

The Effectiveness Of A Behavioral Cognitive Program Based On Self-Regulated Techniques In Enhancing The Level Of Attention Among Pupils With Attention Deficit Hyperactivity Disorder

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Abstract : The purpose of this study is to examine the efficacy of a behavioral cognitive program based on self-regulated techniques to enhance the level of attention of pupils with Attention Deficit Hyperactivity Disorder. To conduct the objective of the research, the researcher adopted the semi-Experimental Method and selected an experimental sample of (20) pupils at elementary school. The results of the study confirmed the efficiency of the training program and its role in improving the level of attention of pupils with Attention Deficit Hyperactivity Disorder. The study findings also found that are significant differences in the children's attention rating scale between home and school models in pretest and posttest in favor of the posttest measurement. Besides, there are no differences between the pretest and posttest and follow-up measurements of the children's attention scale in school and home models.

Keywords: Behavioral Cognitive Program - Self-regulated Techniques - Attention Deficit Hyperactivity Disorder

1 INTRODUCTION

Attention is one of the mental processes that play an important role in a person's life in terms of his ability to communicate with his surrounding environment, which is reflected in his choice of different and appropriate sensory stimuli so that he can accurately analyze, perceive and respond to them in a way that makes him adapt to his internal or external environment, and he has gained attention. With the interest of many researchers, considering that it is the process that forms the nerve of the psychological system in general, through which the individual cannot acquire many skills and form many learned behavioral habits that achieve a great deal of compatibility in the environment in which he lives, and the study of attention has received great attention in different stages of life, especially childhood. (Razza, R., et al., 2013). The level of attention of individuals varies according to the integrity of the senses and the sensory neurotransmitters, and the center of attention in the central nervous system of the brain, so we find that some individuals have a high level of attention and others have a low level in it, and some children suffer from their inability to focus on stimuli. For a long time, therefore, they find it difficult to follow the instructions and finish the work that they do, and these children are also impulsive, and therefore we find that they answer questions before completing them and perform some behaviors that harm others or expose themselves to danger without taking into account the dire consequences of such these behaviors Such as jumping from high places or running in a street crowded with cars without looking at the road, and the attention disorder of these children is always accompanied by excessive movement activity, which makes them move frequently and randomly in the place in which they are, without a clear reason or goal. (Semple, R., et al., 2010).

The description of attention disorder goes back more than a hundred years, so with the outbreak of World War I, it was observed that while adults were suffering from the consequences of encephalitis and showed symptoms of Parkinson disease, children with the same disorder showed behavioral symptoms of excessive movement, and from here it seems clear There is a correlation between brain disease and pathological behavioral anomalies, and the link between pregnancy complications and the extent of neurological effects has led to the development of new assumptions, while severe brain damage leads to a clear neurological disease and it seems that simple brain damage has caused an acceleration of behavioral problems, but this term appeared It loses its meaning in the 1960s when it is understood that hyperactivity behavior can occur without being associated with an organic disorder. In 1980, DSM-III conceived of an attention deficit disorder, an attention deficit disorder with hyperactivity, and this new idea arose out of an estimate that the main factors in this disorder include inattention, impulsivity (impulsivity), as well as excessive movement. Attention deficit hyperactivity has become one of the most important disorders that children face in the early childhood stage, where about 5% of children are spread, and this disorder affects males more than females, as we find that the ratio can be 1: 2 in children and reach 1.6: 2 in adults (American Psychiatric Association, 2013). This disorder is characterized by the deprivation of children's ability to focus and pay attention. And that the presence of this disorder in the pre-school stage is a strong indication of its appearance in the following stages also, these children are less able to adapt to others and form social relationships with peers (Thierry, K., et al., 2016). Many factors play a prominent role in the development of ADHD. Attention-deficit Hyperactivity in children, some of which are biological, hereditary, psychological, social, and environmental, including those related to the relationship of the child with his parents and with the school environment, and the method of socialization followed with the child. The symptoms of attention disorder in children differ according to the age they go through, as we find them in the neonatal, cradle

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and early childhood stages, taking an organic form, while we find them in the middle and late childhood stages, taking the behavioral form; It can be said that the child has this disorder, so his behavior must be compared with the behavior of his peer child of the same mental age. If clear differences are observed between the two children, this indicates the presence of the disorder. Some children are seen as unhappy or chaotic and indifferent children, this is what makes them the subject of complaints from teachers and parents without knowing that these children suffer from the excessive motor activity and is unable with them to control their behaviors, impulsivity, and lack of attention, and they cannot remain calm in their places, rather they desire strongly in the activity of running and jumping constantly and in any place such as home, school, street without a specific goal and this causes anxiety to others who deal with them. This disorder is accompanied by poor focus with mental distraction, which consequently affects the level of his academic achievement and his relations with others despite his intelligence. Actually, we should know that some children may suffer from attention deficit and distraction only, without excessive movement (American Psychiatric Association, 2013).

Attention deficit hyperactivity disorder has three types:

The First Type: Comorbid Type – Attention deficit Hyperactivity Disorder

This type includes the following symptoms: Inattention, Hyperactivity, Impulsivity, Disorganization, Poor peer, Aggressive Behavior, Poor self –concept, Poor self – Esteem, Poor Coordination, Memory problem, Persistent, inconsistency, and Sleep Problems. There are no specific physical characteristics associated with Comorbid Type - Attention -deficit Hyperactivity Disorder, but it is possible to have some very few physical differences such as (low ear - arched mouth), and these differences appear at a higher rate than normal children (Karen, M., Robert, K.,2002).

The Second Type: Hyperactivity & Impulsivity Type

Hyperactivity and impulsivity are considered from the characteristics that make the child not interested in the task assigned to it. Preschool children are automatic in their activity and may have short attention in the activities that they do. A child with a high level of activity and vitality in his family may notice excessive movement activity on him. In other families, during the breastfeeding stage, their moods appear volatile and difficult, and their growth is often very similar to children with hyperactivity as they have not previously learned how to control themselves, and then their hyperactivity is treated as a reaction to Tensions and household problems, the hyperactive child is characterized by not remaining still, impulsive and provocative, and fails to continue any activity for a long time, and has a weak sense of danger or risk) and it always needs vigilance and caution such children do not have the ability to focus on any activity and remain calm for a long time, and often encounter many problems at the beginning of school, and it is noticed that the hyperactivity of these children does not appear during their visit to the treating specialist, accordingly, the history of the case It is of great importance

more than observations during the clinical interview (Miller, C., et al., 2006). What distinguishes a child with hyperactivity accompanied by impulsivity is that he is restless, anxious or nervous, and has difficulty staying seated for a long time, and often moves here and there and is known for shaking their legs, swinging with their bodies, clicking with fingers, or causing intermittent noises, as well as confusing others when The practice of their activities and responds to questions or data without prior thinking, and he cannot take a rest to restore his work or play again, and some children with hypermobility are noticed the frequent movements of the head and eyes in multiple directions without heading to something specific, and some of them turn right and left without justification and without concentration on something, These physical movements of children appear anywhere, whether at school or at home, while eating meals or while watching television, and while doing homework, and they also appear in public places such as parks and restaurants and while riding in the car, and most of them suffer from disturbances in motor and behavioral coordination. And often we find him running or climbing things, finding it difficult to integrate into play or in recreational activities quietly and move a lot as if he was working on a motor, in addition to being talkative, and rushing to answer the questioner's question before completing his question, and he finds it very difficult to wait for his turn in any activity or task performed by him (Niraj, A., 2002 & Karen, M., Robert, K.,2002).

Hyperactivity & Impulsivity Type is identified through a person's failure to give careful attention to details or to make mistakes due to indifference in homework, difficulty in perseverance and perseverance in games, work, or activities that require constant attention. Therefore, it becomes difficult for them to complete what they have started from Actions, and it seems as if their minds are preoccupied with other things or they do not listen to what is being said completely. It is considered a way of life for these children, which makes them waste their personal things or expose them to destruction due to lack of care, and if a vocal stimulus appears like a noise that other people can ignore, these children are preoccupied with it and leave what they have started. On the social level, we find negative effects on social conversations through irrational transfers between topics or by not listening to others, in addition to not following up on the details and the rules relating to social and entertainment activities such as games, competitions, and others (Chalfam, F., 2001).

The Third Type: Inattentive type

Children with Inattentive type have developed a case of combination of visual and auditory disorders that cannot distinguish between the most important and the less important. For instance, the children cannot distinguish between the sounds around them because these sounds require a degree of attention equal to attention to a set of important instructions, after all, attention is a neuro-cognitive process. If the stimuli received by different organs of sense, they vary in strength and intensity, and the child cannot feel all the stimuli, which indicates the limited ability of their sensation. The concentration of sensation and mental exertion in an exciting manner is due to the brain's

ability to receive and regulate the stimuli enveloping the individual (Chalfant, F., 2001). So, a child who lacks attention cannot focus on an alarm clock for more than a few seconds in a row. Then he turns his attention to this alarm at the same time that the information is still emitted (Richard B., Robert L., 2002) such as the stench, the passage of a stream of air and sound from flipping the pages of books attracts the child's attention to it and turns his attention to it, leaving the main attention cause. In addition to his poor ability to listen, and long-term memory disorder, it does not help him with the information he needs when thinking about a particular subject. Therefore, he makes a lot of mistakes when he does the things he has already learned. He also lacks order of any work he does, and stays away from participating in any mental task, and always forgets the necessary things he needs. (Barkley, A., 2006). Children with Inattentive type have certain characteristics in the classroom. They are in dire need for constant control and supervision, as they reveal difficulty and lack of clear perception, concentration, understanding, conceptual formation, beside the difficulty of making decisions based on attention input (Korkman, M., Pesones, A., 2004). Skowronek, J. (2005) stressed that children with Inattentive type suffer from impaired verbal and non-verbal memory. They have difficulty in gaining perseverance and academic, social, and behavioral difficulties such as aggression and rebellion. De, T. (2000) noted that pupils with Inattentive type need to learn appropriate behavioral cognitive techniques that help them learn, control their attention, behavior, and improve the organization and treatment of stimuli during the learning process using self-regulation techniques. Several previous studies, such as Barkley's study 2004; Vitaro et.al, 2005; Brown, 2006 have agreed that the primary problem in pupils with Inattentive type is a lack of self-regulation or lack of procedural functions related to planning, processing, monitoring, and time regulation, which is considered to be implicitly disturbed (Rudolph, T., 2005) Self-regulation includes the ability of an individual to use cognitive and metacognitive strategies. Individuals with high capacity for self-regulation are distinguished by their possession of metacognitive capabilities (Lavasani, G., Hejazi, E. & Varzaneh, Y., 2011). Self-regulation is one of the predictors of academic excellence. Because it is not just a process that occurs, but it requires selection and instills the first foundations of responsibility in the learner, and the ability of students to self-organize is developed through special programs that train them to set and define their goals and monitor their behavior. In order to improve their academic achievement, increase motivation, and develop their ability to self-regulate (Markazi, L., Badrigargari, R., 2011) Dimensions of self-regulation: The dimensions of self-organization are represented in: goal setting: this is done through which the individual defines specific goals he seeks to achieve commensurate with his abilities, inclinations, and potentials, and they are achievable if he identified it from within, while if it was determined through an external source, its achievement by the individual is difficult. Self-observation: This is done by observing the individual's progress towards achieving goals, and this process includes awareness and attention to the stages of progress towards achieving goals, self-judgment: It refers to the ability of an individual to make self-judgments about his behavior by evaluating his

behavior while achieving goals that were previously set
 Self-reaction: It refers to self-reinforcement through a feeling of pride and pride due to progress in achieving goals, and also to feelings of regret and guilt as a result of failure to achieve it (Schunk, D., Zimmerman, B., 2007).

Self-organization in light of social cognitive theory:

The emergence of the self-organizing curve is mainly due to Bandura in light of his social epistemology. Bandura interpreted self-regulation as the situation in which the individual is the basis of the cognitive process; So that he defines his goals and the means that help him support his behavior and knowledge that lead him to achieve these goals (Ridder, D., Wit, J., 2008)

The social cognitive theory is based on many methodological limitations in that individuals have the ability to make symbols, which allow creating internal models to verify the effectiveness of experiments before carrying them out, and they also have the ability to self-reflection, the ability to analyze and evaluate ideas and subjective experiences. These abilities allow self-control in both thoughts and behavior, as well as individuals, can learn by observing the behavior of others and its results, and learning by observation greatly reduces the dependence on learning through trial and error. It allows the rapid acquisition of complex skills that cannot be acquired through practice alone. They also possess the ability to self-regulate by influencing direct control over their behavior, and by choosing or changing environmental conditions, which in turn affect the behavior. They also set personal standards for their behavior, and they evaluate Their behavior is based on these norms, and thus they can build a self-motivation that directs the behavior. Finally, it should be noted that the ability to (symbol work, self-reflection, self-regulation, and learn by observation) is the result of the development of complex neuropsychological structures. Where both psychological and experimental forces interact to define the behavior and provide it with the necessary flexibility, as well as environmental events and internal subjective factors (cognitive, emotional and biological) and behavior interact in a mutual way. Individuals are able to cognitively and behaviorally respond to environmental events, and exercise control over their own behavior through their available cognitive abilities, and behavior, in turn, affects the environment and the cognitive, emotional, and biological states, which is called (the principle of reciprocal determinism) (Dupaulm, G., et al., 2004). The researcher defines procedurally self-regulation as the process of determining the individual's goals and controlling his behavior by directing his attention towards the task he performs in a way in which the individual is in control of his emotions, and assessing himself during and after performance. From the standpoint of confirming previous studies on the development of the ability to apply self-monitoring and self-regulatory techniques such as the study of Steffens, K., 2006; Salanto, et al., 2007 On the other hand, the results of the study by Stevenson, J., Mackavagh, C., 2002, Dupaulm, G., et al., 2004 have concluded the effectiveness of executive function training in the treatment of attention deficit hyperactivity disorder using some Techniques such as: time management, planning, self-monitoring, self-adjusting and evaluation. The researcher

focused on using the techniques of "planning, goal setting, self-learning, self-monitoring, self-control, self-evaluation, self-reinforcement and homework" to improve attention level in children with Attention Deficit Hyperactivity Disorder.

2 - PROBLEM OF THE STUDY

The problem of study can be identified by answering the main question: to what extent a training program based on self-regulation technique of enhancing attention levels of pupils with Attention Deficit Hyperactivity Disorder is an effective?

This question includes the following sub- questions:

1. Are there any differences between the mean scores of home and school models based on the posttest measurement of the sample with Attention Deficit Hyperactivity Disorder?
2. Are there any differences between the mean scores of home and school models based on the pretest measurement of the sample with Attention Deficit Hyperactivity Disorder?
3. Are there any differences between the mean scores of the post and the follow-up measurement of the sample with Attention Deficit Hyperactivity Disorder?

3. MATERIALS AND METHODS

3.1 study Sample

The research sample was selected from the students who were previously diagnosed with Attention Deficit Hyperactivity Disorder, and they were chosen by the intentional method, and their number reached (27) students. Then, the researcher applied the children's attention scale "model home and school" prepared by the researcher and chose the researcher who obtained the highest scores in the scale Children's attention, where the high score on attention deficit and low on the absence of attention- deficit means (20) students with attention deficit hyperactivity disorder. The researcher relied on the one-sample method, an experimental group of (20) male students from the first, second, and third primary grades, whose ages range from 7-10 years with an average age of 7.9 years.

3.2 Tools of the research

Children's Attention Rating scale (Researcher's Preparation):

The rating scale consists of two models. The first concerns the parents' evaluation at home and consists of (13) words, while the second one is given by teachers at the school and consists of (13) words. The aim of this is to measure the level of attention of the pupils inside their homes and at school before and after the application of the program. The required answer was through grading scale out of four (1 – Never, 2 – Rarely, 3– To some extent, 4- A great deal). It was estimated quantitatively in which "never" is given (1), "Rarely" is given (2), and "to some extent" is (3), and "A great deal" is (4) based on the rating scale. The scores of statements of each model are grouped on a separate rating scale so that the high score indicates that the pupil suffers

from a lack of attention, and the low score indicates a lack of attention to the pupil.

Validity of rating scale

The rating scale was given to ten arbitrators specialized in psychology to verify the apparent validity, and the result was that the arbitrators agreed by 95% on the appropriateness of the rating scale for what it was set to measure. Some statements have been modified and reformulated, and then the researcher applied the rating scale on an exploratory sample of the study population which are more than (10) pupils other than the study sample. The researcher used the 'Alpha Cronbach' equation as a statistical method for analyzing the rating scale expressions to verify their consistency.

Table 1

Shows the values of the statement's coefficient to the total value of the items by 'Alpha Cronbach' equation

School Model		Home Model	
Statement	Alpha Cronbach Value	Statement	Alpha Cronbach Value
1	0.69	1	.073
2	0.75	2	0.74
3	0.72	3	0.68
4	0.74	4	0.82
5	0.80	5	0.74
6	0.70	6	0.71
7	0.67	7	0.72
8	0.86	8	0.84
9	0.74	9	0.77
10	0.80	10	0.73
11	0.70	11	0.69
12	0.67	12	0.75
13	0.81	13	0.72
Total	0.868	Total	0.872

It is obvious from the values of the Alpha Cronbach coefficient of Home and School models that the paragraphs of rating scale are valid and true in what they are intended to measure. Reliability of rating scale to verify the reliability of the rating scale, the Split-Half method was used to determine the overall reliability factor of the rating scale of the two models (home and school).

Table 2.

Shows Split-Half method of the children's attention rating scale (home and school)

Rating scale	Split-Half factor
School Model	0.883
Home Model	0.875

It is obvious clear from the table that the values of reliability are high and acceptable. Therefore, it is a good indicator of the rating scales of reliability to achieve the whole research objectives.

Behavioral Cognitive Program based on self-regulated techniques

The program aims to promote the level of attention of pupils with Attention Deficit Hyperactivity Disorder. The program was designed in light of the theoretical framework and the results of previous studies. The program included a group of social, educational, artistic, and cultural activities. The program consisted of (15) organized sessions, and the duration of each session ranged from (30-35) minutes. The program relied on self-regulation techniques of 'planning, goals setting, self-learning, self-control, self-evaluation, self-promotion, and homework. The researcher pretested the attention of the experimental group using the attention rating scale (the home and school model). Then the program has been applied to the experimental group over the course of (15) sessions at a weekly session. Then a posttest measurement of the attention of the experimental group has been conducted. Finally, and follow-up measurement of the attention of the experimental group has been conducted after (30) days of the end of the program sessions.

4- RESULTS and DISCUSSION

The study aimed to investigate the efficacy of a behavioral cognitive program based on self-regulation techniques to enhance attention of pupils with Attention Deficit Hyperactivity Disorder at Elementary schools in ARrass Province, Saudi Arabia. The result of the first hypothesis was that: there were no statistically significant differences between the averages of the home model and school model scores in the posttest measurement on the children's attention rating scale of the pupils with Attention Deficit Hyperactivity Disorder. To test the hypothesis, the Wilcoxon test was used to calculate the Means, SD, Z value and significance home and school models of the post-measurement on the children's attention rating scale of pupils with Attention Deficit Hyperactivity Disorder.

Table 3
Shows Wilcoxon test of the Means, SD, Z value and significance home and school models

test	M.	SD	(Z) value	Sig
School Model	26.60	.951	- 1.746	0.081
Home Model	25.30	1.531		

From the table above, the results of the first hypothesis using Wilcoxon's test showed no statistically significant differences between the means of home and school models of post-measurement of the children's attention rating scale of pupils with Attention Deficit Hyperactivity Disorder. From the researcher's point of view, the techniques of the measurement were clear, and the researcher has observed that the pupils revealed a strong desire to improve their attention. The full encouragement by the researcher, parents, and teachers made the pupils focus and pay attention to different tasks and apply these skills in other situations and places outside their home and school. The results of the second hypothesis using the Wilcoxon test showed statistically significant differences between the mean scores for home and school models of the attention of the pupils with Attention Deficit Hyperactivity Disorder.

From the researcher's point of view, the techniques of the measurement were clear, and the researcher has observed that the pupils revealed a strong desire to improve their attention. Moreover, the encouragement by the researcher and their parents and teachers pushed them to focus and pay attention to the various tasks and apply these skills in other situations and places outside the school and home.

Table 4
Wilcoxon test results to determine the significance of differences between mean scores of pretest and posttest of the children's attention rating scale (Home model)

Test	M.	SD	(Z) value	Sig
Pre	29.20	.951	-3.660	0.00
Post	26.60	2.064		

Table 5
Wilcoxon test results to determine the significance of differences between mean scores of pre- and post-measures of the children's attention rating scale (school model)

test	M.	SD	(Z) value	Sig
Pretest	28.35	1.531	- 3.179	0.01
Posttest	25.30	2.722		

The result of this hypothesis indicates that there are differences between the mean scores of the pretest and posttest measurements of children with Attention Deficit Hyperactivity Disorder. The differences are found in both home and school models of the experimental group of pupils with attention Deficit Hyperactivity Disorder, in favor of posttest measurement, which means that there is an effect of the cognitive-behavioral program based on self-regulation techniques in improving the level of attention in pupils with Attention Deficit Hyperactivity Disorder. Conceivably, the reason for the program's success is due to the therapeutic techniques used such as 'planning, setting goals, self-learning, self-monitoring, self-control, self-evaluation, self-reinforcement, and homework. In addition to the crucial role played by parents at home, the teacher with the experimental group, as well as organizing treatment sessions. The clarity of objectives and diversity in activities, exercises, and homework, and the regularity of the pupils of the experimental group in the program sessions made it possible to enhance pupils' attention. Another factor is offering stimuli that attract children's attention and urge them to complete the tasks and activities involved that are primarily suited abilities and capabilities by using different senses in training and selecting appropriate reinforcers. The result of the third hypothesis was: 'There were no statistically significant differences between the posttest measurement and follow-up scores in the children with attention scale, the home and school model of the experimental group of pupils with Attention Deficit Hyperactivity Disorder pattern. To test the hypothesis, the researcher used the Wilcoxon test to determine the significance of the differences between the mean post-measurement and follow-up measurement scores of home

and school models of the children's attention rating scale for the experimental group.

Table 6

Wilcoxon test results to determine the significance of differences between mean scores of post-measurement and follow-up measurement of the children's attention rating scale (home model)

Test	M.	SD	(Z) value	Sig
Post	26.60	.951	- 0.754	0.451
Follow-up	26.10	1.418		

Table 7

Wilcoxon test results to determine the significance of differences between mean scores of posttest measurement and follow-up measurement of the children's attention scale (school model)

Test	M.	SD	(Z) value	Sig
Post	25.30	1.531	- 2.099	0.036
Follow-up	24.95	.945		

The result of this hypothesis indicates that there are no statistically significant differences between the scores of pupils with Attention Deficit Hyperactivity Disorder in the post and follow-up measurements, on the measure on the of children's attention rating scale to the experimental group by comparing the arithmetic mean in the pre and follow-up measurement. The (Z) value was calculated for the significance of the differences, indicating on the continuing effects of the program after its end and during the follow-up period. The researcher believes that the program and the techniques have been used to improve the level of attention by providing a therapeutic environment closer to reality. In addition to the sincere desire and willingness of the pupils to participate in the sessions of the program, they have a strong desire to learn what helps them improve their attention. Parents were trained to apply the rating scale in the same way and were given the same instructions to them in premeasurement, which helped to give an accurate diagnosis. Following-up of the parents at home, alerting and correcting inappropriate behavior, and directing the children to always pay attention to the tasks required, plays a crucial role in developing pupils' attention. The program sessions, with their self-organizing techniques, also confirmed the ability of students to direct and focus attention, the ability to arrange the task and continue to perform it without getting bored. It was noted a decrease in the level of distraction in attention, improved regulation of stimuli, and self-control of thoughts. The techniques of the current program, such as self-monitoring, and self-learning, had a clear effect on the members of the experimental group in learning to control the level and focus of their attention for all the requirements of the task they perform and linking these requirements to their performance accurately. The program also trained the members of the experimental group on relaxation techniques and breathing exercises, which had a clear effect on clearing the minds of students and helping them to self-control their attention and not pay attention to distractions. The goals of the current program in providing

students with the skill of controlling attention are in agreement with the results of many studies, including Ridder, D., Wit, J., 2008; Jakesova, J., et al., 2016. One of the most important defining characteristics of self-organized individuals is their ability to direct their attention and motivation in order to achieve a goal

5- CONCLUSION

Based on the findings of the study, the researcher recommends training parents to apply cognitive-behavioral techniques and self-regulation and to train and accustom their children to use them at home and outside. Moreover, training courses for teachers of special education should be held to train and acquaint the teacher with self-regulation techniques to improve students' attention, and to organize the environment, whether at home or in the classroom to allow the children to make use of and reduce distraction. Finally, more studies and research should be conducted in this area.

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