

Verbal Dyspraxia: A Case Study

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Abstract

Introduction: While approaching the aspect of learning disorders, particular attention is paid to verbal dyspraxia, a phenomenon that runs its course regularly over the last years. Verbal dyspraxia is inherent in the person without mental disorders and accompanies them throughout the whole spectrum of life. Comorbidity is an added issue. Although dyspraxia is met in homogeneous groups, some common elements such as intelligence, difficulty regarding linguistic skills, low learning performance and low self-esteem are present. **Purpose:** The object is to research how dyspraxia is manifested and how it affects a 6-year-old boy as well as the possibility of promptly interfering and simplifying his everyday life. **Method:** In the current case study, Achenbach's questionnaire was used, combined with the use of expressive vocabulary. **Results:** The results of the research were unveiled through experts' references in co-ordinance with the conferences conducted. **Conclusion:** Winding up, dyspraxia is a learning disorder that exists within the person through their lifespan. Immediate diagnosis, combined with experts' personalized intervention programs (and perhaps, a differentiated curriculum, where applicable) can guide the person to live up to the educational needs. Family's role is to be supportive, intending to eliminate possible emotional strains.

Keywords

Learning Disorders, Verbal Dyspraxia, Diagnosis, Intervention, Case Study

1. Introduction

Over recent years, a high percentage of students, develop learning difficulties, starting from their very first years of studentship, leading to weakness in attending a course. In this study, learning disorders and particularly verbal dyspraxia will be analyzed, which have become a widespread phenomenon. Verbal dyspraxia is a neurological derangement which tends to manifest from infancy to

children up to three years of age. It has been observed that those persons' intelligence is up to standards. The American Psychiatric Association broaches that persons with learning disorders face difficulties in writing, reading, mathematics and social contacts, such as skills that are self-control related [1]. World Health Organization (WHO, 2010) classifies *dyslexia*, *specific reading disorder*, *specific disorder of arithmetical skills* and *mixed disorder of scholastic skills* as learning disorders.

Dyspraxia means impairment in action (dis + praxis). It is compartmentalized in *developmental dyspraxia*, which takes place since birth and in *conditional dyspraxia* which is possibly acquired by malady or injury. Dyspraxia is also referred to as Developmental Coordination Disorder. It is a neurological-based impairment and starts off in infancy. It is not related to neuro-muscular derangements, but to the ability of the person to carry out volitional muscular acts. Dyspraxia is also known as "Clumsy Child Syndrome" or even as "Minimal Brain Damage". It affects linguistic skills, albeit not intelligence. There is a categorization between *verbal dyspraxia* (brain is not able to coordinate tongue, jawbone, lip movement), *oral dyspraxia* (impairment of executing oral or guttural movements) and *physical dyspraxia* (lack of movement coordination). The causes of dyspraxia have a neurological background, including no brain damage, but with the possibility of heredity. More specifically, it is caused by malfunction of the left cerebral cortex, called Broca.

The qualitative research conducted, delved efficiently into the field, to understand, analyze, cross-check, and reach the expected conclusions of the research, with a view to acquiring this specific field [2]. A speech therapist with 18 years of experience, a 6-year-old boy, student in the first grade of elementary school and an observer participated in the research. Using various tools, information was collected and decoded. The main goal of the research was to identify the meaning of verbal dyspraxia, how it affects the person and the right manners of interference.

2. Purpose and Method

2.1. Purposes of the Project

Learning processes, thought structure and data processing, complicate the person with dyspraxia and may cause alienation from the team and rejection from peers. The research focused on verbal dyspraxia, brain damages and analyzation of speech production of the person. Experts' priority seems to be the creation of fully developed personalities, in aspects of emotion and socialization. They also paid heed to the development of balanced personalities, with the ability of expressing emotions and thoughts, discharged of the fear to manifest their authenticity and uniqueness. The main object was to locate impairments in a timely manner and intervene in a way that helps the person simplify their everyday life.

The rationale behind the subject's pick was that this boy is a person within my familial circle. His diagnosis was my springboard to research dyspraxia, which

occurred to me as an intriguing matter to be investigated and analyzed.

2.2. Purposes of the Case Study

The qualitative research showed the diagnosis and the applicable ways of interference. The case study indicated the expert's assessment and the results of the research. Furthermore, it brought to light the way a 6-year-old kid with dyspraxia conducts itself at school and how it is affected. The speech therapy program, focused on verbal augmentation for the sake of smooth communication. Specifically, attention was paid on production and maintenance of phonics in spontaneous speech and further betterment of verbal dyspraxia concerning the production of sounds. In addition, experts appear to emphasize on the production of 5-syllable words, vocabulary enrichment and thought structure.

2.3. Method

Dyspraxia may cause bemusement; therefore, it is claimed to require multidisciplinary approach that includes personalized assessments and curriculum for each kid. As Eckersley claimed in 2010 [3], internships such as occupational and speech therapists and doctors (pedon neurologists, pediatricians, auxologists, psychiatrists) are necessary to diagnose properly speech dyspraxia. The quicker the intervention by parents and experts, the more immediate the therapy of the kid to face the difficulties that may arise [4].

Diagnosis for kids with DCD (Developmental Coordination Disorder) often includes the Motor ABC Method, in which their skills of loose and fine movement are tested. They can also be assessed by mental ability tests conducted by experts, aiming to evaluate if their intelligence aligns their age [5]. One of the therapeutic interventions is the CO-OD Method, which is a walkthrough discovery for achieving a goal and involves four stages: goal, draft, execution and control. Through this approach, the kid acts in real time and learns that failure is derived from the draft and not from himself. It learns how to set goals and be motivated through self-assessment and discovers alternatives when meets an obstacle [6]. At the same time, occupational therapists and psychologists prove to be useful in such cases.

2.3.1. The Achenbach System of Empirically Based Assessment (ASEBA)

Achenbach's questionnaires aim at diagnosis of kids' disorders and the effort to rehabilitate [7]. This tool has been translated in 61 languages and 5.000 relative articles have been published. Through this system, behavioral and emotional problems of kids and teenagers are evaluated. The system consists of three questionnaires: *Child Behavior Checklist-CBCL* (questionnaire addressing parents), *Youth Self Report-YSL* (questionnaire addressing teenagers), *Teacher's Report Form-TRF* (questionnaire addressing instructors).

2.3.2. Expressive Language Assessment

The expressive Language Assessment was created by Catherine Easton Renfrew

in 1996 and was republished in 1997. This is a tool that evaluates kid's levels in verbal development age wise. It embodies fifty pictures of common objects, notions of fairytales and TV programs. The tests indicate whether the kids (between 4 - 8 years of age) demonstrate speech or emotional disorders [8]. The case study was based on this assessment with the purpose of showing whether the kid is able to act his age according to grammar structure and information administration. The assessment ends with five incorrect answers and the grade depends on the number of pictures that are properly named. The Expressive Language Assessment in the case study begun with a set of pictures that the kid was asked to describe. The next step entailed the demonstration of more pictures, of which the kid was called to name as many as possible. This test was carried out in an approachable and calm environment.

2.3.3. Research Method

According to Isari & Pourkos (2015), the Research Method, ends up in qualitative method, with the goal to elaborate further in the object, to be aware of it, analyze and cross-check it to reach the conclusions expected from the qualitative research.

The case study was a result of the combination of Achenbach's System of Empirically Based Assessment, Expressive Language Assessment and observation. The main object of the case study was data processing and decoding.

3. Data

According to the Association of Speech Pathologists and Speech Therapists of Greece, there is a division in developmental stages:

0 - 6 months

- ✓ The infant reacts to sounds and turns head towards the sound
- ✓ Produces first sounds
- ✓ Recognizes voices
- ✓ Laughs when spoken to
- ✓ Phonetic game (mumbling, sound producing exercises) [9]

7 - 12 months

- ✓ Responds when hears its name
- ✓ First words (mom, dad)
- ✓ Babbling, which evolves into speech (repetition of the same syllable)
- ✓ Imitates adult sounds
- ✓ Uses nouns
- ✓ Understands plain orders [9]

13 - 18 months

- ✓ Richer vocabulary (20 or more words)
- ✓ Says its name
- ✓ Echolalia and unfathomable speech
- ✓ Asks for various objects

19 - 24 months

- ✓ Rapid speech development
- ✓ 2 - 3-word sentences
- ✓ Vocabulary of 50 - 100 words (or more)
- ✓ Uses personal pronouns
- ✓ Combines nouns with verbs
- ✓ Understands double orders
- ✓ Speech more comprehensive to others [10]

2 - 3 years

- ✓ Telegraphic speech
- ✓ Forms sentences of 3 - 4 words
- ✓ Asks and replies on plain questions
- ✓ Uses plural
- ✓ Uses prepositions, articles and pronouns
- ✓ Comprehends approximately 500 - 900 words
- ✓ Produces approximately 50 - 250 words
- ✓ Names body parts
- ✓ Reads book pictures
- ✓ Uses negation [9] [10]

3 - 4 years

- ✓ Proper use of grammar and syntax
- ✓ Comprehends approximately 2000 words
- ✓ Produces approximately 150 words
- ✓ 4 - 6-word sentences
- ✓ Proper use of plural and tenses
- ✓ Discusses
- ✓ Whispers
- ✓ Realizes the sense of time
- ✓ Expresses emotions

4 - 5 years

- ✓ Comprehends approximately 3000 words
- ✓ Produces approximately 2000 words
- ✓ Forms bigger sentences
- ✓ Counts from 1 - 10
- ✓ Able to narrate a story
- ✓ Realizes the sense of space
- ✓ Asks what words mean

5 - 6 years

- ✓ Comprehends approximately 12,000 words
- ✓ Comprehends the meanings of left and right
- ✓ Proper use of tenses, conjugations and conjunctions
- ✓ Able to converse
- ✓ Says poems and whole songs
- ✓ Recognizes the days of the week, colors and shapes

6 - 7 years

- ✓ Comprehends approximately 20,000 words
- ✓ Understands left and right
- ✓ Uses more terms that are time related
- ✓ Uses passive voice
- ✓ Says the alphabet [9] [10]

Case Study-Analysis of 31 sessions

The sessions were almost equally divided in the period of six months. In accordance with the curriculum of the speech therapist with 18 years of expertise, the sessions were personalized on the boy's needs and consisted of two speech therapies and one occupational therapy per week:

Session 1: simple exercises to boost confidence (knowing my body). His knowledge of the body parts was adequate and was rewarded.

Session 2: Aural memory and identification of sounds. He listened to animal sounds and was able to identify the right animal.

Session 3: Aimed at working and short-term memory. He could combine pairs of animals and was rewarded.

Session 4: He was asked to name 5 things of the same category. His reactions were impulsive and needed to attract his attention to focus.

Session 5: Short story Information recall exercise; he listened to a story and was afterwards asked questions. He needed to repeat the questions in order to respond.

Session 6: Visual perception: He was showed a picture and tried to find the hidden objects. After observation, he managed.

Session 7: He was asked to find which card doesn't match the others. He needed more time, but his answers were again satisfactory.

Session 8: He was showed cards describing a room. He was asked to identify the room. He faced some difficulties, even though he had visual material in his disposal. He resented and indicated tiredness. With persistence his performance was satisfactory.

Session 9: He was given a paper with dots to connect in the right order. He was focused and content.

Session 10: He was asked to paint boxes at the end of the page. He faced some difficulties; he originally confused the colors but he managed.

Session 11: Exercises to attract focus and attention were carried out. He tried to draw designs that had initially observed. He showed enthusiasm for this exercise.

Session 12: He was asked to observe pictures and answer relevant questions. Afterwards, he was asked to identify words with the same roots, which seemed to trouble him. His performance proved to be insufficient and he made several mistakes.

Sessions 13 & 14: Given the previous difficulties, he was asked to repeat the same exercise with different examples.

Session 15: An exercise for identification of phonemes was carried out. He

was given incorrect words and asked to correct them. The results were satisfactory despite the several mistakes.

Sessions 16 & 17: He was asked to repeat the same exercise to fully conquer it, which made him nervous and tired.

Session 18: Exercise to identify original sounds. He was showed pictures and asked to pick the first phoneme of the words. The process was repeated several times.

Sessions 19 & 20: Repeated the same exercise to make him feel confident with several examples.

Session 21: Identification of letters; he was given animal pictures and tried to name the correct initial letter for each animal. He was quite responsive to the process.

Session 22: He worked on the identification of different letters.

Session 23: He identified the initial phoneme of the words and he was asked to find more words with the same letter. No difficulties were faced.

Session 24: Identification of |r| and |l| phonemes through pictures. He was slightly challenged, with no further problems.

Session 25: He was asked to separate the first phoneme of words. He was quite responsive.

Session 26: He was asked to identify words that start with the same phoneme. He was challenged but with effort he managed.

Session 27: Distinction between syllable and phoneme. He understood the difference, yet he was confused and refused to complete the exercise.

Session 28: Identification of |θ| and |f| letters in relevant words, was not fully acquired.

Session 29: Syllable knowledge; he was asked to cut two or three-syllable words in smaller pieces. He fully acquired this skill.

Session 30: Identification of the first syllable of the words. The therapists' aid was necessary to complete the exercise.

Session 31: He was asked to pair words that rhyme. It was pleasant for him and he was satisfied with his performance.

4. Results

Note taking was a major part of the case study, since at a later date they can be organized and interpreted. At first, attending the course was allegedly rather puzzling. Through the course of time, the kid became more cooperative and obedient. Experts' advice was as important as the maintenance of motivation to be focused. The kid responded in a satisfactory level; hence his initiative and confidence were augmented. This resulted in his constant cooperation and every day will to try. The timetable improved the kid's speech in every aspect and he is now able to express himself and be understood. Some phonological and lingual difficulties remain, as well as writing and kinetic acts, therefore the continuance of the speech and occupational program is advisable.

5. Conclusion

Dyspraxia is a neurological disorder which can be visible from the early childhood up to three years of age. Movement and speech-act coordination are most affected. The main objects of the research and the case study are socialization and emotional development by focusing on each kid as an individual, by understanding what dyspraxia means, how it affects the kid and how we can intervene. Adopting the fact that the most crucial age for speech development is from 1 - 6, the realization that a kid is unable to form sentences according to their age arises. As Platt quote: Social and emotional world affects the kid's life since they struggle to integrate and constantly prove themselves to be likable (2011). Each kid is unique and they should be treated accordingly. Kids with learning disorders are able to learn, in a non-symbolic way. Their performance at school depends on the methods applied and on how the instructor communicates the interest and love for learning. A positive environment is helpful for feedback and target setting, to help the kid celebrate accomplishments and success.

6. Discussion-Proposals

6.1. Discussion

Learning is a process that has been studied by scientists and defines the behavior of the person affecting every aspect of their lives. Dyspraxia is a speech disorder that affects the Broca area located on the frontal lobe, in the left side and it is where the disorder is observed. Over the last years, research carried out aiming to track down the attributes and the causes of verbal dyspraxia. Usually, dyspraxia impedes kids in more than one aspect of learning simultaneously, leading to multiple obstacles. This heterogeneity that dyspraxia entails, leads to different approaches of intervention that concern individually each kid [11].

According to Platt [12], low self-esteem is observed in kids with dyspraxia. It is common that they isolate themselves from team activities, hence becoming depressed and lonely. In Slavin's opinion [13], school environment is crucial for kids, who feel the need to fit in and be accepted. In addition, low performance, the feeling of insufficiency, criticism and inferiority complex lead to giving up and isolate themselves from the team.

6.2. Proposals

Instructors should treat each kid as a different entity in the classroom. They should pay attention to the weaknesses of the students and remain vigilant to intervene in a timely manner. They also should provide individual timetables that are understandable and cover the diversity of the students. Innovations like sitting a student with learning disorders in the front row of the classroom or creating mixed teams might be efficient. Finally, instructors should be accessible, omitting a lot of details and rewarding the kids to boost their confidence. The communication should take place on stable ground, with consistency and planning.

Role playing, theatre with an experiential approach that assumes actively involvement and participation of the kids can be helpful according to Mercer [14].

Heward [15] suggests that the kid is given enough time to catch up and translate all useful information to reach the completion of a task. Parents, on the other hand, should primarily be informed about the disorder of the kid. The key to a healthy relationship is to reward the kid regardless the outcome and not compare the kid to others. A balance should be maintained among siblings, the aim is to reinforce the virtues and not the weaknesses. In any environment that the kid receives love, devotion, understanding and patience, they are taught to form healthy relationships, overcome barriers and express feelings. Consequently, the kid will reach adulthood on solid ground that leads to self-realization.

Research Shortages and Limitations

At first, due to my close relation with the boy, the sessions were somewhat inconvenient. He was showing signs of disorientation, since we had to apply stricter boundaries than usual, at first he was not able to understand that my presence was more instructive and less familial. In addition, due to the epidemic Covid-19, the sessions could not be conducted in a recurrent way as they were supposed to be; there were pauses and some of the sessions were not implemented in person. After a period of approximately three weeks, he became accustomed to the circumstances and he cooperated almost fully.

Agree to Conditions

- 1) All authors of the manuscript have read and agreed to its content and are accountable for all aspects of the accuracy and integrity of the manuscript;
- 2) The submitted article must be the one presenting original work that is not being considered or reviewed by any other publication, and has not been published elsewhere in the same or a similar form.

Conflicts of Interest

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript. The authors declare no competing interests.

Ethics Approval and Consent to Participate

The procedures used in this study adhere to the tenets of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in the study.

Data Availability Statement

The authors confirm that all data generated or analyzed during this study are included in this published article.

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