educational environment to suit groups.
- Choose appropriate teaching strategies for learners or groups.

- Determines the tasks performed by each group.

Differentiated Learning also takes many forms. Differentiated learning is identified by Tomlinson(2013) as follows:

- Teaching according to learners 'patterns: where educators classify learning styles into auditory, visual, and dynamic, and some add a sensory pattern, and teaching is done according to learning patterns by teaching each learner according to the style appropriate to him and his favorite, when the teacher can match his educational style with the student's educational style, we will find that trends The student towards the course has improved, as has school work, activities, and achievement.
- Cooperative learning: cooperative learning can be considered a differentiated learning if the teacher takes care of organizing tasks and distributing them according to the interests of learners and their favorite representations, it may sometimes resort to applying cooperative learning, so the learners are divided into homogeneous groups, according to their tendencies or their learning style, or their different intelligence to achieve the learning goals, and has The researcher used the first form, which is education that is differentiated learning according to multiple intelligences.
- Teaching according to the theory of multiple intelligences: by dividing the learners into groups through the teacher getting acquainted with the types of intelligence for each learner, and it is taught according to these intelligences.

Second: Difficulties of Developmental Motor Synergy (Dyspraxia)

Motor synergy is very important for a person, especially in its early stages of life, and motor development greatly affects the psychological and social aspects of all groups with special needs, and learning difficulties as a category of people with special needs are the most vulnerable groups to suffer from problems of motor synergy, as manifestations of disorder appear Kinetic synergy through delayed perception, attention, or remembering, as well as reading, writing, and arithmetic, as these difficulties may not be the result of disturbances in the central nervous system, and those with learning difficulties are the most groups that have difficulties with locomotor synergy. A is often more under developmental learning difficulties than the Academy. Khasawneh (2016).

Since Dyspraxia means difficulty in the child's developmental motor synergy which expresses the presence of developmental disorders in the child, the child has a disability or immaturity in the organization of movement, and also leads to problems related to communication, perception and thought, which makes the tasks related to the learning process difficult, Where studies agreed that people with developmental and autistic learning disabilities are more likely to develop this disorder. Bodison (2015: 23).

Dyspraxia is basically a difficulty in motor coordination, as it occurs in varying degrees from simple to medium to severe, as it directly affects the child's fine motor activities, such as holding a pen, movement or balance, which are difficulties in the voluntary motor system, or a sensory integration disorder., This means a psychological disorder of the nervous system, and the dyspraxia expresses immaturity in the regulation of movement that leads to problems related to communication, perception and thought, which directly affects the learning process, so it is undoubted that the child's injury with dyspraxia is already associated with the necessary skills for many of the Oryx

M is associated with learning, and results in difficulties in attention, memory and awareness, and these difficulties represent mainly developmental learning difficulties, as they are also linked to academic difficulties represented in the difficulties of reading and writing. Rashid (2015).

Visual kinetic synergy leads to controlling the movement of the body precisely, especially the hand, which is necessary for learning and the growth of major academic processes such as reading, writing and arithmetic, since the presence of a problem in children with visual kinetic synergy usually leads to difficulties in learning to read and write, where synergy is a control of the movement of muscles Which enables the hand to do the required task, whether it is reading or writing, and the difficulty of writing is also linked to children, especially in the early stages of learning, where synergy problems arise in the difficulty of holding the pen properly. El Fenhrawi&Nour (2018).

Among the theories that explained the problems of Motor Disorder Synergy (Dyspraxia) is Getman's theory, which holds that the child's mental development and behavior and behavior are related to his motor experiences and visual development, so a training program must be developed to develop visual motor abilities that includes the development of general motor patterns, the development of special motor patterns, and the development of The movement of eyes, the development of verbal communication, and the development of visual memory and visual perception skills, whereby this theory considers that motor skills can be acquired through multiple stages, including the development of endeavor, visual, motor, perception and mental distinction. Al-Morshedy (2014: 2).

As mentioned by Prestes&Feitosa(2017)Givat theory, which is one of the most important theories that explained the motor synergy disorder in its interpretation of the motor synergy disorder, focused on the motor perceptual capabilities, sensory and motor distinction, as that theory included the early cognitive-motor processes of the child and how these processes are represented by motor integration and sensory distinction, as this happens Motor sensory integration contributes to the processing of information received by the brain, and this theory focused on the role of the nervous system in the child's development in all aspects, and that the child through perceptual cognitive processes can develop an internal reference system that helps him to understand and learning.

As people with learning difficulties are the most groups facing the difficulties of motor coordination, the need to discuss the resulting difficulties is in addition to applying a strategy suitable for teaching them to face those difficulties they face.

Due to the need of this group for attention, the methods and strategies of education and training for them have already diversified and through which they can be trained and improve their capabilities, so that they are integrated with their peers in an optimal way, and the current study has been settled on applying differentiated education strategies because of their effectiveness and impact where differentiated education is considered as a Penetration of the brain, which is based on the principle of education for all. Tomlinson (2001: 13).

It takes into account the different patterns of learning such as auditory, visual, logical, social and sensory learning, as well as the satisfaction and development of different tendencies and trends of learners, which enhances their motivation to learn and Alone and the development of innovation and creativity, and is based on the integration of the different strategies of education through the use of more than one strategy while explaining the teacher, as

well as to achieve effective learning conditions, which allows students to interact distinct ways. Tomlinson (2001: 13).

Third: Learning Difficulties

In some cases, the academic performance of the school encounters some of the difficulties that may reduce the level of academic achievement in basic skills according to the educational stage. Where learning difficulties are associated with disturbances in mental processes such as attention, concentration and memory, despite this the IQ of learners is high, and they practice normal behaviors, but they are accompanied by excessive activity.

Learning difficulties are essentially neurological treatment problems. These processing problems can interfere with learning basic skills such as reading, writing and / or mathematics. It can also interfere with top-level skills such as organization, time planning, abstract thinking, long or short memory and attention. It is important to realize that learning difficulties can affect an individual's life beyond academics and can affect relationships with family, friends, the workplace, or school (Vanjari; Patil; Sharma& Gandhi :2019).

Learning disabilities are defined as mental disorders that have an effect on an individual's ability to know speech, communicate, use it, perform mathematical calculations, coordinate movements, or direct attention. Learning disability affects a person's ability to process information, and people with learning disabilities usually have an average IQ above or above average. Educational literature classifies learning difficulties into two main types (Banks, 2019: 304):

1. Developmental learning difficulties: It refers to a defect in the skills that the learner needs in order to be able to achieve good academic achievement, including: attention skills, memory and cognition.
2. Academic learning difficulties: It refers to the most prevalent difficulties, especially among school students, where they appear clearly in the form of difficulties related to reading, writing, spelling, written expression, or mathematics difficulties.

Al-Ajmi(2006: 5) confirms that the seriousness of the problem of learning difficulties lies in its spread among a wide cross-section of children who enjoy a normal level - and it may be high - in terms of physical, sensory and mental capabilities, but their academic achievement rate is much lower, and this is what It is called the clear divergence between their capabilities and their achievement, and then between what is expected of them and what they are already doing, which may lead to a misinterpretation of their capabilities given that hope is lost in their high achievement and abilities, and then it is necessary to design and build treatment and educational strategies that enable them to raise their academic capabilities Achievement, and lower grades They have psychological disorders.

The difficulties of reading and writing are considered to be obstacles to the learning process, as the child begins to learn to read and write at an early age, and these difficulties appear clear in spelling and the difficulty of writing letters if a child has a disorder in developmental psychological processes such as attention, perception or memory, because learning to read and write requires The ability to understand and visual distinction between letters and words, as well as the ability to distinguish auditory, in addition to the perception of form through the ground, and learning to read and write requires the ability to many cognitive and developmental processes such as perception, remembering, and visual kinetic synergy (Salem. Et.al; 2006: 144).

There are five of the most common academic learning disabilities in the classroom today (Aro; et.al., 2019):

1. Dyslexia: The most known learning difficulty, and can be said to be a learning disorder that impairs a student's ability to read and understand text. There are a variety of ways in which this disability can be demonstrated. Some people struggle with phonemic awareness, which means they fail to perceive the way words collapse according to sound. Similar problems can occur in phonemic processing, as students cannot distinguish between the sounds of similar words. Other issues generally relate to language fluency, spelling, comprehension and more. Students may experience one reading problem or multiple problems when dealing with dyslexia.

2. Attention Deficit / Hyperactivity Disorder (ADHD): This type of difficulty affects more than 6.4 million children at some point. While there is some debate about whether ADHD is a learning disability in the technical sense, it is undoubtedly a common educational disadvantage. Students with ADHD find it difficult to pay attention and stay on the job. These students can be easily distracted and often face difficulty with traditional school settings. Experts link ADHD to brain structure, and there is evidence that ADHD may have a genetic component as well. Unlike typical learning disabilities, which require educational interventions, ADHD can be successfully treated with medications and behavioral therapies.

3. Calculation Difficulties (Dyscalculia): Mathematics is another major area of concern when it comes to learning disabilities. While the difficulty of reading can affect a student's ability in mathematics, some students also suffer from dyslexia, a disorder that particularly affects an individual's abilities in mathematics. Difficulty can range from not being able to dial numbers correctly and extending to limited problem-solving strategies. Students with math disorders may have difficulty performing basic mathematical calculations, or they may have difficulty with concepts such as time, measurement, or estimation.

4. Dysgraphia: While reading disabilities receive the most attention, writing difficulties can be difficult to overcome. These disabilities are known as dysgraphia. Dyslexia can be actually related to writing. These students often cannot hold a pencil correctly, and their strain may be tense while trying to write. This causes them to tire easily, causing frustration that prevents progress. Dysgraphia can also indicate difficulty in written expression. With this kind of disability.

Students find it difficult to organize their ideas coherently. Writing may be redundant or have a clear oversight that affects the quality of the text and its readability. Dysgraphia may also cause students to struggle with basic sentence structure and grammar awareness.

5. Difficulties in Mental Treatment: Learning disabilities are also linked to the treatment of mental treatment deficits. When students have a treatment deficit, they have difficulty understanding sensory data. This makes it difficult for students to perform in traditional classrooms without educational support. These disabilities are often audiovisual, and can make it difficult for students to distinguish and remember important information needed to succeed.

Previous Studies

The researchers discussed number of the previous studies that dealt with the study variables and can be divided into two factors, namely:

First: Studies dealing with the Dyspraxia for people with special needs and Learning Difficulties

Thabet study (2019) aimed to reveal the effectiveness of a program using active learning in reducing reading learning difficulties for a sample of primary school pupils, and the sample consisted of (20) students with reading difficulties, they were divided into two experimental and control groups that applied the experimental learning program. The active group studied the control group in the traditional way, and the results of the study showed the effectiveness of the active learning program in reducing reading difficulties for primary school students.

Al-Fanhrawi&Nour (2018) study also aimed to identify the level of visual and motor coordination among a sample of students of special education classes and the differences between them and their ordinary peers, and a sample of (200) students of both sexes was chosen from the special education classes and ordinary, and the results of the study reached. The level of kinematic synergy was low for students with special needs, and the results showed that the visual kinematic synergy of the ordinary was high compared to the normal, while the males were more disturbed in the visual kinetic synergy than females.

Cacola et al. Et.al (2017) discussed disorders accompanying the existence of developmental learning difficulties through a review of the literature that dealt with the linkage between the two variables, and the study showed in its results that this category exposes many developmental movement disorders and other disorders that need therapeutic, psychological and educational interventions, and the study indicated the need to develop diagnostic methods for those with Developmental learning difficulties to facilitate detection of such disorders.

Abdulkarim et al. (2017) study tried to Implementing a multi-sensory program to relieve motor disturbances and dyslexia for a sample consisting of (41) students in grades two to five, from three elementary schools in the city of Rafha in the Kingdom of Saudi Arabia, and the criteria for difficulty of motor coordination and dyslexia were prepared, and the total sample was divided into two experimental groups receiving the program Multi-sensory, control subjects do not receive this program, and the results of the study indicated that the group that studied through the multi-sensory program improved their visual motor coordination skills, and they said they had problems with dyslexia.

Bodison(2016) focused on identifying the difficulties of developmental motor synergies and children's play skills for a sample of children with learning difficulties, and the study indicated that children with learning difficulties constantly suffer from problems in the physical sensory synergy, so the study applied the strategy of games for children with learning difficulties to treat those. The problem, and the results indicated the effectiveness of play as an educational method that develops that addresses the problems of motor perception in people with learning difficulties.

Cassidy. Et.al.(2016) discussed the developmental motor impairment disorders among adults with developmental learning disabilities and autistic adults, the study showed that learning difficulties and autism spectrum often associated with the presence of developmental motor impairment disorders, and the study indicated that until now the extent of the developmental motor impairment disorder has not been determined between Autistic people with developmental learning disabilities, and at the end of the study indicated that these groups are more vulnerable to developing than others with ADHD.

Abelenda et al. (2015) reviewed literatures that linked disordered disorder infection and disability, and problems related to disability, the study also reviewed treatment interventions for such cases, and also aimed at providing treatment practices that help therapists how to deal with these cases, and in the end the study indicated that the occurrence of disability In many circumstances, it is accompanied by a disorder in the developmental motor synergy, which requires therapeutic, educational and psychological interventions.

Aldabour&Zahran (2013) study aimed to provide a therapeutic program based on the techniques of emotional behavioral rational treatment to improve the quality of life with its dimensions, as the sample consisted of (20) children with learning difficulties reading and writing difficulties, who were chosen from the school of hope in Shebin El-Koum, and they were divided To two experimental groups of (10) children, and the other as a control group, and the researchers used an achievement test to challenge people with reading and writing difficulties, in addition to the quality of life scale from their preparation, the results of the study indicated the effectiveness of the program presented to them in improving the quality of life with its dimensions among people with difficulties To read and write.

M, A,Dziuk, et.al 2007also focused on identifying the effects of injury and the presence of a disability on the disorder in the developmental motor synergy and their motor deficit and the weak social communication they have. Because of their weak ability to reach and motor deficits also which had an impact on their adaptation, which necessitates the need to carry out studies concerned with the development of developmental motor mobility for people with special needs.

Second: Studies dealing with Differentiated Learning and Learning Difficulties Students

Abu Shabab(2019)study aimed to identifying of the effectiveness of a training program based on differentiated education in improving the level of achievement in mathematics and the attitudes towards it among (70) third grade students with learning difficulties in government schools in Jordan, they were divided equally into an experimental group and a control group To achieve the goals of the study, a achievement test was built in mathematics and a card to observe the students' attitudes towards it. The results indicated that there are differences in the total score for the scale of trends between the members of the experimental and control groups in favor of the experimental group due to the training program used in the study. Head, while there are significant differences in the total score of the achievement test between members of the experimental and control groups in favor of the experimental group due to the training program used in the study.

Padmadewi&Artini(2017)study aimed to teach the English language to a student suffering from a developmental disorder in the regular class (a merging student) in Indonesia through the use of some differentiated learning applications, and the results of the study indicated the high levels of academic achievement in the English language for a child through the use of Differentiated learning strategies, and the study indicated that these strategies are appropriate to be applied in educational inclusion classes.

Valdesicu and colleagues Et.al (2017) evaluated the differentiated education procedures for learners with different disabilities, and after the completion of the study it became clear that the procedures for applying differentiated learning need to be re-arranged and built to suit the conditions of people with special needs, while the

application of strategies for this type of education is effective in Achieving the learning objectives, while the application is with people with special needs, the matter needs to be re-arranged according to their different needs.

Mashaykhes(2015) interested in learning about the impact of using differentiated education to improve reading comprehension and oral expression for students with learning difficulties, as the researcher selected a sample of people with developmental and academic learning difficulties together, who suffer from problems in reading and reading comprehension, and the researcher applied differentiated learning strategies to The experimental group, while the control group studied in the normal way, and the results indicated the superiority of the group studied through differentiated learning.

Denning & Moody (2013) tried to apply differentiated education strategies with a sample of people with developmental and autistic difficulties in order to develop their educational needs. Distinguished education to meet the needs of students with various learning disabilities and autistic students.

Roy (2010) study focused on learning about the effectiveness of some educational strategies, which included some differentiated strategies for a sample of students with learning difficulties, in order to meet their educational needs and better integrate them into the educational process, and the application was made on a number of subjects. This has indicated results The study indicates the effectiveness of the strategies used to meet the different educational needs of students with developmental learning difficulties.

Tissot& Evans (2003) attempted to identify the effectiveness of applying visual educational strategies on which differentiated learning strategies depend on students with learning difficulties from children, in order to identify their needs and raise their cognitive abilities, and the results indicated the effectiveness of applying visual strategies based on differentiated learning in Improve the cognitive abilities of students with learning difficulties, and know their different needs.

Through the previous studies presented by the researchers, it is clear that the group with learning difficulties needs to improve educational services provided to them and that they suffer from many problems, in addition to many disorders, including visual impairment of motor movement, which need educational, psychological and medical intervention, especially improving educational services provided to them, And the development of education strategies presented to them, and the studies presented indicated the effectiveness of differentiated learning strategies as it became clear their effectiveness in learning to overcome the problems of students with learning difficulties and achieve good results for learning, in addition to facilitating their integration better. engage with their classmates, improve their educational level, and overcome many of the disorders they face.

Study Hypotheses

1. There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying differentiated learning strategies.
2. There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the verbal communication factor.

3. There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the reading factor.
4. There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the focus of attention factor.

Study Procedures: The procedures included the following:

- **Methodology:** The current study relied in its methodology on the semi-experimental approach with one group and the application before and after for the same group, with the aim of checking the differences between the pre and post applications of the same group.
- **Study Community:** study community consisted of all students with learning difficulties at Ras Al Khaimah Academy for Girls in Ras Al Khaimah.
- **Study Sample and its Characteristics:**the study sample was chosen from (25) kindergarten children between the ages of 4 to 7 years, who were classified as having learning difficulties at the Ras Al Khaimah American Academy for Girls in the Emirate of Ras Al Khaimah, and who suffer from some of the difficulties that are associated with the movement disorder synergy Evolutionary, through the application of the scale of developmental motor kinetic disorder by Khasawneh and Al-Khawaldeh (2016), in addition to the scale of diagnosis of learning difficulties accompanying dyspraxia, namely verbal communication, reading and attention.
- **Study Tools and their Psychometric Properties:**the current study relied on the following tools:

First: Differentiated Learning Strategies: The present study proceeded on a number of principles of differentiated education, summarized by Tomlinson (2004: 64) in several points, including:

- Children participate in all actions and respect their opinions and differences.
- The specialist or teacher understands and appreciates the differences and can differentiate each child's needs.
- To reach the utmost understanding of autistic people, especially motor skills.
- Strategies depend on some graphics and games with which learning disabilities can be trained in motor skills.
- Teaching according to the multiple intelligences model, and providing experiences and practices according to the characteristics of the child with special needs.
- Education and training according to self-education, such as they perform exercises, movement activities, and manual work.

The steps to implement the strategy went according to what Attia indicated (2009: 151) as follows:

- The exploratory stage: The first stage in differentiated education is to conduct a reconnaissance evaluation study to determine the knowledge levels that children with learning difficulties possess, in addition to identifying trends, tendencies and personal characteristics of each of them, the preferred learning style for each child, the cultural background and the home and social environment for each student.
- Divide students into small groups in light of the common factors among them that bring together the members of each group, through exploratory study.

- Determine the tasks that each child will undertake to achieve the goals of the study.
- Choose the appropriate learning resources for each group and the tools and means necessary for learning.
- Organizing the learning environment in a way that suits the requirements of each group.
- Develop a plan for carrying out activities and tasks in light of the students experiences and their distribution.
- Implement the plan that indicates groups are learning the way, tools and methods that are appropriate to them.
- Evaluation is made by measuring the outcomes of the differentiated education process and making sure that the desired goals are achieved.
- **Reliability & Validity of the Strategy:** The strategy was well prepared after the researchers reviewed a number of previous studies that dealt with differentiated education; and then it was presented in its initial image to (10) of specialists, experts and university professors to verify its sincerity and consistency, and after the amendments and directives given by the judges, the researcher adjusted and settled The final form of the strategies that have been applied.

Second: Difficulties Associated with the Developmental Motor Disorder (Dyspraxia) Questionnaire:

Researchers prepared the questionnaire and it was at the beginning of (40) items that were reduced to finally (30) items after verifying the validity and consistency of the test as follows:

- **Validity and Reliability of the questionnaire of difficulties associated with the developmental motor disorder (dyspraxia):** It was verified by two methods:
- **Validity of the experts:** questionnaire was presented to a group of experts of the arbitrators to verify its validity and suitability for application in the current study, and indeed the arbitrators showed a high agreement amounting to more than (90%) on the safety of the wording of the test phrases and their suitability for application to the sample under study.
- **Alpha Cronbach:** The reliability of the test was calculated by the Alpha Cronbach parameter, as shown in the following table:

Table 1: Illustrates the Alfa Cronbach coefficients for the test axes associated with the developmental motor kinetic disorder

Difficulties	Alph	Sig
Verbal Communication	0,89	0.05
Reading	0.76	0.05
Attention	0.85	0.05

It is clear from the previous table that the alpha-Cronbach coefficients are high for the test axes associated with the developmental motor kinetic disorder, after deleting the weak-correlated expressions, Corrected Item-Total Correlation is less than (0,19), where the alpha-Cronbach coefficients were respectively (0.89), (0.76), (0.85) and these coefficients are high, which indicates the stability of the test.

Third: Evolutionary Mobility Synergy Disorder Questionnaire by Khasawneh and Al-Khawaldeh (2016)

The Questionnaire included a primary monitor list for dyspraxia, a reading monitor list, a manual plans watch list, a computational capacity monitoring list, a physical education watch list, a verbal dyspraxia watch list, and a social skills and communication watch list.

Recalculation of the validity and consistency of the evolutionary kinetics disorder Questionnaire: The evolutionary kinetic synergism Questionnaire prepared by Khasawneh and Al-Khawalidah (2016) was distinguished by its high sincerity and stability, to be applied in many previous studies.

- **The validity of the experts:** questionnaire was presented to a group of experts of the arbitrators to verify its validity and suitability for application in the current study. Indeed, the arbitrators showed a high agreement of more than (90%) on the suitability of the scale for the current study.

Alpha Cronbach Coefficient: where the Alpha Cronbach coefficient was calculated for the overall degree of the scale where it was (0.84). This coefficient is high, indicating the consistency of the measure of the developmental motor disorder and the possibility of its application in the current study.

Statistical Methods: The current study relied on several statistical methods represented in the following:

- Frequencies & Percentage- Pearson Correlation
- Alpha Cronbach- T test - Mean & Standard Deviation

Study Findings: Findings of the study will be presented according to the results of each hypothesis separately as follows:

First: Findings of the first hypothesis: There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying differentiated learning strategies.

To verify this hypothesis, arithmetic averages and standard deviations were calculated for both the pre and post applications and Table No. (2) illustrates this as follows:

Table 2: Differences between pre- and post-application in testing the difficulties associated with Dyspraxia

Questionnaire	Pre test		Post test		T test
	Mean	St.d	Mean	St.d	
Test for Difficulties Associated with Dyspraxia	1.46	0.51	2.83	0.61	*5.24

* Sig at the level of 0.05

Table (T) value at (0.05) = 1.83

It is clear from the previous table that the value of (T) is a function at the level of (0.05) where the calculated value of (T) is greater than the tabular value, which indicates the presence of statistically significant differences between the pre and post applications in favor of the post application after applying differentiated learning strategies.

Second: Findings of the second hypothesis: There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the verbal communication factor.

For verify this assumption, arithmetic averages and standard deviations were calculated for both the pre and post applications and Table No. (3) illustrates this as follows:

Table 3: Differences between pre- and post-application in testing the difficulties associated with Dyspraxia at the Verbal Communication factor

Factor	Pre test		Post test		T test
	Mean	St.d	Mean	St.d	
Verbal Communication	1.35	0.43	3.83	0.55	*4.36

* Sig at the level of 0.05

Table (T) value at (0.05) = 1.83

It is clear from the previous table that the value of (T) is a function at the level (0.05) where the calculated value of (T) is greater than the tabular value, which indicates the presence of statistically significant differences between the pre and post applications in favor of the post application in the Verbal Communication factor.

Third: Findings of the third hypothesis: There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the reading factor.

For verify this assumption, arithmetic averages and standard deviations were calculated for both the pre and post applications and Table No. (4) illustrates this as follows:

Table 4: Differences between pre- and post-application in testing the difficulties associated with Dyspraxia at the Reading factor

Factor	Pre test		Post test		T test
	Mean	St.d	Mean	St.d	
Reading	1.02	0.43	3.51	0.52	*3.22

* Sig at the level of 0.05

Table (T) value at (0.05) = 1.83

It is clear from the previous table that the value of (T) is a function at the level (0.05) where the calculated value of (T) is greater than the tabular value, which indicates the presence of statistically significant differences between the pre and post applications in favor of the post application in the of Reading factor.

Fourth: Findings of the fourth hypothesis: There are statistically significant differences between the average levels of pre and post application for testing the difficulties accompanying the developmental motor disorder in people with learning difficulties after applying the differentiated learning strategy in the focus of attention factor.

For verify this assumption, arithmetic averages and standard deviations were calculated for both the pre and post applications and Table No. (5) illustrates this as follows:

Table 4: Differences between pre- and post-application in testing the difficulties associated with Dyspraxia at the Attention factor

Factor	Pre test		Post test		T test
	Mean	St.d	Mean	St.d	
Attention	2.02	0.60	3.81	0.60	*2.02

* Sig at the level of 0.05

Table (T) value at (0.05) = 1.83

It is clear from the previous table that the value of (T) is a function at the level (0.05) where the calculated value of (T) is greater than the tabular value, which indicates the presence of statistically significant differences between the pre and post applications in favor of the post application in the of Attention factor.

III. DISCUSSION

Findings of the current study showed that people with learning disabilities who suffer from developmental motor synergistic disorders (dyspraxia) and this is accompanied by various disorders identified by the study in the disorders of verbal communication, reading and attention, and that these students need to develop different skills they have, which makes them need to overcome The problem associated with dyspraxia infection, and this is consistent with the findings of the studies of Thabet (2019), Al-Fehnrawi and Nour (2018), Cacola et al. Et.al 2017, Bodison 2016 Bodison, Cassidy. Et.al 2016, Abelenda et al. 2015 et.al, and Dizik et al. 2007.

Where those studies indicated that people with learning disabilities who have developmental mobility disorders need to be trained in a lot of life skills that help them to autonomy rather than depend on others, They also need to develop their various skills, such as motor skills, which are usually accompanied by functional shortcomings in one of the senses and deficiencies in many skills, as they suffer from many accompanying problems such as speech, speech, communication, attention and perception disorders.

Study findings also indicated the effectiveness of differentiated learning strategies to overcome the difficulties associated with the developmental motor disorder (dyspraxia) among people with special needs in general, and learning difficulties in particular, and this confirms that children with learning difficulties can be taught and trained and improve their skills through advanced educational and training strategies.

Thus, the results of the current study are consistent with what was indicated by the studies of Abu Shabab 2019, Padmadewi and Artini 2017, Valdesic and colleagues Valdesicu. Et.al 2017, Denning & Moody 2013, Roy 2010, Tissot& Evans 2003, where these studies emphasized the effectiveness of applying differentiated learning strategies with children with learning difficulties, and that differentiated learning strategies can be applied with all groups, whether ordinary or Those with special needs, and thus the results of the current study are consistent with the findings of those studies.

IV. RECOMMENDATIONS

At the end of the current study, the study recommends a number of recommendations, including:

- Carrying out neurological studies on people with special needs diagnosed with developmental motor impairment.
- Providing resource rooms containing all requirements of students with special needs.
- Holding training courses for customers to detect disturbances associated with people with special needs.
- Creating resource rooms in centers for people with special needs and classes for merging with educational needs.
- Working to develop the different skills of ordinary students and those with special needs through distinguished teaching strategies.
- Developing teachers' skills to apply modern learning strategies.

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