

## Learning and Teaching Children with ADHD

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### Abstract:

*Cognitive problems are primary rather than secondary features of ADHD. Current theories propose that the behavioral symptoms of ADHD are not primary features of the disorder, but are attributable to underlying deficits in cognitive control processes that guide both behavior and cognitive functioning (Barkley, 1998). Working memory is one type of cognitive control process implicated in ADHD. Recent research indicates that working memory plays a major role in helping the mind focus and screen out distractions. Scientists have shown that even well-functioning, healthy adults become highly distractible when they have to think hard and continually rehearse information, which puts a heavy load on working memory. In other words, "the ability to act upon relevant information and ignore irrelevant distracters depends upon the availability of working memory". The article's aim is to value if some certain educational practices, designed(drew) carefully, could help the children with ADHD that have features of poor active memory, so they can develop at school, home in relation of their academic performance, so to offer access and effective models of learning and teaching, for those children that have special needs. The results have shown that the academic performance of these children with weak active memory and ADHD can be improved, if they are under some very simple practices (exercises) than can be used by the teachers and the parents that look after their education. In conclusion, is recommended to improve the knowledge on this area and to make further searches in the future, about learning capacity of children and*

*teaching strategies, due to the fact that the knowledge on this area are limited.*

**Key words:** *ADHD, Academic progress, Working Memory, Teaching, Learning.*

## **Introduction**

Field study of child development is very wide, and increasingly is growing, attention to children with ADHD, whose problems are too big nowadays. There are many studies that have contributed to the exploration of programs and more effective treatments to come to the assistance the needs of these children. The scope of this study is to focus on children with attention disorder with or without hyperactivity (ADHD), which exhibit problematic and more specifically labeled with significant difficulties in keeping information in mind for daily activities (working memory). Often happen to be concerned by the way in which working memory failures are not detected in the school and the home, that is often misunderstood and classified as failures of attention, or as easily distracted or simply are not interested. What we see to a child when it starts to do a task, but he forgets basic information to accomplish it, if it does not help at the moment it can be any distraction and give up. Interference in the right point can help the child to perform the task and to overcome internal challenges faced daily.

Classroom experiences leave us to believe that children with poor working memory are important and require special support when they are struggling with the demands of different activities in the classroom and at home. Learning becomes even more difficult when you do not understand the reason of the failure on classroom tasks, and when people who work directly for their education does not have the knowledge required about effective strategies for this target group of children. It is

important to set up educational practice for people to stay close to a large part of the day with children with special needs, such as parents, teachers and anyone who cares about their education. Of course the meaning and at the same time the treatment of cases of children who exhibit ADHD symptoms due to poor working memory features, as a whole team (teachers, parents, psychologists) can be very valuable and useful, when it refers to school outcomes of these children.

More specifically, if a child fails to remember the simple request given by the teacher to solve a problem in mathematics, than the inattention child must not be the only reason of not remembering the request, but may be due to the characteristics of a poor working memory. Then the teacher can intervene in particular fragmented or by written request and repeated several times. Working memory is considered as a key factor in the implementation of daily activities, and above all according to Gathercole<sup>1</sup> school performance. The article structure starts by reviewing existing literature about the concept and theories associated with poor working memory in children with ADHD, by proposing a typology that helps to position the results and observations of other researchers. Then move on technical aspects presentation, data and methods used in the study, discussing the extent to which findings are consistent with existing literature. The final part of the article is focused on the conclusions and suggestions for further research.

## **Actual Research**

This study aims to identify the role of working memory deficits features to the academic performance of children with attention disorder with hyperactivity. Also as part of this study will be to train people who spend most of their time educating children,

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<sup>1</sup> Gathercole, SE, Pickering, SJ (2000) Working memory deficits in children with low achievement in the national curriculum at 7 years of age. *Br J Educ Psychol.* Jun;70 ( Pt 2):177-94.

teachers and parents. Teachers and parents will be informed and trained in the techniques and the choice of ways to help children overcome difficulties memorizing of information available to academic performance. More specifically, this study will specifically examine whether these techniques will help children improve academic performance progress (reading, understanding, solving exercises) and whether they will be effective in achieving this goal.

**Hypotheses** of this study are:

1. Using training techniques to teachers and parents in the management of working memory deficits in children with ADHD reduces the appearance of these deficits.
2. Using training techniques to teachers and parents in the management of working memory deficits in children with ADHD increased academic performance (learning) to these children.

**Objectives of the study:**

1. To explore a new approach of seeing one of the elements of the children suffering from ADHD, this is the working memory.
2. To increase the knowledge of working memory deficits and its association with academic performance in school.
3. To train teachers and parents who care about the education of children in the class about the features and characteristics of the modes of action (teaching) with those children with special needs.
4. Analyze how children cope with their challenges related to the difficulty to remember the information in mind (working memory).
5. Offer some recommendations on how to work with children with ADHD and working memory deficits in school.

6. To break down barriers to care for children who are economically disadvantaged acknowledged as being at high risk for low scores in school.

### **The literature about children with ADHD and poor working memory**

Attention hyperactivity disorder (ADHD) is recognized as one of the most common disorders diagnosed among children (Barkley, 1998). It is estimated to affect about 3% to 7% of school-age children (American Psychological Association [APA], 1994) from cultures and different geographic regions (Tannock, 1998). However, ADHD consists of three primary symptoms (poor attention, impulsivity, and hyperactivity), some theorists also believe that poor working memory is an essential feature of ADHD (Barkley, 1998). Boys are about three times more affected than girls. Children with ADHD act without thinking, and have difficulty concentrating.

Barkley emphasizes the use of executive functions to guide behavior toward hypothetical future events. He describes ADHD as a disorder of performance, rather than a skill disorder. Is not that a child hasn't the skills to plan, to regulate his / her, or to concentrate, but he / she has difficulty in point of the performance of these behaviors. As a result, its recommendations are to be made interference at this point of the performance. Together, Barkley theories and Brown suggest that deficits in executive functions are essential components of ADHD and associated with a number of other difficulties in learning and thinking skills. Brown describes ADHD as an injury or delay development executive functions. He suggests that a number of executive functions have priority and integrate neural networks that manage the brain.

Many children with ADHD have damaged the working memory, which is an important element of executive functions. These skills are critical to the writing and making of mathematical problems, but not only. A recent research

conducted by Mayes & Calhoun has identified that expression through writing is the most common problem of children with ADHD (65%). Consequently, writing, answer questions on tests or homework are often challenging for these children. For example, when they have to write something, often have difficulty holding ideas in mind, action and organization of ideas, rapid correction of grammar, and punctuation rules from long-term memory, manipulation of information, reviewing and correcting mistakes, receiving instructions and memorizing them.

Memory is an active and attentive executive aspect of short-term memory that involves temporary integration, processing, regulation and return information. Working memory tasks include active monitoring or manipulation of information or behaviors. Existing theories related to both the structure of working memory and the role of specific parts of the brain that involve working memory. Moreover, the research identifies that the frontal cortex, parietal cortex, anterior cingulate, and parts of basal ganglia are critical for the functioning of working memory.

Many of the learning activities, where many of the children are engaged in class related to reading, math, science or other fields, impose significant obligations on working memory. Activities require the child to keep in mind information (for example, a sentence to be written) while they are doing something that could be really mentally challenging (as may be the spelling of single words in the sentence). Some of the characteristics of children with poor working memory: are socially well adjusted, are shy in group activities in the classroom, rarely respond voluntarily and often do not respond to direct questions, behave like those who do not pay attention things often forgotten part of the instructions or messages and often not completing tasks, frequently lose their place in complex tasks, that they can finally leave, forget the content of the instructions or messages, have low academic progress during school years, usually in the areas of reading and

mathematics, considered by their teachers to have a low attention span, also are easily distracted, in most cases fail in doing homework.

## **Methodology**

This study aims to identify the role of working memory capacity in children with ADHD in their academic performance in school and to present a new model of teaching of persons who are taking care of children with ADHD. This model will have an impact on the level of working memory capacity, which will contribute to increased learning for children with ADHD.

To accomplish this goal mentioned above was designed a qualitative methodology, based on three specific cases. The study intended to reflect the real situation encountered problems in children with ADHD and who have working memory deficits and their impact on levels of academic progress. The case study is quite complex because it's dealing with cognitive processes, but also a new experience in this field. The definition is very little known by school psychologists in schools. Selected sample to be part of this study, there are three case studies selected with the help of ADHD checklist outlined if children fall into this classification. Children were selected from age 8 to 9 years, followed by specific features, for example: Children underwent several different instruments, such as inventory assessment completed by parents of children, which is an instrument that was used in order to gather key information for the development of children's lives selected. Is used ADHD checklist to identify whether children have ADHD symptoms. Also, the checklist of working memory checklist is used to explore children identified with ADHD, if their behavior list includes an element of poor working memory.

Other sections supporting methodology was psychoeducation, which means a kind of training with primary caregivers specifically with primary teachers with information and knowledge base with possible techniques for identifying

children with poor working memory and ADHD and improving academic learning. It is therefore carried out the implementation of two instruments ADHD checklist and working memory checklist before psychoeducation and after psychoeducation to understand if there is an improvement and reach to help children through several techniques in their academic performance. Included in this study were teachers, parents and school psychologists.

## **Sample**

As research approach is focused on children diagnosed with ADHD, meaning that representatives in the sample is small, but that allows the search to explore in depth the hypothesis and not only. The sample were deliberate usually referred to studies specified small-scale models of research that rely on the selection of qualitative data focusing on the exploration and interpretation of experiences and perceptions. Children with ADHD are selected on the basis of characteristics or experiences related directly to the area of interest and research question is chosen.

Children were selected in the elementary school age because children with ADHD can be identified after age 7 years and second grade or third is the age where children develop the skills of writing, reading and understanding as well as the age where the symptoms of ADHD were more visible.

Research methodology will be built in accordance with the need of gathering information regarding variables and relationships between them.

## **Results**

Activities conducted with the three cases have served to understand about facilities that can support these children with features, through some simple exercises that carefully can be applied by teachers and parents. With specific support and



maybe with a new form of teaching can empower children to read better. Children can better understand a problem, or with the help of guidelines to explain a story, feel less challenging and closer to the level of others in an age with them. But in fact, as we shall note below, this hypothesis is confirmed in this study. Interpreted in this way, children with ADHD who have poor working memory features and low capacity to cope with the burden of a high level of information in mind, when assisted by teachers, parents or care givers near them through some exercises can improve their academic performance. This means if they have a task with several applications, divided into separate requirements and pictures, these children may have more interest and more attention to focus and remember more information.

## **Conclusions**

- The number of children with attention disorder with hyperactivity that are not specifically identified and featured as children with poor memory may be much larger than the statistics of nowadays, for lack of information and appropriate methods to recognize and detect such problems.
- The application of various techniques and exercises has a positive impact on behavior management and increased interest in various aspects of academic performance by children. Teachers, psychologists should be wary of any action that attracts their attention in the classroom and focus until they understand by several methods what is wrong.
- Teachers who deal with children with ADHD need to follow a particular program in learning educational program that positively affects cognitive development of the child so that it has improved significantly and it is main feature of working memory.
- Parents of children play a leading role and supporting initiatives that teachers and psychologists take the child, and should be informed about everything just like teachers so that

they reach to manage different situations regarding the requirements that children have.

- At the end of this study, several training manuals were built taking into account the needs of children with ADHD and poor working memory for parents and teachers.

Emphasis should be put on children with ADHD who exhibit weak features simultaneously working memory can not be successful if you do not work in schools as a multidisciplinary team. Which means when identifying children who have special needs with the help of psychologists in schools, have to involve in the process training teachers and parents at the same time about the procedure to be followed for to help these children to walk and learn at the same pace as their peers who do not have these learning difficulties and their academic performance.

## Discussions

Did you know that a child who has difficulty in instruction memory, learning things the "heart", or maybe reading may have a problem with working memory. You ever happened to leave the room to do something in another room, and when you return you are unable to remember what? It happens to everyone and is a small failure of what psychologists call working memory. It is the ability to remember "bits" minor unrelated information with each other for a few seconds. One of the ways that psychologists can measure your working memory is ask to you immediately to repeat a series of numbers on the increase on through speech:

/ 3-5 // 7-2-6 // 9-3-1-4 // 4-7-3-1-8 /

Any range of numbers is random and each string must be said immediately. Working memory space is related to how much you are able to replicate numbers. Young children may repeat

only two or three numbers and working memory increases smoothly with increasing age.

From the study conducted with the three case studies can say with conviction that children with poor working memory by taking into account their profile need special assistance in the classroom and at home, which relief may be granted not only by professionals, but also by teachers and parents who have a greater contact with the child. From the evaluation, I came to realize that in all three cases working very little in this regard and these features taken easily and not based on their academic performance, this happened due to lack of information and experience, or educational programs at this level.

In fact, in Albania there has been no research in this area and can not say how arguments are developed and evolved knowledge. Abroad mainly in New York University has conducted numerous studies that support the study. Which means that children with working memory are not able to keep information in mind because of the many factors that may be deconcentration, lack of attention and other reasons that really are hard to manipulate, but not that they do not want to learn and achieve results in school.

Is the author Gathercole, who has done studies on the working memory and has developed manuals and programs for teachers and parents on how to help these children. Her study "Classroom Guide"<sup>2</sup> includes a set of practices and exercises needed.

But there are other theories that do not support this study are biological theories, which focus on the biological aspect of the phenomenon.

Research has shown, have concluded that ADHD is neurological basis; the same studies have also shown with

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<sup>2</sup> Gathercole Susan (2007)– Classroom guide

neuroimages, magnetic resonance imaging, EEG (Riçio et al., 1993; Castellanos, 1997)<sup>3</sup>.

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<sup>3</sup> Riçio et al., 1993; Castellanos, 1997)

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