Original Research Article

Prevention in specific language disorders: Preschool age screening

Serena Gentile[1], Vincenza Piraino[2], Barbara Gaudio[1*]

[1]Speech Therapist Practitioner, [2]Private Practice, Magna Graecia University Catanzaro, ITALY.
Email: bgaudio@inwind.it

Abstract

This study aims at preventing learning disabilities through logopedic screening and specific exercises. Researchers screened 30 children of 5 years old in two different moments: in October 2016 at the beginning of the last year of school and in May 2017 at the end of the same year. One year later, in 2018, these children were re-evaluated. The study revealed some kids at risk so researchers created specific logopedic laboratories for their disorder. Only 17 children out of 30 were at risk. After the evaluation and the treatment period, only 2 kids were actually at risk. The study showed the effectiveness of the logopedic screening.

Key Word: preschool, screening, logopedic, disabilities, learning, preventing.

[*]**Address for Correspondence:**
Dr. Barbara Gaudio, Via Trastevere 132 – 89047 Roccella Ionica (R.C.) ITALY.
Email: bgaudio@inwind.it

Received Date: 10/01/2019 Revised Date: 24/02/2019 Accepted Date: 14/03/2019
DOI: https://doi.org/10.26611/1016938

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 24 March 2019

INTRODUCTION

The discovery of the comorbidity between language disorders and learning disabilities[1] encouraged scientists to introduce preventive measures for subjects with learning disabilities in order to identify and treat them. According to the ICD-10, language disorders are communication disorders in which a person or child has persistent difficulties in learning and using various forms of language. Symptoms of language disorders first appear in the early developmental period when children begin to learn and use the language. Subjects with this condition have deficits in understanding and producing vocabulary, sentence structure and discourse; they also have a limited capacity for engaging in conversation. Language is the base of school education in fact it allows the development of:[2, 3, 4]

- Semantic elaboration
- Metaphonological awareness
- Long and short term phonological memoty
- Verbal and visual association and rapid lexical access

These linguistic requiremets go hand in hand with the development of aural, visual and coordination abilities. In 2007 The Consensus Conference showed the predictive factors of learning disabilities:

- Problems at repeating rhythmic sequences and keeping the time
- Trouble distinguishing left from right
- manual skills
- Attention issues
- Inadequate phonological competence
- Language difficulty
- Metaphonological difficulties

All these signs appear within the first years and for this reason the development of a fast and effective screening is vital.

MATERIALS AND METHODS

The screening has been structured to evaluate those abilities which are the basis of school education. It is divided into 5 easy and fast tests.

First phase: Children have to draw a tree, a house and their own family. 5 years old children should be able to draw all parts of the body, use all the space of the sheet of paper they are given, draw with accurate proportions and hold the pen properly. All the children who don't meet such requirements may be at risk.

Second phase: Children are given 5 high-frequency words such as: ball, sun, flower, beard and butterfly and each

child has to listen and draw these words. Scientists evaluated long and short-term memory aspects according to the studies on working memory. [5,6] Children with learning disabilities couldn't complete the test correctly.

Third phase: Authors analyzed the sense of rhythm and acoustic memory of each kid.[7, 8] Children listened to 3 different rhythm sequences and had to repeat them correctly. The first sequence was constant with different pauses. The second melody switched from a slow rhythm to a faster one. The third one was characterized by a progression of the rhythm. The children unable to keep the rhythm may have dyslexia, dyscalculia and dysgraphia.

Forth phase: This stage aimed at analyzing children's phonetics and phonology articulation. [9] Articulation problems may be the cause of phonological disorders and children may have significant troubles with letters, writings and the alphabet.[10,11]

Fifth phase: This last stage has to evaluate children's ability to make a meaningful sentence, their lexic and their narrative ability through the "Bus Story Test". Oral narratives are considered an important assessment tool for children because of the wealth of information they provide about children's language ability. All 5 years old children should be able to organize information in a cohesive, rule-governed manner and link events in a chronological order. The lack of these requirements will result in dyslexia and dysgraphia.[12]

RESULTS

At the end of the first evaluation (at the beginning of the last year of school in October 2016) 51% of screened kids presented some learning disabilities. These children underwent logopedic therapy with individual treatment plans for once or twice a week. In May 2017, at the end of the same year, the risk of learning disorders was reduced by 18%; and in May 2018, a year later, by 6%.

Table1: First evaluation October 2017(last year kindergarten children)

Assessed Aspects	Children At Risk	Children Not At Risk
Visual-perceptual ability	17	13
Prehension and graphic tract	17	13
Working memory and BT	17	13
Acoustic memory	14	16
Space-time sequencing	15	15
Phono articulation	16	14
Lexicon	18	12
Morphosyntax	14	16
Adequacy of the frastic structure	14	16

Table 2: Second evaluation May 2017(last year kindergarten children)

Assessed Aspects	Children At Risk	Children Not At Risk
Visual-perceptual ability	6	24
Prehension and graphic tract	6	24
Working memory and BT	6	24
Acoustic memory	5	25
Space-time sequencing	5	25
Phono articulation	4	26
Lexicon	5	25
Morphosyntax	6	24
Adequacy of the frastic structure	6	24

Table 3: Third evaluation May 2018(first year elementary school children)

Assessed Aspects	Children At Risk	Children Not At Risk
Visual-perceptual ability	2	28
Prehension and graphic tract	2	28
Working memory and BT	2	28
Acoustic memory	1	29
Space-time sequencing	1	29
Phono articulation	2	28
Lexicon	3	27
Morphosyntax	2	28
Adequacy of the frastic structure	2	28

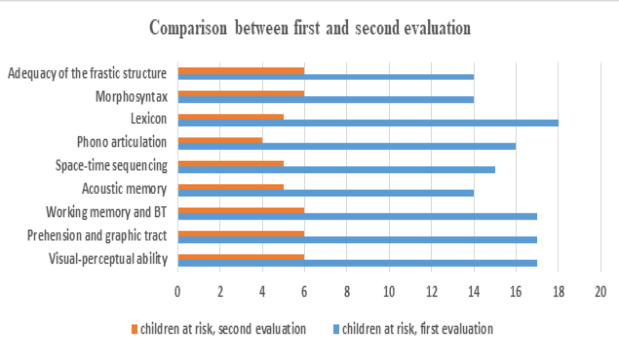

Figure 1:

DISCUSSION AND CONCLUSION

Learning disabilities are diagnosed and rehabilitated when disorders are evident. Dyslexia, dysorthography, and dysgraphia can be diagnosed at the end of the second grade, while dyscalculia only by the end of the third grade, when disorders are evident. Therefore, this treatment won't be aimed to improve the abilities, but it's aimed to restore, maintain, and consolidate the remaining abilities. In order to avoid situations that imply students' passive behavior, and educational difficulties that often lead to school drop-out, society needs an effective prevention system that can impede the emergence of these difficulties. Screening and speech-therapy laboratories which have been used in this study have proved to be valid instruments to prevent learning disabilities. Using those instruments has allowed the recovery of lacking abilities in some cases and the early treatment in others. For these reasons, such procedures should be used regularly in schools, in order to detect early and prevent any potential learning disability.

REFERENCES

1. Hugh W. Catts et coll. Are Specific Language Impairment and Dyslexia Distinct Disorders?, J Speech Lang Hear Res. 2005 Dec; 48(6): 1378–1396.
2. Brizzolara D., Gasperini F., Pfanner L., Cristofani P., Casalini C. e Chilosi A.M. (2011), Long-term reading and spelling outcome in Italian adolescents with a history of specific language impair-ment, «Cortex», vol. 47, pp. 955-973.
3. Brizzolara D., Pecini C., Chilosi A., Cipriani P., Gasperini F., Mazzotti S., Di Filippo G. e Zoccolotti P. (2006), Do phonological and rapid automatized naming deficits differentially affect dyslexic children with and without a history of language delay? A study on Italian dyslexic children, «Cognitive and Behavioural Neurology», vol. 19, pp. 141-149.
4. Chilosi A.M., Brizzolara D., Lami L., Pizzoli C., Gasperini F., Pecini C. e Zoccolotti P. (2009), Reading and spelling disabilities in children with and without a history of early language delay: A neuropsychological and linguistic study, «Child Neuropsychology», vol. 15, pp. 582-604.
5. Shah, P., and Miyake, A. (1996). The separability of working memory resources for spatial thinking and language processing: An individual differences approach. *Journal of Experimental Psychology: General*, *125*(1), pp. 4-27.http://dx.doi.org/10.1037/0096-3445.125.1.4
6. Shap, P., and Miyake, A. (1996). The separability of working memory resources for spatial thinking and language processing: An individual differences approach. Journal of Experimental Psychology: General, 125, pp. 4-7.
7. Adam Tierney and Nina Kraus. Journal of Neuroscience 18 September 2013, 33 (38) 14981-14988; DOI: https://doi.org/10.1523/JNEUROSCI.0612-13.2013.
8. Jane Hornickel and Nina Kraus. Journal of Neuroscience 20 February 2013, 33 (8) 3500-3504; DOI: https://doi.org/10.1523/JNEUROSCI.4205-12.2013.
9. Phonology articulation test of Fanzago. 1983
10. Margaret J. Snowling, D.V.M. Bishop, Susan E. Stothard, Barry Chipchase. Psychosocial outcomes at 15 years of children with a preschool history of speech-language impairment. Journal of Child Psychology and Psychiatry 47(8):759-765 · September 2006. 10.1111/j.1469-7610.2006.01631.x.
11. Usha Goswami. Why theories about developmental dyslexia require developmental designs. Trends in Cognitive Sciences. https://doi.org/10.1016/j.tics.2003.10.003
12. Döhla D and Heim S (2016) Developmental Dyslexia and Dysgraphia: What can We Learn from the One About the Other? Front. Psychol. 6:2045. https://doi.org/10.3389/fpsyg.2015.02045

Source of Support: None Declared
Conflict of Interest: None Declared

Copyright © 2019, Medpulse Publishing Corporation, MedPulse International Journal of ENT, Volume 9, Issue 3 March 2019