

CHARACTERISTICS OF PSYCHOMOTRICITY IN THE CONTEXT OF ATTENTION DEFICIT DISORDER WITH HYPERACTIVITY

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ABSTRACT. This paper establishes the relation between two concepts, the concept of psychomotricity and ADHD, relation reflected by a case study. Following this theoretical framework and detailing executive functions, there can be underlined the main aspects, necessary to be assessed in order to relate those two concepts. Thus, the assessment of the case study is focused on visual-graphical-motor areas, the results confirming us the possibility of relating ADHD and psychomotricity as two connected concepts.

Keywords: attention deficit disorder with hyperactivity, psychomotricity, executive functions, visual-motor abilities, graphic-motor abilities

ZUSAMMENFASSUNG. Die Besonderheiten der Psychomotorik in der Kontext der ADHD (Aufmerksamkeits-Defizit-Syndrom mit Hyperaktivität). Dieser Studie begründet die Beziehung zwischen zwei Konzepte, das Konzept der Psychomotorik und ADHD (Aufmerksamkeits-Defizit-Syndrom mit Hyperaktivität), eine Beziehung gezeigt mit einer Fallstudie. Nach dieser theoretischen Teil und detailliert die Führungsaufgaben, die Hauptaspekte können betont werden, es ist notwendig bewertet zu werden in der Beziehung mit diesen Konzepte. Darum die Bewertung der Fallstudie ist konzentriert auf die visuelle-graphische-motrische Bereiche, das Ergebnis bestätigt uns die Möglichkeit der Beziehung der ADHD und Psychomotorik als zwei Konzepte die in Beziehung sind.

Schlüsselwörter: Aufmerksamkeits-Defizit-Syndrom mit Hyperaktivität, Psychomotorik, die Führungsaufgaben, visuelle-motrische Fähigkeit.

1. The Role of Executive Functions

The executive functions are the component which ensures behavior regulation in any task (Greenbaum, Markel, 2001 apud Barkley, 1990). These include: working memory, organization of thoughts, time and space, planning, prioritization, focusing and sustaining of attention, recall, emotional self-regulation, monitoring, assessment and reassessment.

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Brown, (2008) outlined six aspects pertaining to executive function in children with ADHD:

- **activation** has to do with organizing abilities, prioritizing, starting the task. Children with ADHD find it difficult to get started on a task, are unable to manage their time, overlook details and end up completing tasks on the last minute.

- **focus** se refers to focusing and sustaining focus. Disorders at this level mean that these children are distracted easily by any external or internal distracting factor. They are unable to complete a task or to take up multiple tasks, as they are too focused on a single aspect.

- **effort**- this refers to the ability to regulate task engagement and processing speed. Children with ADHD have difficulties in sustaining alertness for the tasks which lack motor, social or cognitive feedback.

- **emotions**- has to do with the role and the mode in which it modulates emotions and frustrations. Children with ADHD are quickly overwhelmed with school tasks and react angrily, immediately to the situation. Later on they become aware of the way they reacted and at this point a weak activation sets in.

- **memory**- has to do with working memory and information recall. Being deficient, this component interferes with completing tasks of reading, writing or calculus.

- **action**-refers to the ability to self regulate one's behavior. Barkley, (2000 apud Dekel, 2012) considers this to be the main issue of children with ADD, having major implications in the social and communication abilities. Therefore, the communicative pragmatic component can be impaired due to the weak control over the interference factors.

2. Psychomotricity

Psychomotricity is a complex function which integrates motor and psychological elements. These regulate individual behavior, including participation of different psychological processes and functions, thus ensuring the proper execution of response acts to different stimulus situations. (Preda, 2009).

3. The Psychomotricity-ADHD relationship

Considering Brown's model, (2008) and Pennington et al. (1996) as well as having into considerations other aspects reflected by for assessment and approach, the psychomotor component was selected, reflected both at the level of oral and written linguistic structure. The structuralist linguistic model is adopted in the analysis of the relationship pre-acquisitions-psychomotricity-learning difficulties-ADHD.

The following aspects were under observation at the level of oral language, the detailed presentation being made in the extended study:

- the organization of the phonologic processing (aiming at aspects of psychomotricity such as: auditory reception, sequencing, phonemic hearing, phonemic segmentation);

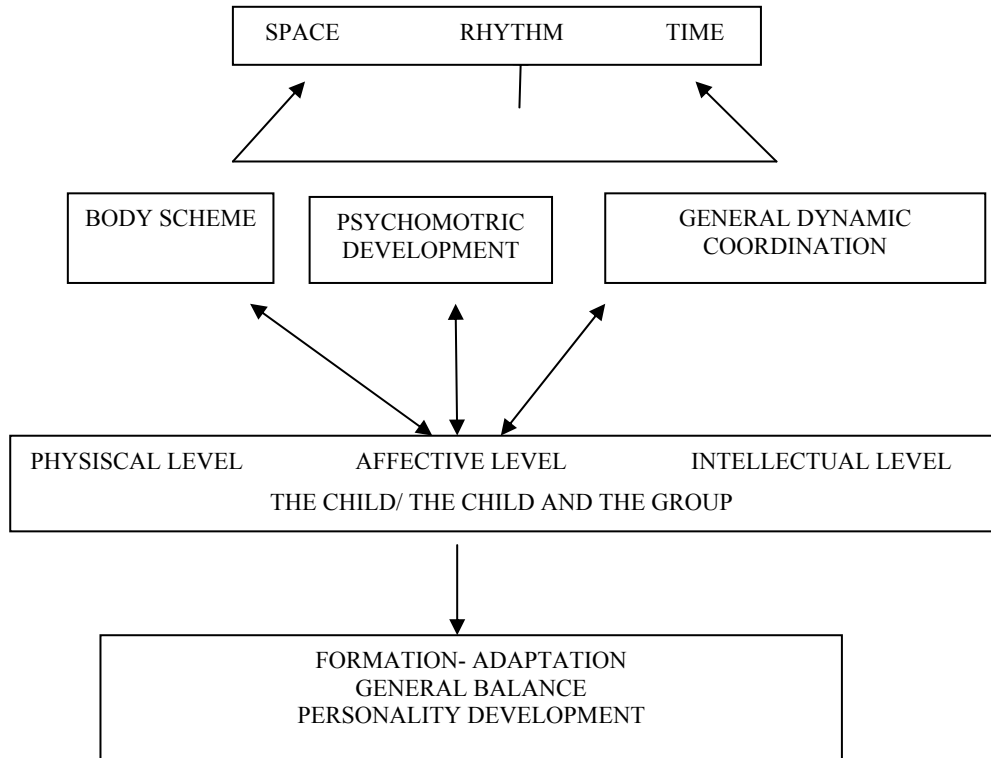


Fig. 1. Psychomotricity and the psychomotor development factors (Preda, 2009)

- the organization of morphological abilities (aiming at aspects of psychomotricity such as spatial-temporal organization, sensory-perceptive structures, orientation and direction);

- the organization of the lexical/ semantic abilities (aiming at aspects of psychomotricity such as general and fine motricity, body scheme, laterality);

- the organization of the pragmatic abilities (aiming at integrative aspects of psychomotricity considered against conversational, communicative situations).

At the level of the written language, the following things were under observation, they being detailed in this paper:

- visual-spatial-graphical structuring: assessed by Reversal Test and Kohs Cubes (Preda, 1997);

- graphical-motor abilities: assessed by educational tasks.

4. Presentation of the case study

The case study will focus on the educational path and particularities of an adolescent girl at the end of ninth grade in high school. The child had been diagnosed with ADD, displaying learning difficulties both in reading- writing and calculus.

4.1 Anamnestic data

Anamnestic data were collected during an unstructured interview with the mother. It is important to note that the mother has been actively involved in providing support and as a result she displays a good knowledge of the child's psycho-pedagogical characteristics.

The educational path is marked by very contrasting aspects from one school cycle to another. If, during kindergarten, she did not have any difficulties in adapting to the educational environment, in adjusting to the requirements and the requisites of the educational environment; starting with the first school year the difficulties became more and more present.

The parents reported the following aspects:

- reading difficulties, both in decoding the graphemes and associating the graphemes with the corresponding phonemes, and at level of reading comprehension;
- mathematics related difficulties, very obvious at the level of simple calculus and also in the case of problem solving, where more complex algorithms must be followed.

These learning difficulties are also reported by Ungureanu, (1998) and Green, (2001), ADHD having understood as an umbrella concept, relating a lot of other factors, entitled as comorbidities.

The parent emphasizes the fact that these difficulties are rooted in the incapacity to focus and sustain focus for task solving and also in the hasty, impulsive working style.

The child has benefitted from a diversified support up to the time of the assessment described in this case study. The parent has provided this support, starting from the moment the first signs of difficulty were noticed (i.e. beginning of first grade), until high school. Regarding the type of support provided, the pedagogic support has the largest ratio, manifested factually through helping in preparing the lessons for the next day. The psychological and psycho-pedagogical support has a smaller ratio. This is indicative of the fact that those who worked with the child were more concerned with the effects and not the causes of the problem.

4.2 Assessment

A psycho-pedagogical assessment is envisaged, based on visual-graphic assessment and the assessment of the written verbal language.

4.2.1 Visual- graphic tests

The morphologic tasks through which the orthograms usage is assessed reveal difficulties on both the level of phonetic-phonologic structuring, and at the morphologic structuring level. Therefore, aspects pertaining to pre-acquisitions, such as phonematic hearing, phonological conscience, sequential processing, spatial-temporal organization, motor abilities of coordination, are poorly structured.

Orthograms assessment also indicates troubles in visual-spatial processing. The Reversal test and the test with the Kohs cubes were used for the assessment of the visual-spatial structuring and of the mental representations of image.

The scores for these tests are extremely low, the child being unable to differentiate the symmetric from the identical for the images which require the different orientation of images on the vertical axis, on the horizontal axis, but especially for the two combined axes. It was noted that most mistakes were done when the items were very resembling to the representation of some graphemes.

Regarding the Reversal test, the number of items poses another problem for the child. The test is too long in time and staying focused on the task for a long period of time proved to be costly in terms of answer correctness.

For the quantitative analysis of the Reversal test, 23 mistakes place the child at the age level of 4-5 years (Oltea Laura Ban, 1997 indicated in a study conducted on Romanian population that the average level of mistakes in the Reversal Test at the age of 4 is 23 and at the age of 5 years is 19).

Based on the results of the Reversal test it can be concluded that the psychomotor troubles are obvious; the child displays difficulties in spatial orientation, left-right and up-down differentiation.

The scores for the Kohs test are very poor. From the quantitative point of view, these scores indicate a development level below the age of seven (55 average points). Therefore we consider that the qualitative approach of the test results has a higher diagnosis and prognosis value.

The child has very few difficulties in solving the items in section I-V. The help provided was minimal, dealing mostly with orientation. The working time is increased, the number of trials and attempts being at least two or three. This indicates insecurity and difficulty in manipulating mental representations. Model VI was highly difficult, in every instance it was resorted to providing even the last concrete help, namely the realization of the construction by the teacher. Even in this situation, the child was unable to recreate the model correctly (model VIII-X).

The increasing complexity of the task leads to a growing amount of frustration, so that starting with model VI the child remains in the in task with great difficulty and demands the termination of the task or at least to be changed.

4.2.2 Graphic-motor abilities

The writing is characterized by a series of troubles related both to the basic motor abilities and to the psychomotor aspects such as: fine motricity, right level of pressure applied on the writing instrument, lifting the writing instrument from the

sheet when moving to another word, following the imposed lining, following a given pattern, organizing the space on the paper sheet, aspects pertaining to laterality.

The writing was assessed by means of logatoms also.

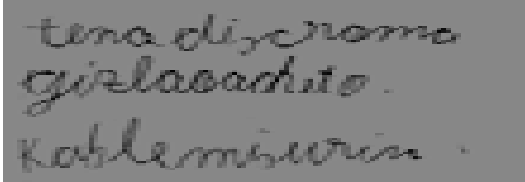


Fig 2. Writing after dictation logatoms

Syllabic writing facilitates a correct writing, which proves that the process involved in this type of exercise is not comprehension, but decoding, at which level the child displays no deficiencies.

The assessment of the writing of meaningful words after dictation is difficult, the comprehension process acting as interference in the graphical-motor representation of words.

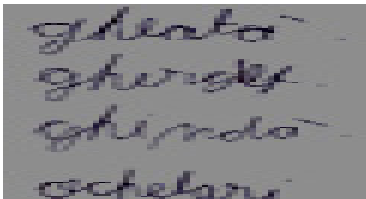


Fig 3. Writing after dictation words containing the clusters "ghe", "che"

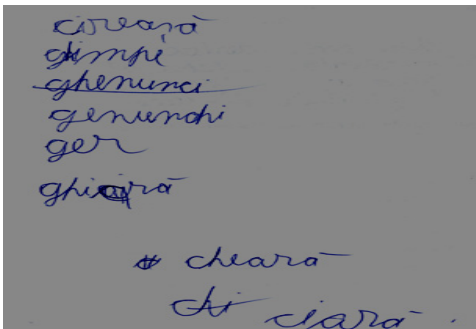


Fig. 4. Writing after dictation words containing the clusters "ci", "ghi", "ge", "che"

In the figures above, the words written after dictation contain the letter clusters which are most difficult to decode for the child, namely the clusters „ghe”, „che”, „ci”, „ghi”, „ge”, „che” (all these letter clusters are specific for Romanian language). It can be noted that, even if the child knows the meaning of the words, she succeeds in writing the word through trial and error, prompting for the assessor’s feedback after each written word.

The figure below displays a writing sample collected based on a text composition task. The title chosen for the text was „The Dancer”, due to the child’s interest in this subject.

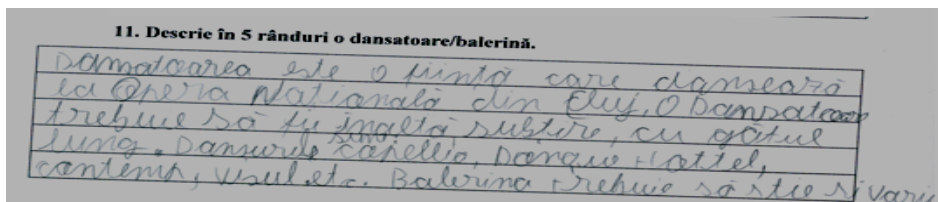


Fig. 5. Writing sample- text elaborated based on a given title

Considering the dysgraphia scale designed by Ajuriaguerra, 1980 (Ungureanu, 1998), the writing space has overall, an unkempt appearance, the lines fluctuate, there are crowded words, corrected letters, the loops and curves are variable in size.

In the above sample we also can underline child’s difficulties in operating with upper case letters where proper names are to be used. This aspect mainly reveals dysgraphic difficulties at the level of the graphemes, the association of the graphemes with the corresponding phonemes being functional.

An assessment task, which is, at the same time, meant for training the graphic-motor abilities for an adolescent with learning difficulties, is based on graphical organizers (Raduly-Zorgo, 2010). This type of task facilitates cognitive operations of analysis, synthesis, comparison, along with lexical-graphic abilities, it being introduced during the assessment procedure for confirming the above findings related with child’s psychomotor difficulties.

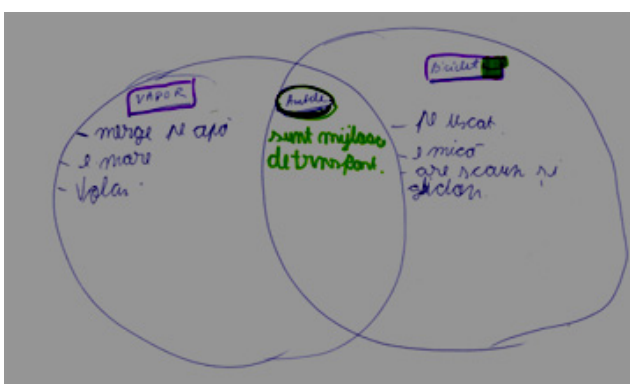


Fig. 6. Example of exercise based on circular lexico-graphic organizers

In the above figure the child is asked to graphically represent common and differentiating aspects for a “bike” and a “ship”. The working style is organized

regarding naming differentiating features for those two transportation means. The most important difficulties were faced when having to name common aspects, as it can be seen from the figure, just one common aspect being written. The same aspect was revealed when the child was supposed to name synonyms for a certain word, she facing a lot of difficulties, more difficulties than when she was asked to name antonyms for a certain words.

The word „ghidon (handle bar)” was written with great difficulty due to the fact that it contains the letter cluster “ghi”, aspect convergent with the above detailed findings.

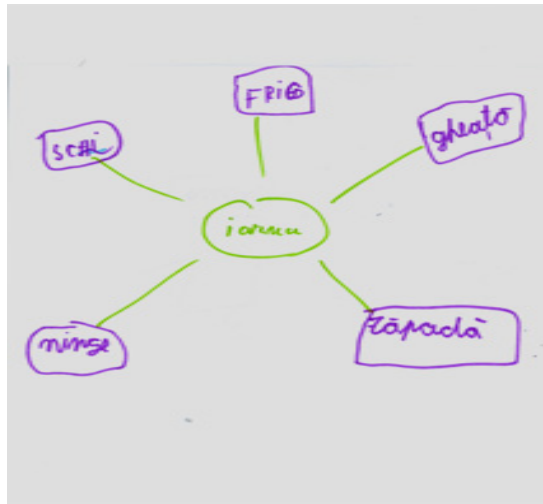


Fig. 7. Example of exercise based on star-shaped lexico-graphic organizers

In the figure number 7, the type of organizer used for assessing child's abilities is a star like one. The child was supposed to name the features of the seasons, in the above sample, the features of the winter season.

By analyzing the writing, we can underline the fact that the child could name, with relative leisure different features for all the four seasons, much easier than the child was asked to solve the same task orally. It can be concluded that even if when handling the words for the four seasons the child is supposed to operate with abstract lexical contents, the option for graphical representation, concretize the task, it facilitating the recalling.

Having into considerations these results, our recommendation is to project psycho-pedagogical interventions focused on valorizing written abilities, especially these abilities best promoted by graphical organizers, they having great positive implications both in the case of managing working strategies and in cognitive-actional plan.

Conclusions

Based on relating psychomotricity with ADHD in the above detailed case study, the following aspects can be underlined: words writing is approximate, voluntary actions are limited, graphic-motor abilities are reduced, child's interest for writing and for developing writing abilities is reduced, as well as her convictions regarding the possibility of reaching superior developmental levels in the graphic-motor field. Despite these aspects, when analyzing child's results based on using the organizers we can conclude that writing difficulties can be caused by other factors than ADHD, factors related with self-esteem and motivation for practicing in the graphic-motor field. Thus, our recommendation, for this case, is to develop psycho-pedagogical approaches focused on developing child's interest for scholar activities, developing motivational level, improving self-esteem and self-perception.

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