



PDD AND FUNCTIONAL LANGUAGE: SUPPORT OF LANGUAGE EVOLUTION USING EXPERIMENTAL SOFTWARE. CLINICAL CASE

THIS SOFTWARE IS INCLUDED IN THE WOCE™ PROGRAM

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Speech and language disfuncions in PDD

Language in subjects with PDD and Autism is still being studied and observed today. What type of perceptive hearing and what processing modes are at the root of this expressive/receptive disorder for non-verbal subjects?

Ninety-percent of subjects with PDD and Autism present a sensorial/perceptive disorder, among which auditory disorders are common.

In absence of specific periphery disorders, disorders in hearing perception include the elaboration of sound via the cortex.

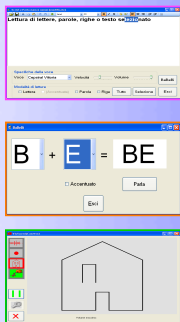
These disorders are manifested in many ways:

language stereotypes, hypo and hyper sensibility to sound, verbal-auditory agnosia, difficulty in processing information coming from multiple sensory canals, receptive/expressive language disorder.

The role of language is three-fold: communication system, behaviour regulator and thought order (Vigotsky).

The complex communication disabilities, in absence of adequate intervention, interfere significantly with development, particularly in the cognitive/relational area.

Experimental software



On the basis of scientific data, experimental software was developed to respond to rehabilitative and re-educational needs regarding language in PDD and Autistic subjects.

The software is used in speech and cognitive therapy rehabilitation for receptive/expressive language through exercises specific to recognition, discrimination and output, with support of auditory and visual aides.

All visual and reproductive settings are modifiable.

The software is structured in modules to be utilized separately or contemporaneously for:

- Recognition and discrimination of sounds
- Sound and visual feedback at the emission of sounds or language
- Sound and visual support with syllabic code
- Vocal synthesis that slows down sound during reading/writing



In clinical practice... The use of software in an Autism case study

Case Presentation	Rehabilitation Project			
<p>Age: 13 years Diagnosis: Autism</p> <p>Began therapy: January 2006 (age 9).</p> <p>From a neurological standpoint, the subject does not present any organic pathology. Language is seriously impaired.</p> <p>There is no word output; vocal output towards others is present in very few contexts. Intonation of vocalization is strange and inappropriate. Shows poor use of alternative communication methods (indication and communicative gestures are limited).</p> <p>ADOS: overall score surpasses the limit for Autism p. 12.</p> <p>Peabody: QL 82</p> <p>TCGB: 25th p. for 5 year-olds</p> <p>Boston Naming Test: no assessment available.</p>	<ul style="list-style-type: none"> • The boy demonstrates a phonological and syntax coding and decoding disorder, with a severe expressive deficit in comprehension. • The rehabilitative process is carried out through auditory discrimination and comprehension to maintain verbal language development, using diverse instruments such as phoneme discrimination, minimal pairs, exercises in sound discrimination (see software), and progressively complex verbal commands. • Characteristic of the emerging language was the syllabic structure. Once the child had learned the phonetics, the request gradually moved on from recognition and output of two-syllabic levels to more complex words, including actions or the object's characteristics. • Normally, a verbal labelling is not given but autonomous learning is favored through syllabic merging. • The work done on language is carried out phonologically and semantically (see figures 1 to 4). • In the second case, the syllabic merging of a single written word is carried out, after which the boy must find the corresponding card from a group of cards. 	<p>1-1 show the picture to be identified.</p>	<p>2-1 write the name of the picture and subdivide it into syllables.</p>	<p style="text-align: center;">Bibliography</p> <ul style="list-style-type: none"> • Nieto Del Rincón P.L. Autism: alterations in auditory perception. <i>Reviews in the Neurosciences</i>, 2008; 19, 61-78. • Rapin I, Dunn M. Update on the language disorders of individuals on the autistic spectrum. <i>Brain & Development</i>, 2003; 25, 166-172. • Tager-Flusberg H. Understanding the Language and Communicative Impairments in Autism International. <i>Review of Research on Mental Retardation</i>, 2000. Special Issue on Autism. L. M. Glidden (Ed.) New York: Academic Press. • Tallal P. Improving language and literacy is a matter of time. <i>Nat Rev Neurosci</i>, 2004; 5:721-728. • Tecchio F, Benassi F, Zappasodi F, Gialloreti LE, Palermo M, Serl S, Rossini PM. Auditory Sensory Processing in Autism: A Magnetoencephalographic Study. <i>Biol Psychiatry</i>, 2003; 54: 647-654.
<p style="text-align: center;">Intervention results</p> <p>The boy now uses a repertoire of limited words and phrases, which are almost always contextualized (a person's name, numbers, places, names of objects, adjectives and verbs, yes/no).</p> <p>Echolalia is immediate and boy has difficulty in articulating complex syllables.</p> <p>He spontaneously uses numerous forms of communication (reading/writing, gestures, indications, verbal language, images and designs).</p> <p>ADOS: is now on the Autistic spectrum with p. 11.</p> <p>Peabody: QL 92</p> <p>TCGB: 25th p. for 8 year-olds</p> <p>Boston Naming Test: p. 17 (-3 ds for the 5th el.)</p> <p>Non-standardized Phonology test (Pierrotta e Rustici, 2006): verbalizes 45 words out of 56.</p>	<p>3- We type in the syllables using the software, which then merge together to re-form the word.</p>	<p>4- The boy forms the word orally, thanks to the merging of the recognized syllables.</p>	<p>5- The boy practices the verbal output, while talking, the software produces a vocal feedback of the sound.</p>	

WOCE™ (Written Output Communication Enhancement)

WHAT IS IT?

WOCE™ is not a method but a set of strategies aimed at supporting social, cognitive and communication development.

It is a cognitive training centred on mental flexibility, on those abilities implying the acquisition of a communication process, symbolic and non symbolic abilities aimed at communication, and also supporting written language as an alternative to spoken language.

WOCE™ addresses adults or growing people with communication and verbal difficulties, congenital or acquired.

The training consists of strategies to:

- develop intentional pointing to foster communication
- rehabilitate voluntary motor planning and pointing as a form of sharing in a communication exchange.

Through our strategies we also support development of an insufficient verbal language.

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