

Pre-school teachers' ability to detect speech and language disorders

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Introduction

- Speech and language disorder is the abnormal acquisition of spoken or written language in one or some of the components of the linguistic system (phonology, morphology, syntax, semantics, pragmatics) (ASHA, 1980).
- The early identification of speech and language disorders leads to early intervention and improves the child's long-term prognosis and academic achievement (Nelson et al., 2006, Vlassopoulos et al., 1994, Bliss et al., 1984).
- Screening as a process is intended to separate out the children who need further investigation of their language skills from those with normally developing speech and language. In doing this a screening procedure classifies children as 'possibly abnormal' or 'possibly normal' (Law et al., 1998).
- In Greece screening for speech and language difficulties is not widely available in public schools and kindergartens. Furthermore, there is only one standardized tool for this purpose, the AnOmiLo4 (2003).
- Recent studies discuss the importance of pre-school teachers' role in early detection of speech and language disorders (ASHA, 1991, Law et al., 1998, Maas, W., 1999, Nelson et al., 2006).

Aim of the study

The aim of the study was to compare data attained through a formal screening tool with that obtained through the pre-school teachers' informal assessment of the child's abilities. The two main questions addressed in this study were:

- Whether the pre-school teachers have the necessary knowledge to detect speech and language disorders through an informal procedure and whether there is correlation between pre-school teachers' estimations and AnOmiLo4 test results.
- Whether the pre-school teachers' estimations of speech and language disorders in this sample are similar to the results attained through the formal screening procedure administered by a speech/ language specialist. Would both the pre-school teacher and the SLT detect the same children with speech / language difficulties?

Method

Participants: 57 Greek children-native Greek speakers (34 boys & 23 girls, aged 3:9-4:6 years, mean age:4:1) and 6 teachers. The participants consisted of all the children in 6 different preschools, consequently there were 6 teachers, who completed the informal questionnaire.

Measures:

- The **AnOmiLo4** is a Screening Test for Speech and Language Disorders for 4-year old children (aged between 3:9-4:6 years old) standardized by the Pan-Hellenic Association for Speech Therapists, in 2003. The AnOmiLo4 evaluates children's language ability (in phonology, morphology and syntactic structures, pragmatics), speech fluency, voice and psycholinguistic abilities (memory, attention, hearing perception).
- A non-standardized questionnaire created by the researchers for the purposes of this study. It consists of 15 questions addressing each of the child's communicative skills (covering the same fields as the AnOmiLo4). The questionnaire was completed by the pre-school teachers for each of the children in this age range (3:9-4:6 years) in their class. Their answers were based upon everyday interaction and observation of the child's behavior.

Procedure: The AnOmiLo4 screening tool was administered to all children by a speech therapist in their preschool. At the same time, their pre-school teacher completed the questionnaire which investigated the child's communication abilities. Statistical analysis compared the results from the formal (AnOmiLo4) and the informal procedures (questionnaire) for each child and investigated the correlations.

Results

Table 1: Differences in AnOmiLo4 profiles according to pre-school teachers' answers to Pre-school teachers' Questionnaire

Statistics		Profile 1 (Normal language development)	Profile 2 (Possible Language Disorder)	Profile 3 (Language Disorder)
Teachers' Questionnaire rating	Valid	43	7	5
	Missing	0	0	0
Mean		26,95	25,85	13,2
Median		28	27	13

- Table 1 shows that although pre-school teachers have the ability to detect children with **Profile 3** in AnOmiLo4 (Existence of Language Disorder), but they seem unable to differentiate between children with **Profile 1** (Normal language development) and **Profile 2** (Possibility of Language Disorder).

Table 2: Comparison of AnOmiLo4 to Pre-school teachers' Questionnaire ratings - Correlations

		Teachers' Questionnaire rating	AnOmiLo4 rating
Teachers' Questionnaire rating	Pearson Correlation	1	0,705074498
	Sig. (2-tailed)	,	4,33901E-10
	N	57	57
AnOmiLo4 rating	Pearson Correlation	0,7050745	1
	Sig. (2-tailed)	4,33901E-10	,
	N	57	57
**	Correlation is significant at the 0.01 level (2-tailed).		

Pearson r (r²=0.50)

- Table 2 shows that teachers detected only 50% of the children who, according to the AnOmiLo4 showed "possible speech and language disorders".

Tables 3 & 4: Speech and language disorders distributions according to AnOmiLo4 & Pre-school Teachers' Questionnaire

AnOmiLo4	Pre-school Teachers' Questionnaire		
	f	rf (%)	crf
Speech / language disorder	10	18,18	18,18
No Speech / language disorder	45	81,82	100,00
Total	55	100	

- In Tables 4 and 5, the percentages of children detected with speech and language disorder with each tool may be seen. The percentage of communication impairment detected by the Teachers' Questionnaire (20%) is very close to that of the AnOmiLo4 (18.18%).

Table 5: True Positive/Negative & False Positive/Negative evaluation for AnOmiLo4 & Pre-school Teachers' Questionnaire

Pre-school Teachers' Questionnaire	AnOmiLo4	
	Language Disorder	No Language Disorder
L.Disorder	5	6
No L. Disorder	9,09	10,91
	9,09	70,91

 $\chi^2(1) = 6,88, p < 0,01, \Phi = 0,35, \text{Odds Ratio} * = 6,5$

Estimate of the relative risk when the occurrence of the factor (AnOmiLo4) is rare.

- Out of the total of 55 children tested, both the formal and the informal procedure agreed that **39 children were not showing any speech and language difficulties** at the present time. Both procedures agreed that **5 children had speech and language difficulties**. However, it is particularly interesting to note that **6 children were found by the teachers' questionnaire to have speech / language difficulties**, whereas they were not detected by the AnOmiLo4 (false positives) and furthermore, another 5 children were found to have difficulties by the AnOmiLo4, whereas they were not detected by the pre-school teachers (false positives). That is a total of 11 children, one child in five of the whole sample, who are "under dispute".
- It is important to note that with the questionnaire, the teachers were only able to detect 50% of the children detected by the formal screening tool. On the whole the teachers' opinions and the more objective, standardized results of the screening tool do not seem to match.

Discussion

- Our results show that although there is a high correlation (0.71) between the teachers' opinions and the results of the AnOmiLo4, there is 50% chance of misdiagnosis. The pre-school teachers are in a position to detect children with more severe speech / language difficulties, but have difficulties detecting children with "possible" difficulties (Profile 2 on the AnOmiLo4). It is possible that they are not experienced, aware or trained in the more subtle forms of communication impairment.
- According to research, pre-school teachers are able and should contribute to speech and language disorders screening (ASHA, 1991; Law et al., 1998; Maas, 1999; Nelson et al., 2006). However, it seems that in Greece, pre-school teachers need further training in order to contribute to early detection of children with speech and language difficulties. Some suggestions to enhance teachers' training in this sensitive area could be:

- Intensive courses on speech / language development and disorders.**
- More systematic cooperation with SLTs (Speech and Language Therapists) in school.**
- Enhancement of teachers' observation methods.**

Limitations

When comparing two instruments, there are certain methodological issues, which one must take into account. For instance, the informal questionnaire may not have been adequate enough to elicit the teachers' knowledge of the child's communication abilities. On the other hand, the teacher's knowledge of the child and his abilities may be more 'sensitive' than the formal tool, which assesses the child in less than 15 minutes. A more long-term observation of these children would yield more reliable data, which could be used to validate screening methods.

References

- American Speech-Language-Hearing Association (1991). Prevention of communication disorders tutorial [Relevant paper]. Available from www.asha.org/policy
- Bliss, L.S. & Allen, D.V. (1984). Screening kit of language development: A preschool language screening instrument. *Journal of Communication Disorders*, 17, 133-141.
- Vlassopoulos, M., Tsipra, I., Lazaratou, E. (1994). An early intervention program for children with Specific Language Impairment: An interdisciplinary approach. *Issues of preventive medicine*. Athens
- Vlassopoulos et al., (2003). *AnOmiLo4 (Screening Test of Speech and Language Disorders for 4-year old children)*. Pan-Hellenic Association of Speech Therapists: Athens
- Law, J., Boyle, J., Harris, F., Harkness, A. & Nye, C. (1998). Screening for speech and language delay: a systematic review of the literature. *Health Technology Assessment*, 2 (9).
- Maas, W. (1999). Early detection of speech and language delays in the Netherlands. The case for integrating primary and secondary prevention. *Child: Care, Health and Development*, 26 (2), 150-162.
- Nelson, D.H., Nygren, P., Walker, M., Panoscha, R. (2006). Screening for Speech and Language Delay in Preschool Children: Systematic evidence review for the US Preventive Services Task Force. *Pediatrics*, 117: 298-319.