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PSYCHO-PEDAGOGICAL INTERVENTION IN THE CASE OF THE ATTENTION DEFICIT AND HYPERACTIVITY DISORDER

Case study

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JEL Classification

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Abstract

The attention deficits, the hyperactivity / impulsiveness as well as the deficits in the executive functioning expose students to the risk of poor school performance, social isolation and antisocial behaviours. For them, it is more difficult to assimilate organizational, planning and time management skills, in comparison with their peers enrolled in the mainstream education.

School environment requires planning, control, coordination and evaluation of the interactions and ways of active participation in the educational process. Therefore, the case study concerning a student diagnosed with attention deficit and hyperactivity disorder associated with reading and writing difficulties demonstrates the necessity and effectiveness of the psycho-pedagogical intervention in school, an environment that represents a propitious context to exercise self-control.

1. Introduction

Attention deficit hyperactivity disorder refers to a slight but important differentiation in the normal functioning of the brain, causing the child with above-average intellect register poor school performance.

Research has shown delayed cognitive processes in children with attention deficit and hyperactivity, processes preceding the decision to organize an answer and respond to a stimulus. For most of them, the executive functions are the most compromised of the three systems: attention, executive functions and working memory.

Thus, a psycho-pedagogical intervention program was developed and implemented in order to help the teacher in the classroom, by forming organizational skills, deficient in children with ADHD. The first part of the psycho-pedagogical intervention program was structured on organizational components of general character. The intervention program was conducted over a period of 8 weeks and was implemented in the case of students with attention deficit hyperactivity disorder, with associated learning disabilities. At the end of each week, there were distributed the materials for the following week's activities. There were discussions with the teacher concerning the difficulties they had encountered in the application of that technique. The intervention, per se, is composed of a set of techniques for the development and consolidation of the organizational skills. Throughout the program, new techniques were introduced and the previous ones were consolidated. There was achieved a cumulative consolidation. According to the findings, deficient behaviours were consolidated. The second part of the psycho-pedagogical intervention program was structured on components specific to reading and writing. This intervention program was implemented over a period of 16 weeks, on the same students with

attention deficit hyperactivity disorder and learning difficulties.

2. Motivation

This study aims to investigate the efficiency of the psycho-pedagogical intervention program combining two components: development techniques for skills of general organization and specific to learning difficulties (reading and writing), in the case of students with attention deficit and hyperactivity.

The starting point was the following **hypothesis**: the development and use of the organizational skills, self-organization skills and those specific to reading and writing, support significantly the elimination of reading and writing difficulties.

The integrative demarche of evaluation and psycho-pedagogical intervention, in the case of a 10-year-old student was illustrated.

For H.V. the first grade begins with adjustment difficulties, behaviour disorders, difficulty to concentrate. The child's father confirms that this behaviour was inherited, because as a child, he himself used to have a similar behaviour and this is why medical investigation was postponed.

In the 2nd grade, H.V. was diagnosed with attention deficit hyperactivity disorder, the combined type. Knowing and accepting the situation, the mother is concerned about her son, working less in order to help him adapt better in school. There is a permanent connection between the family and the educational institution. H.V. is under medication administered respecting the physician's indications.

H.V.'s teacher reports that this student has poor school performance, is unable to maintain attention on different tasks, during educational and instructive activities, does not follow the instructions to the end, can stay focused only for a short time and then is preoccupied by other activities. During the classes he leaves his

seat in the classroom, he disturbs his classmates, moves constantly, cannot sit down for a long time, he frequently asks questions, has inopportune verbal interventions.

During the break, he fails to complete the games started with his colleagues, talks a lot and does not follow the rules, so that, ultimately, he is excluded from the game.

From the information received from the school psychologist, we find that the student H.V. has an average intellect and benefits from psychological intervention.

There were used several pedagogical and neuropsychological tests : Behaviour Assessment Scale (to confirm / infirm the presence of symptoms characteristic to children with ADHD , scale built on the basis of the behavioural indicators specified in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, revised, Romila, 2003*); tasks such as dictation and writing some ideas from a text heard, reading a text at first glance, l' Alouette test (text elaborated and adapted after l' Alouette test for Romanian, validated and standardized tests for the pupils in our country); reading comprehension test; image composition test; Rey - complex figure ; Tower subtest from Nepsy test battery.

3. Relevant observation from the examination and the results of the applied tests

The tasks of dictation and writing down some ideas from a heard text were applied to all students, so that H.V. was observed during classroom activities. At first, everything was normal, without any problem, but later he began to show a behaviour that is characteristic to children diagnosed with attention deficit and hyperactivity. While writing by dictation, he was playing with a small toy on the bench with the left hand, he was shaking legs; he discussed twice with the colleague from the opposite side of the classroom.

From time to time he asked various questions related to dictated text.

At the individual assessment, in the cabinet, he was hurrying to finish the tasks he had to solve, respecting the oral / written instructions, depending on the task. During the evaluation from the cabinet, H.V. did not ask questions, he accomplished the tasks without asking for additional information.

The behavioural Assessment Scale confirmed manifestations specific to attention deficit hyperactivity disorder, the combined type.

The dictation test, showed various errors: omissions of letters, e.g. *brnz* (brânz), *paar* (pahar), *galbne* (galbeni), *tejar* (stejar), towards the end of the dictation he omits words: *mai mult* , *pun* etc. In some situations he made substitutions: of affricates with fricatives: *uperc* , *jinga* , *s jat* or in some cases, of fricatives with affricates: *excur ie*; between fricatives: *c jut*; also, the group of letters k, g ' have been substituted with , : *jacet* (jachet), *vece* (veche), *încide* (închide) etc; sometimes he combined words: *pecândurechea*, *uneipungi*.

Difficulties vise the hyphenation: *excu- ie*, the lack of hyphen: *întrun*, *întrou*, omission of the plural desinence: *ochi* (ochii), *c l tori* (c l torii); not capitalizing proper nouns in writing, despite the initial reminder that it was the name of a boy: *tomdejcel* or *tezecl Tom* (instead of *Tom Dege el*).

In the task examining the **written expression of ideas from a heard text**, were detected disortographic problems: *sa* (s-a), *sau* (s-au), sentences starting with a lowercase letter, grammatical inaccuracies in formulating a sentence *ariciu odat cu iepura ul sa f cut prieteni i sau distrat; iepura ul a g situn un arici i sa f cut prieteni*. As it can be seen, the text has grammatical disagreements, the word order is wrong, the definite article "l" is omitted from the word *ariciul*, and words are combined: *g situn* (g sit un) etc.

The task of reading a text at first sight highlights difficulties in the case of complex words containing triphthongs (aripioar , leoaic) and polysyllabic ones, that he manages to read only after several attempts (he reads the letters or he spells them).

These tests were taken in the classroom, next to his colleagues, in order to watch him in his natural environment. Then, in the psychological cabinet were applied the other tests:

He had difficulties in reading the text from **L' Alouette test**; he sometimes read the letters or syllables of words, with a whispered voice and then aloud. He started some words with the first grapheme or the first syllable of that word and then continued with a different word than the written one: *gr bit* (gabarit) *dezvoltat* (devotat), *compot* (cotor), *tor v it* (tov r ia), *predestinat* (prefigurat), *palmierul* (palierul). He also made additions: *dezvoltat* (devotat); omissions: *inic* (ionic), *prenou* (peronul); substitutions: *articulate* (articulare), *compot* (cotor); or inversions of letters or syllables *prenou* (peronul), *pailerul* (palierul). He managed to read 70 words in three minutes that is approximately 26.5 % of the total number of words in the text, out of which he read correctly 61 words. The student fits in Group B, in the interval minimum 76 - maximum 84.

Performance in terms of morphological value of the read words was lower in the case of nouns and adjectives. In terms of the number of syllables in a word, reading performance decreased with the increasing number of syllables. Regarding the performance achieved, depending on the type of syllables (open or closed), it can be said that there were greater difficulties in the case of open syllables.

H.V. also had difficulties with words containing hiatus: *tov r ia i palierul*. The words containing the groups of letters *ce, ci, ghe* were read correctly, except for the word *firicel*. One-member sentences

were read correctly, respecting the intonation. Intonation was respected also in the case of exclamatory sentences except for the interrogative sentence, inserted between declarative sentences.

Reading comprehension test represented for H.V. a real difficulty, assertion confirmed by the answers given to the questions. In all questions, the answers contained approximately the same message: *copilul copiii a mers la coar ; copiii trebuiau s ajung la coal pentru c i cald; nu....* As it can be seen, sentences are grammatically incorrect, the disortography *c i* (c -i) being present again. The score obtained at this task was 10 points because the student managed to answer correctly only to question 3, which refers to factual information.

Image composition was a new challenge for H.V., who experiences difficulties in the way of formation and organization of the sentence: *copii au merse pe plag pentruc vrea s se joase i sau jucat*. Also, there were observed additions of letters, substitutions, mergers, disortography. The score obtained was 10 points, because the student managed to convey an idea about the image he had visualized.

Key complex figure: When he was asked to copy an image, H.V. juxtaposed details one above another, step by step, just like in the case of a puzzle. The ensemble is recognizable, and almost perfect. The score is 30.5, fitting in the 50th percentile, corresponding to the age of 10. Copying time was of about 8 minutes, corresponding to the age, and fitting in the 50th percentile.

The reproduction (recall) of the complex figure was made using details on a confused background, with unstructured graphism, only some items are recognized. The achieved score is 17.5, appropriate to age of 8, 30th percentile.

Tower subtest. H.V. didn't have problems in finishing the task in time, but had difficulties in maintaining rules in working memory. He reached the scaled

score of 5, which is below the expected level. He also failed to inhibit the impulse to respond promptly, without thinking.

4. Interpretation of results and directions for intervention

According to the literature, dictation guarantees the experimenter uses the literary language by reproducing a literary text, a correct pronunciation, respecting orthoepic rules of the Romanian language. H.V. made frequent mistakes, particularly substituting fricatives with affricates or vice versa, or affricates between them, which suggests he has difficulties in terms of the phonological consciousness of affricates and fricatives in particular. There were omissions of letters in phonemes whose place of articulation is hard to perceive in pronunciation: the laryngeal phoneme *h*, or medial *â*, closed; but also in the case of other phonemes or omissions of words.

Omissions of words are found, especially in the second part of the dictation, where one can also observe a lack of organization in the page layout, more visible than in the first part; writing over letters, renouncing at the beginning of words, which denotes difficulties in remaining focused on the task until the end. There were also merged words, although the same words were written separately in this dictation, this proving the existence of a difficulty in maintaining attention. Regarding the disortography, this student makes various mistakes that can be explained by difficulties in the representation and spatial-temporal orientation, lack of accurate visual engrams, poor vocabulary and difficulties in learning new words or difficulties in the analysis - synthesis of the shape and the spatial relationships.

He task for which he had to write down the ideas from a heard text highlighted a poor vocabulary, the inability to follow a correct word order or perceive correctly a message. H.V. failed to

remember all the characters in the text, although the text was read twice, and to discern the text's message, which indicates difficulties in using the working memory which has an essential role in written expression, selecting and joining words and verbal images to convey different meanings. Disortography is present at this task too, as well as the difficulties in the syntactic plan.

The fact that at L' Alouette test , the student H.V. had difficulties in reading words, some of them being read one letter or syllables at a time, denotes the impossibility of realizing, in some cases, the analysis and synthesis of the syllable / word. In the lexical plan, difficulties are represented by the child's inability to identify and read the word as a whole, as a global entity, with a certain significance and meaning. It was very hard to make the transition from analysis to synthesis, from letters and syllables to the synthesis of the word.

The fact that H.V. reads some words that do not exist in the text but begin with the same syllables, is explained by the fact that he anticipates by his own formulation, in the absence of that word his degree of understanding allows him to expect. This dynamic phenomenon, which is the forerunner of reading, is completed by successive contributions that form together a structured ensemble that remains stored, while the lexical activity continues. This assembly tends to develop and perfect by everything that could complete it, logically, helped by the pressure of the formulation. The dynamic aspect is responsible for the reading mistakes. Among the words required by their antecedent will be formulated the one that fits in and at the same time exists in his vocabulary.

There were also cases of omissions, substitutions, addition of letters or inversions of letters or syllables. Vocabulary problems are due to disorders at the level of acoustic- vestibular perception and, in general, at the level of

cognitive processes, with negative implications on performing analysis and synthesis operations as well as on the discrimination of verbal symbols.

Starting from the morphological value of the read words, performance was lower in the case of nouns and adjectives, due to the number of syllables in a word. The difficulties in reading words increased together with the number of syllables in a word. In terms of the groups of vowels, there have been difficulties in the case of the hiatus present in polysyllabic words. There have been similar difficulties in terms of performance in reading words containing both open and closed syllables.

Reading is not fluent, it registers stumbling, interruptions, some words are read syllable by syllable or the first syllable is spelled, which is why in three minutes only 26.5% of the text was read.

At the task verifying reading comprehension, comprehension difficulties were generated primarily by the lexical problems presented by the student. Because of the visual perception problems specific to children with attention deficit and hyperactivity, he sees letters in an altered position, he skips words or an entire line when he reads, these findings being confirmed by the answers the student wrote down.

He manages to be attentive only to the first two lines and he even underlines a sentence repeated partially in all the answers. Noteworthy are the difficulties he encountered in organizing the sentence, in terms of the syntax, word order, vocabulary.

At the writing task there are present the same difficulties in the formation and organization of the sentence, as well as the problems connected to the use of the working memory.

Disortography is present in this task, as well as merged words and the substitutions of letters. In addition, it has been observed that H.V. has a difficulty in expressing himself, has a poor vocabulary and a difficulty in associating the image

with the name of the object existing a large discrepancy between his inner thought and verbal expression. There was also noted the difficulty to select and gather words and images needed to convey various meanings, specific to working memory.

The difficulties in organizing and planning, specific to children with attention deficit and hyperactivity were observed in all written samples. There were observed organizational difficulties in the page layout, as well as the unkempt appearance, given by the different distance between words, thickened graphemes, which seem to be overlapped in some words. Motor difficulties specific to children with conduct disorder and impulsivity, the clumsiness, were highlighted by the poor quality features of the irregular edges of the text. Going back to the graphemes, correcting them, the sharp points or the irregular shape of the letters arches, as well as the connections existing between them reveal disorders of the visual-motor coordination specific to these children. These elements are completed by the irregular sizes of the graphemes.

Most of them are deformed, anaesthetic and inappropriate to the completion of the graphism, as if he had forgotten their correct shapes, replacing them with other shapes. The writing is quite large and disproportionate.

Rey Complex Figure Test – Copy was not performed after a prior organization, but by juxtaposing details one after another, step by step, like a puzzle, with no guiding elements, the drawing being pretty good. Considering the fact that data collection was not accomplished perceptibly, it did not have a definite significance and organization, it did not result in learning, data reactivation did not occur, and the reproduction failed. Reproduction was achieved by juxtaposing all the details, but without a basic route, the details were used on a confusing and unstructured background, the diagonals are reproduced before the rectangle. The

ensemble is partially recognizable. The score reached is specific to the age of 8.

The poor score obtained at Tower subtest reflects deficits in the ability to assume and generate new solutions to problems and to plan the strategy. The presence of a large number of rule violations shows difficulties in monitoring the performance by maintaining the rules in working memory and inhibiting the impulses to respond.

H.V. has difficulties in reading and writing, slow processing of information, difficulties to remember grammar rules, but also information from the text read, difficulties to analyze and synthesize the syllable / word, difficulties of auditory discrimination. He responds with difficulty to questions whose answers require thinking, organization and presentation in a concise manner. He has a sloppy handwriting and the page is organized anaesthetically.

It can be said that H.V. presents lexical-graphical abnormalities caused by disorders of organization, planning, visual perception and phonological processing disorders. He has problems in communicating his own thoughts, is able to speak, but unable to answer questions specific to a given text.

In the case of the specific manifestations of attention deficit hyperactivity disorder, the combined type, difficulties in the executive functioning, respectively of the working memory, affect reading and writing in a fairly serious manner: omissions, substitutions, additions of letters, syllables or words, loopholes in the morphological and syntactic level, altering the natural order of words in the sentence and even the message itself. To these is added the poor vocabulary and the difficulty to evoke words.

The student does not master the mechanics of writing and organizing a text, and the difficulties he has when it comes to organizing and planning, sustaining the attention, influence the reading and writing performance, which are particularly

important in cognitive and linguistic development.

Given the profile of the executive functioning of this student enrolled in the third grade and the difficulties in the area of reading and writing, it was applied the psycho-pedagogical intervention program with its two components: organization, self-organization of general character and specific to the encountered learning difficulties.

5. Implementation of the psycho-pedagogical intervention program

I. Implementation of intervention program structured on the component of organization with general character.

In the first two weeks of the program, the classroom teacher conducted a monitoring of H.V.'s organizational behaviour in the educational-instructive activities of the *Language and communication* curriculum area. The results indicated that the student has difficulties in remembering what he has to do for homework, he doesn't write that down, he checks his schedule only sometimes, and often doesn't have his school supplies. Class rules were never respected, although the teacher repeats them regularly.

In the third week H.V. received a chart with the detailed acronym "Be an Ace," which changes his attitude, giving the impression that it empowers him and that he is proud the school teacher trusts him. He strives to meet every detail of the acronym.

In the next two weeks H.V. receives lists in which he must write the supplies he needs for the next meeting at the disciplines from the Language and communication curriculum area and mark them after using them. Also, at the end of the activity, H.V. writes in his *List of requirements* for the following day the tasks they have to perform at home, in order to be prepared for the next meeting (learn the lesson, do the homework, etc).

After completing the requirement, he marks it. H.V. used these lists happily and conscientiously, being helped in the first week by his mother. After the two weeks, he received an agenda to continue noting these issues, as well as the ones that will appear. He was explained that usually *managers have a busy schedule and therefore have to write down some things not to forget about them*. This would be his first agenda, provided he uses it conscientiously.

In the following three weeks the *calendar technique* was used, one of the most important techniques regarding the organization. On the received chart, H.V. was taught to write down all the new events during the activities in Language and communication curriculum area, to inform his colleagues about the schedule for the following day, the list of school supplies and homework. An important aspect to note is the reward (a red star) offered for complying with any of the class rules. All these aspects were realized gradually, sometimes with a warning from the teacher. By the end of the third week H.V. learned to use these techniques, which he was going to write down in his own agenda and apply in the following weeks.

II. Implementation of the psycho-pedagogical intervention program, structured on the component specific to reading and writing

Techniques learned in the first part of the program were continued in the second part, until the end of the intervention program. In the ninth week were consolidated the techniques learned in the first part of the program.

In the next four weeks were formed skills aiming to solve lexical and graphical difficulties. H.V. received a notebook, made by the initiator of the program, in order to be different from the usual ones. This notebook was called “personal dictionary” because there were written all the aspects related to the correction of H.V.’s difficulties. Given that the student

presented all the difficulties contained in the correction scheme, it was insisted on all of them: disortography, phonological processing disorder, reading, reading comprehension and image composition. Together with the practicing and learning of the steps included in the program for reading comprehension and image composition, those correcting the disortography and phonological processing disorder were reached as well.

In correcting reading difficulties were respected the steps from the intervention plan, writing in a table the time required to read text consisting in an equal number of words.

In the following two weeks, H.V. was taught to check independently the work done. It was a very difficult job because he did not always manage to be attentive until the work was finished. Only at the end of the two weeks was he able to correct a chart from beginning to end. Of course, any assimilated technique was not abandoned, but continued in all the activities from the Language and Communication curriculum area.

The program continued respecting the time limits for solving the tasks, something which was also very difficult to achieve at the beginning.

In the following week H.V. learned to prioritize tasks according to the degree of difficulty for him. He preferred to solve first easier tasks and then the most difficult. There followed two weeks in which he “sealed a contract” with his mother to do his homework on time. The first contract failed, but he respected following ones, because he wanted a lot to be appreciated and allowed to watch TV.

Then followed three weeks in which he was appointed project manager. He was successful with the project related to spring season.

The last two weeks ended as well with the monitoring of the organizational behaviour in instructional-educational activities from the Language and Communication curriculum area. It can be

said that the student has considerably improved his behaviour: he stopped forgetting about his homework, he wrote it down, read the schedule and sometimes informed his colleagues and always had the school supplies. He began to respect more and more the classroom rules.

6. Findings of the case study

Following the assessments made during the program and at its end, a remarkable progress was recorded.

On neuropsychological tests, progress was pretty high: the results on Rey – copy and Rey –recall reached up to the 90th percentile, there appear details in the reproduction of the image. The copy is accurate, rich, realized in the allocated time, age-appropriate, visual and spatial data are rationally perceived and structured. Performance at Tower subtest reach the scaled score 15, proof for the development of self regulation's planning and monitoring. H.V. manages to take into account the rules, respecting time limits.

Performance on tests evaluating reading and writing also shows the progress that has occurred. At L' Alouette test, H.V. obtains a score between 101 and 115, so he reaches two levels higher, reading correctly 111 words. At the reading comprehension test, the score obtained is 60, succeeding to find the answers to questions related to predictive, factual, developmental inferences, to a connectivity inference and manages to establish a simple relationship, cause - effect, to one question of this type. At the task regarding the image composition, one can observe the way of organizing ideas,

sentences, the text has an introduction and a conclusion, he describes the image, and the writing is organized, obtaining 70 points.

Developing the ability to adopt, maintain and transfer cognitive sets, use structured searching strategies, use planning and flexible strategies, i.e. the development of executive functioning, shows the important role of the psycho-pedagogical intervention in the case of students with attention deficit and hyperactivity.

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