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ABSTRACT

This study investigated the development of oral metalinguistic abilities in 140 children (ages 5-12) with oral language or reading impairments. The study focused on determining the difficulties that children with these different types of problems have at different ages in the elementary school years and determining how metalinguistic abilities change as children mature. Subjects were divided into two groups by age and into four different groups based on nature and extent of disorder. Results indicated that, among the younger children, there were few significant differences among the four groups in language metaprocessing difficulties. Children with oral language problems and children with both oral and written language problems had difficulty in syntactic processing tasks and in recalling words presented at random. Children who had only reading problems did better than children in the at risk and combined disorder (oral and written language) groups in phoneme segmentation. The paper concludes that the four identified groups differ in degree of difficulty but not in type of difficulty. (JDD)

LANGUAGE IMPAIRMENT AND READING IMPAIRMENT: DO THESE CHILDREN DIFFER IN ORAL LANGUAGE PROCESSING ABILITIES?

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Various investigators have been interested in determining if there is a relationship between children's metalinguistic skills and reading development. Research results have indicated that there are significant relationships between children's awareness of phonological and lexical units (Kahmi & Catts, 1989; Mann, Liberman & Shankweiler, 1980), and semantax and pragmatic relations and reading performance (Bohannon, Warren-Leubecker & Helper, 1984; Jackson & McClelland, 1979; Vellutino, 1989). Research has indicated that children who have reading problems clearly have problems in phonological awareness (Liberman, Shankweiler, Liberman, Fowler & Fischer, 1977). In addition, evidence is accumulating that these children have difficulties with conscious knowledge of other aspects of language as well, specifically, knowledge of semantics and syntax (Batey & Sonnenschein, 1981; Flood & Menyuk, 1983). Awareness of all categories and relations in all aspects of language seems to be involved in learning to read.

The exact nature of the purported differences between children who have oral language problems and those who have written language problems still needs a great deal of study. We are investigating the development of oral meta-linguistic abilities in oral language impaired and/or reading impaired children since these types of abilities have been shown to play an important role in reading.

This area of study would provide additional information about the nature of the problems that oral language impaired children and those with written language problems encounter as they mature. As pointed out in the previous paper, children with oral language problems have difficulty with various metalinguistic tasks. This study focuses on 1) determining the difficulties that children with these different types of problems have at different ages in the elementary school years and 2) how the metalinguistic abilities change in these groups of children as they mature.

One hundred forty children between the ages of 5.0 to 12.0 years who were either diagnosed as or suspected of having an oral language disorder and/or reading disability participated in this study. The children were selected from: 1) a previous longitudinal study that focused on predicting oral and written language problems in children, and 2) recommendations from speech-language pathologists and teachers in various school districts within a forty mile radius of a metropolitan area.

The children were divided into two cohorts; 52 younger and 88 older subjects. The younger cohort ranged in age from 5 years 0 months to 8 years 10 months with a mean age of 7 years 6 months, and the older cohort ranged in age from 9 years 0 months to 11 years 9 months with a mean age of 10 years. All of the subjects had normal hearing in at least one ear, had no diagnosed behavioral or emotional disorders, and had a nonverbal IQ. of at least 85 as measured by the Test of Non-verbal Intelligence (Brown, Sherbenou and Johnsen, 1982). The initial standardized measures that were administered to the subjects to determine if they met the study's criterion for inclusion in the study included the Test of Language Development-2 Primary or Intermediate (Hammil and Newcomer, 1988), and the Metropolitan Readiness Test (Nurss and McGauvran, 1986), or the Stanford Reading Diagnostic Test (Karlsen, Madden and Gardner, 1984). Based on the results of these tests, the children were furthered divided into four different groups; 1) oral language disorder only, 2) written language disorder only, 3) both oral and written language disorder, and 4) neither an oral or written language disorder according to the test criteria used but still 'at-risk'. The children in the 'at-risk' group, were included in the study because they showed a wide range of abilities on these tasks and were receiving some type of oral language therapy or reading remediation in school.

The children in the oral language disorder group had an overall spoken language quotient below 89 (mean=100) on the TOLD-2, Primary or Intermediate with pre-reading or reading abilities above the 30th percentile on the Metropolitan Readiness Test, or the Stanford Reading Diagnostic Test. Children in the written language disorder group scored below the 30th percentile on these reading measures but their overall spoken language quotient on the TOLD-2 was above 89. The children with combined oral and reading disorder group scored below the 30th percentile on the corresponding reading test and had an SLQ below 89 on the TOLD-2.

OVERHEAD WITH NUMBER OF SUBJECTS
FOR THE DIFFERENT GROUPS

As can be seen in this overhead, there were 7 children in the oral language group, 15 in the written language group, 18 in the 'combined' group, and 12 in the "at-risk" group within the younger group. Within the older group, there were 16 children in the oral language group, 10 in the written language group, 53 in the 'combined' group, and 9 in the 'at-risk' group.

Each of the subjects, regardless of their group classification, was administered the experimental battery of metalinguistic tasks that was described in the previous study. As stated previously, these tasks assessed all aspects of language: phonological segmentation analysis, lexical abilities, syntactic abilities and discourse abilities. The discourse task assessed the child's ability to answer verbatim and inferential questions about an orally presented story.

Analyses of variance were carried out to determine the difficulties the four identified groups had within each of the younger and older cohorts on these meta-processing tasks. If there were significant differences among the four groups within each

age group, Duncan's post hoc analyses were carried out to determine which groups differed in their performance on these tasks.

OVERHEAD WITH RESULTS FOR YOUNGER GROUP

INCLUDE MEANS FOR GROUPS

The next overhead presents the findings of the analyses for the younger subjects. As can be seen in this overhead, the 'combined' group performed significantly more poorly than the 'at-risk' group on the syllable segmentation. In addition, the 'combined disordered' group performed significantly more poorly than the reading impaired only group on the judgment and correction of non-grammaticality. The next finding indicates that two of the groups, the oral language disordered only and 'combined' groups, performed significantly more poorly than the 'at-risk' group on the oral cloze procedure. No other significant differences were found for this younger group.

OVERHEAD WITH RESULTS FOR OLDER GROUP

INCLUDE MEANS FOR GROUPS

Different results emerged among the four identified subgroups within the older group as can be seen in the next overhead. The 'at-risk' and 'combined' groups performed significantly more poorly than the reading only group on the phoneme segmentation. This is somewhat surprising since phoneme segmentation skills have been found to be difficult for children with reading difficulties. It may be the case that these children have had specific instruction for these types of skills.

The oral language impaired only and the 'combined disordered' groups performed significantly more poorly than the other two groups on all of the syntactic meta-processing

tasks. As can be seen in the overhead, the oral language impaired only and the 'combined disordered' groups performed significantly more poorly than the reading impaired only and the 'at-risk' groups on the comprehension of complex sentences, judgment and correction of non-grammaticality, and the oral cloze task,

The older groups performance on the word recall also produced significant findings. When the stimuli were presented in a random order, the oral language impaired only and the 'combined disordered' groups ' performed significantly worse than the-risk' group . This was the only significant difference found for the lexical tasks. There were no differences in the four groups' performance on the categorized word recall or on the rapid naming.

There were also group differences in their abilities to answer questions about an orally presented story. The 'combined disordered' group performed significantly more poorly than the 'at-risk' group. We are still in the process of analyzing the groups' abilities to recall the propositions in the story.

Results thus far indicate that during the earlier grades there are few significant differences among the groups in language meta-processing difficulties although there were trends. As the children mature and are in the later elementary grades, children with oral language problems as well as those with both oral and written language problems continue to have significant difficulty in syntactic processing tasks. These tasks included judgment and correction of non-grammaticality of sentences, comprehension of complex sentences, and simultaneous processing of syntactic and semantic information. These two identified groups also have difficulty recalling words when they are presented at random. It may be that these children have not yet developed categorization as a way to organize and retrieve the presented information. It is also noteworthy that children who only have reading

problems do better than children in the "at-risk" and "combined disordered" groups in phoneme segmentation, a so called classic problem of reading disordered children. This may be due to the amount of emphasis placed on this type of task in the intervention programs with them.

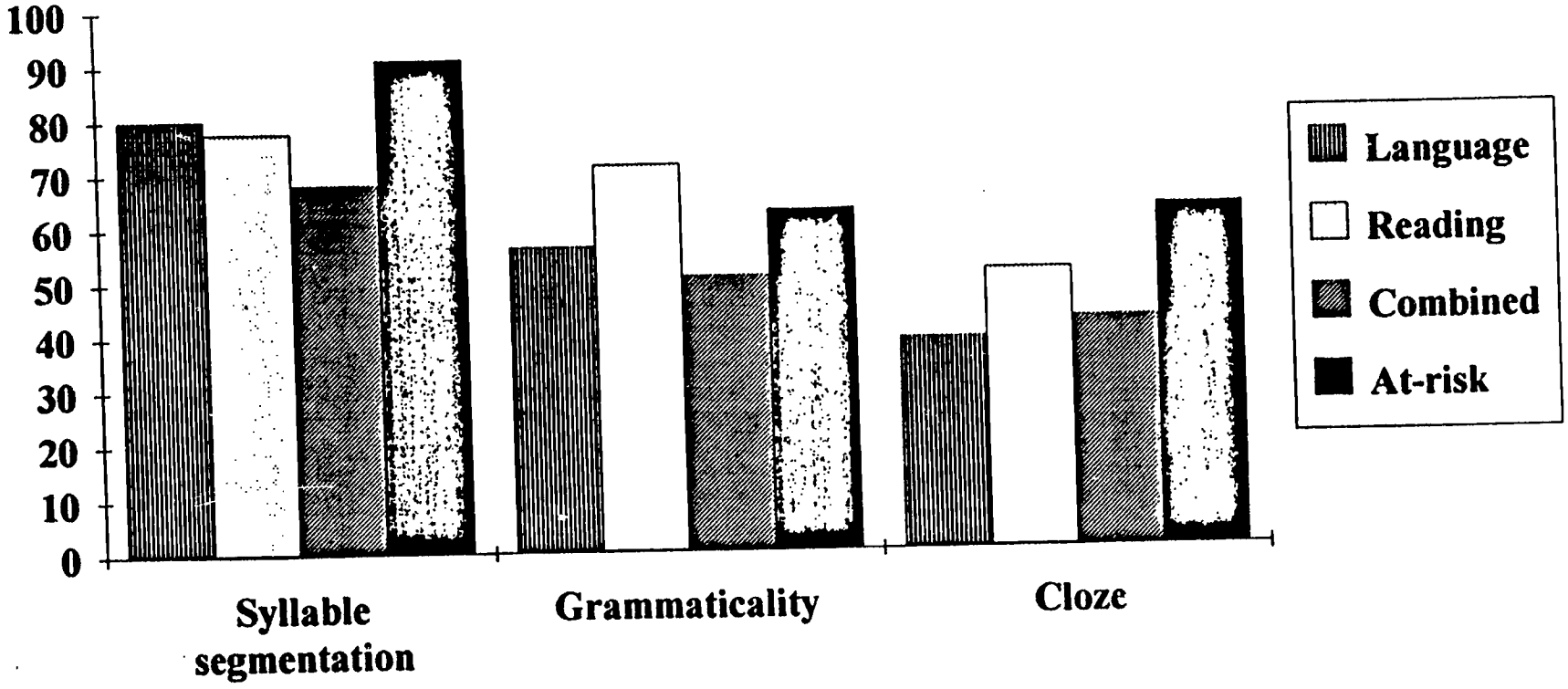
In summary, although there were few significant differences found within the younger age group, syntactic difficulties seem to be most problematic for them, especially for those who have both an oral and written language impairment. These difficulties persist and become more pronounced as the children get older as seen in the performance of the older groups. The question was "What difficulties do children with different types of language problems have in terms of metalinguistic abilities? The answer to this question is perhaps that the four identified groups differ in degree of difficulty but not in type of difficulty. There are; however, particular areas of difficulty that each group has. These results raise interesting and practical implications for intervention with these groups of children. It appears that the type of treatment can be similar for children with oral and /or reading language difficulties. We are currently exploring under which conditions, if any, which we can improve the children's encoding and/or retrieval abilities within different age groups. These conditions include providing them with specific techniques and instructions to deal with all of the various tasks.

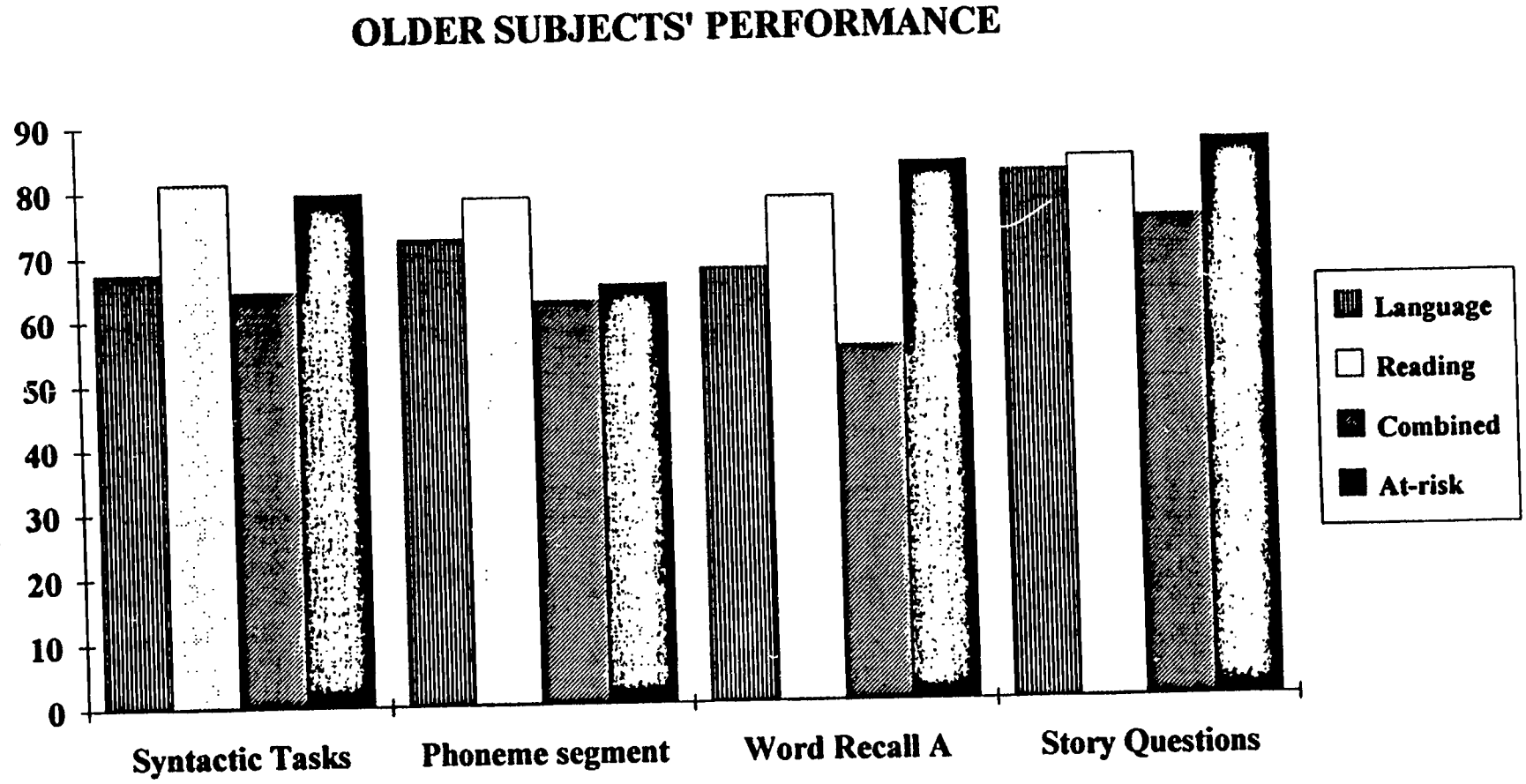
	NUMBER OF SUBJECTS		
	Younger Group		Older Group
Language Impaired Only	7		16
Reading Impaired Only	15		10
Combined Language and Reading Disordered	18		53
At-risk	12		9
TOTAL	52		88

	MEANS FOR YOUNGER SUBJECTS				
	Language	Reading	Combined	At-risk	
Syllable segmentation	80.00	77.65	68.05	90.85	Combined > At-risk
Grammaticality	56.09	71.11	50.51	62.65	Combined > Reading
Cloze	38.57	51.11	42.04	62.73	Language & Combined > At-risk

	MEANS FOR OLDER SUBJECTS				
	Language	Reading	Combined	At-risk	
Phoneme segmentation	72.20	78.50	62.45	65.00	At-risk & Combined > Reading
Syntactic Tasks	67.40	81.25	64.38	79.46	Language & Combined > Other Two
Word Recall A	67.19	78.13	54.90	83.31	Language & Combined > At-risk
Story Questions	81.63	83.75	74.31	86.13	Combined > At-risk

YOUNGER SUBJECTS' PERFORMANCE




OLDER SUBJECTS' PERFORMANCE
90
80
70
60
50
40
30
20
10
0
Syntactic Tasks
Phoneme segment
Word Recall A
Story Questions
Language
Reading
Combined
At-risk