ASSESSMENT OF SKILLS THAT PREDICT READING SUCCESS IN 1ST- AND 2ND-GRADE CHILDREN OF ELEMENTARY SCHOOL

Avaliação das habilidades preditoras do sucesso de leitura em crianças de 1º e 2º anos do ensino fundamental

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ABSTRACT

Purposes: to study the performance of students from 1st. and 2nd grades of primary education in tasks that evaluate abilities and skills considered predictors of reading success. **Methods:** we analyzed early reading abilities in 73 children between six and eight years, from a public school in Sao Paulo. The instrument of early reading skills comprised of 20 subtests involving the following skills: Oral language, Phonological processing, Comprehension, Reading and writing, and Knowledge about print. The data were collected and analysed by school year (1st and 2nd grades), in order to identify differences in development at the early stages of Reading acquisition. **Result:** it was found that some subjects of 1st and 2nd grades show performance below the mean for their group, in the skills considered predictors for literacy. This low performance was identified by the percentage of total correct answers at the evaluation Instrument and the classification in percentiles. There were no differences in between the two grades in terms of the Oral Language and Knowledge of print. The groups differentiated only on tasks included in the ¨Reading and writing¨, as well as ¨Phonological Processing¨ with better performance for 2nd grade students in the following tasks: (a) word reading, (b) pseudoword reading, (c) word spelling, (d) pseudoword spelling, (e) rime production and (f) reading comprehension. **Conclusion:** schooling influenced the performance on phonological processing abilities and in reading and writing skills. Phonological processing abilities and print knowledge correlated to decoding implicated in writing and reading of isolated items.

KEYWORDS: Child; Reading; Evaluation

■ INTRODUCTION

Brazilian Portuguese is characterized as a regular and transparent language, in which there is usually a univocal correspondence between graphemes and phonemes. This relationship between orthography and phonology should facilitate the process of learning to read and aid in anchoring the appropriation of writing, even though the poorer transparency of coding, which stems from the number of phonemes that can be represented in several different ways[1], makes the appropriation of writing comparatively more difficult. Nevertheless, this feature has not been proven sufficient to ensure the good performance of Brazilian schoolchildren at the early stages of literacy acquisition. Studies have revealed that the reading performance of a large number of schoolchildren in Brazil lag behind what would be expected for their age and level of educational stage. Recent data collected in Brazil show that, regarding their reading performance, 13% of children aged between 10 and 14 years have a schooling discrepancy of up to two years, with a great range of performance variation across the regions of the country[2].

Yet, not all of these children with difficulties in learning to read and write have specific reading disabilities. Such difficulties may be inherent in the

inadequacy of teaching methods, schooling, or even sociocultural reasons. Given this scenario, understanding the typical development of oral language and writing becomes essential, so that real developmental alterations can be accurately identified, thus allowing for a more effective diagnosis and the adoption of interventions that are both more directive and efficacious[3].

Manifestations that make such difficulties in language development evident can be identified early on, already during the preschool years. Among those are a restricted vocabulary, an inadequate use of grammar and phonological processing deficits, which include impairments of skills such as phonological awareness, phonological immediate and working memories, and access to the mental lexicon[4,5]. Because they act upon the underlying mechanisms in reading and writing, those skills and competencies are predictors of their performance. Longitudinal and interventional studies in several languages have attested to that relationship between oral language skills and learning to read[6].

The precise identification of children at risk of having their reading development affected in the first years of school allows for taking action before significant general learning problems can manifest themselves, thereby improving the prognosis of those whose performance is less than average on the acquisition of reading and writing skills during the first years of literacy development[5]. To this end, studies suggest screening for language-related issues as one of the best ways to identify risks of developing learning disabilities in school[7]. Studies conducted with languages whose orthography has different degrees of transparency have investigated the predictive power of alphabet knowledge, phonological processing skills, and oral language abilities on reading and writing acquisition[8-10].

Given the importance of identifying those issues early on, the purpose of this investigation was to study the performance of 1st- and 2nd-grade schoolchildren of elementary school on tasks that assess abilities and skills considered as predictors of successful reading and writing acquisition.

Specific Purposes

a. To compare the performance of schoolchildren in 1st and 2nd grades of elementary school on oral language abilities, phonological processing, and reading and writing comprehension.

b. To investigate the correlations between performance on oral language, phonological processing and comprehension abilities and reading and writing competencies manifested by schoolchildren in 1st and 2nd grades in elementary school.

■ METHODS

The current study is a cross-sectional, experimental and quantitative investigation. Aiming to comply with ethical principles, all participants in this study received a Parent/Guardian Information Letter and a Free and Informed Consent Form, which were read, filled out, and signed by their parents or guardians (CAAE: 06897313.4.0000.5479).

Sampling: The study included 73 children of both sexes, aged between 6 and 8 years, enrolled in 1st and 2nd grades at public elementary schools located in the central region of the city of São Paulo. Participants were divided into two groups, as follows:

- G1: with 31 schoolchildren duly enrolled in 1st grade of elementary school;
- G2: with 42 schoolchildren duly enrolled in 2nd grade of elementary school.

With regard to the characterization of the sample, 31 schoolchildren enrolled in 1st grade (males – 54.83%), with a mean age of 6 years and 4 months and 42 schoolchildren enrolled in 2nd grade (females – 52.38%), with a mean age of 7 years and 4 months, were assessed.

Schoolchildren with changes in their hearing, visual, cognitive or motor functions, either reported by teachers or duly noted on their school records, were not included in the study, nor were schoolchildren whose parents or guardians did not sign the Free and Informed Consent Form.

Material

The "Reading Readiness Screening Tool (RRST)" was developed for use by teachers aiming to identify students presenting with risk of developing reading problems[11]. It was translated into and adapted for use in Brazilian Portuguese[12] and contains 20 tasks, namely:

(1). **Expressive vocabulary:** 15 pictures for naming; (2) **Auditory discrimination:** five minimal pairs, represented by pictures, for discrimination against oral presentation by the examiner; (3) **Knowledge of writing concepts:** five general questions on how to read a book; (4) **Letter identification:** board with 24 alphabet letters for naming; (5) **Identification of letter sounds:** board with 24 alphabet letters for the identification of their corresponding sounds (phonemes); (6) **Word reading:** 15 words for reading aloud; (7), **Pseudoword reading:** 15 pseudowords for reading aloud; (8) **Word dictation:** five words for writing; (9) **Pseudoword dictation:** five pseudowords for writing; (10) **Word identification:** five phrases for word identification by means of clapping once for each unit; (11) **Syllable identification:** five words for syllable identification by means of clapping once for each unit; (12) **Rhyme**

identification: pictures for rhyme identification from one word orally presented by the examiner; (13) **Rhyme production:** rhyme production from five target-words presented by the examiner; (14) **Syllable synthesis:** identification of the words formed from five words segmented into their syllables; (15) **Exclusion of syllables:** five words orally presented by the examiner; (16) **Exclusion of phonemes:** for five words orally presented by the examiner; (17) **Initial sound identification:** for target-words presented by the examiner, from among three response options; (18) **Oral Cloze I:** gap-filling from reading five easy-level sentences; (19) **Oral Cloze II:** gap-filling from reading five difficult sentences; (20) **Reading comprehension:** reading and subsequently answering five questions related to the text.

Assessment and Data Analysis Procedures

All participants were assessed individually by the same examiner in a quiet room through the administration of the RRST[12] in a single session that lasted 25 minutes on average per child. Responses and performances were registered on an assessment Record Sheet, and the data collected were analyzed and computed. When analyzing performances, 1 point was given to each correct response and 0 points to wrong or absent responses. Since the instrument cannot predict either the classification of error types or that of response time analysis, such pieces of information were not considered in this study.

In order to facilitate the presentation, analysis, and discussion of the results obtained, the 20 RRST[12] tasks were grouped according to specific skills and competencies, and scores were calculated as follows:

Oral language: Number of correct responses in the tasks under Expressive vocabulary; and Auditory discrimination.

Knowledge about writing: Number of correct responses in the tasks under Knowledge of writing concepts; Letter identification; and Identification of letter sounds.

Reading and Writing: Number of correct responses in the tasks under Word reading; Pseudoword reading; Word dictation; and Pseudoword dictation.

Phonological Processing: Number of correct responses in the tasks under Word identification; Syllable identification; Rhyme identification; Rhyme production; Syllable synthesis; Exclusion of syllables; Exclusion of phonemes; and Initial sound identification.

Comprehension: Number of correct responses in the tasks under Cloze I; Cloze II; and Reading comprehension.

Statistical Data Analysis

To accomplish the objectives of this study, descriptive and inferential statistical analyses were conducted. The ANOVA (Analysis of Variance) and Spearman's correlation parametric tests were used in the inferential analyses. The significance level adopted was 5%.

■ RESULTS

The results from the descriptive and inferential analyses will be displayed according to schooling (1st and 2nd grades of elementary school) and gender for all of the abilities assessed. Firstly, the general assessment results recorded with the instrument will be presented (total number of correct responses in the 20 tasks altogether), and, secondly, the assessment results according to abilities and competencies, namely: "Oral language"; "Knowledge about writing"; "Reading and Writing"; "Phonological Processing"; and "Comprehension".

Figure 1 depicts the distribution of 1st and 2nd-grade students according to their total raw score for the 20 tasks proposed.
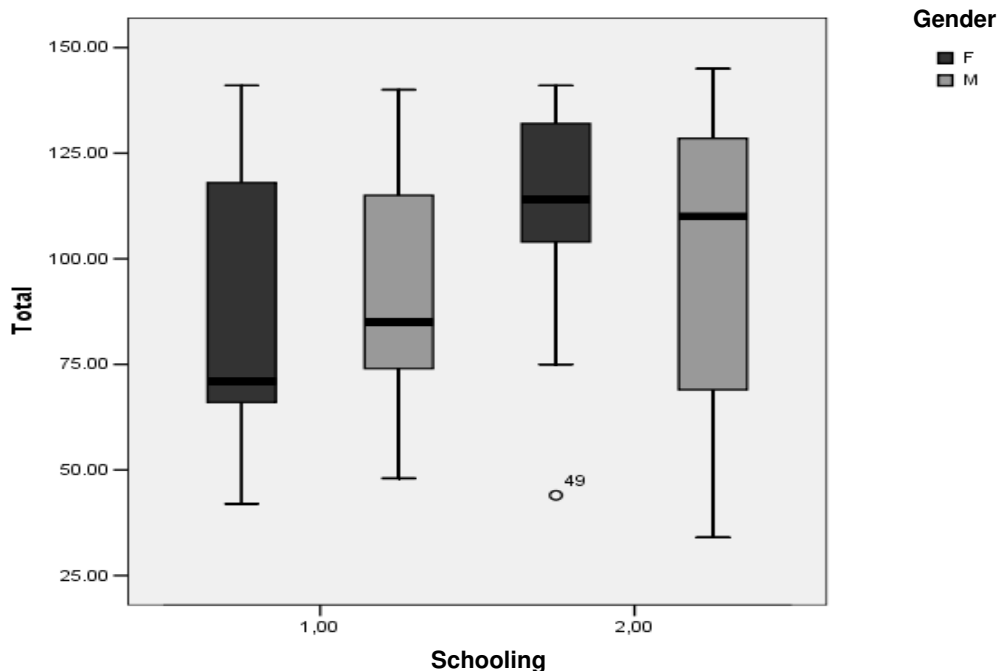
Figure 1. Performance expressed as total raw scores, recorded by the instrument used for assessing early reading skills as a function of gender and schooling.

Considering the total raw score for all tasks in the RRST[12], there was no statistical difference in the performance of students based on gender (ANOVA, F=1.18; p=0.30). However, when investigating the effect of schooling, a statistically significant difference was observed between 1st and 2nd grades (ANOVA, F=0.45, p=0.018*). No interaction effect was observed between the variables gender and schooling (ANOVA, F=1.2; p=0.29).

From the distribution of total performance scores, the percentages of correct responses and their respective standard deviations were calculated for 1st-grade (Mean=50.06%, SD=16.68) and 2nd-grade (Mean=60.17%, SD=16.83) schoolchildren. Based on the percentage of correct responses, it was possible to classify the students into percentile ranks. This distribution made it evident that the performance of both 1st- and 2nd-graders, in the 20th percentile, was lower than 1SD in relation to the group's mean. This means that the performance of 20% of 1st-grade students was 1SD (or more) lower than the mean percentage of correct responses in their group (Table 1).

When compared, 1st- and 2nd-grade students had similar performances in "Oral language" and "Knowledge about writing" skills, which included tasks under Expressive vocabulary, Auditory discrimination, Knowledge about writing, Letter identification, Identification of letter sounds, as shown in Table 2.

When comparing 1st- and 2nd-graders regarding their "Reading and Writing" skills, as assessed by the tasks under "Word reading" (M-W, F=7; p<0.00*), "Pseudoword reading" (M-W, F=3.50; p=0.002*), "Word dictation" (M-W, F=1.00; p<0.005*), and "Pseudoword dictation" (M-W, F=6.50; p<0.007*), there were statistically significant differences, with 2nd-graders having achieved higher scores than did 1st-graders for all tasks related to these competencies (Table 3).

Regarding participant's performance on "Phonological Processing" tasks (Word identification, Syllable identification, Rhyme identification, Rhyme production, Syllable synthesis, Exclusion of syllables, Exclusion of phonemes, and Initial sound identification), the only task capable of statistically differentiating the performance of the two schoolchildren groups was Rhyme production (M-W, F=3.00; p=0.009*).

As for the means obtained for the "Comprehension" tasks Oral Cloze I and Oral Cloze II, similarities were observed for tasks under Oral Cloze I. However, both for performance on Oral Cloze II and "Comprehension", the difference in performance between the two schoolchildren groups studied was statistically significant, with 2nd-graders having higher scores (Table 5).

Table 1 - Mean percentage of correct responses in the total score of the instrument used for assessing early reading skills and distribution of schoolchildren into percentiles as a function of schooling.

Percentile	Schooling	
	1st Grade (N = 31)	2nd Grade (N = 42)
	Percentage of correct responses	Percentage of correct responses
20	37.07%	42.80%
25	39.32%	47.60%
50 (Median)	43.82%	64.04%

Table 2 - Compared performances on tasks involving "Oral language" and "Knowledge about writing" as a function of schooling.

Ability	Task	Grade	N	Min	Max	Mean	SD	p-value
Oral language:	ExpVoc	1st	31	12	15	13.96	0.91	0.53
		2nd	42	9	15	14.11	1.17	
	AudDisc	1st	31	3	5	4.06	0.35	0.32
		2nd	42	3	5	4.19	0.63	
Knowledge Writing	KnWr	1st	31	0	5	3.09	1.55	0.45
		2nd	42	1	5	3.35	1.32	
	LttId	1st	31	4	24	20.45	5.31	0.12
		2nd	42	4	24	22.16	4.21	
	IdLttSnd	1st	31	0	21	11.45	6.02	0.44
		2nd	42	0	24	10.35	5.92	

Caption: ExpVoc-Expressive Vocabulary; AudDisc-AuditoryDiscrimination; KnWr-Knowledge about writing; LttId-Letter Identification; IdLttSnd-Identification of letter sounds.
Statistical test: ANOVA

Table 3 - Performance on "Reading and Writing" tasks as a function of schooling.

Ability	Task	Grade	N	Min	Max	Mean	SD	p-value
Reading and Writing	WdRd	1st	31	0	15	4.93	5.6	0.00*
		2nd	42	0	15	10.33	6.25	
	PsWdRd	1st	31	0	15	3.8	5.31	0.002*
		2nd	42	0	14	7.88	5.64	
	WdDct	1st	31	0	10	1.93	3.32	0.005*
		2nd	42	0	10	4.28	3.55	
	PsWdDct	1st	31	0	8	1.93	2.97	0.007*
		2nd	42	0	9	3.88	2.91	

Caption: WdRd Word reading, PsWdRd Pseudoword reading, WdDct Word dictation; PsWdDct Pseudoword dictation
Statistical test: ANOVA

Table 4 - Performance on "Phonological Processing" tasks as a function of schooling.

Ability	Task	Grade	N	Min	Max	Mean	SD	p-value
Phonol. Processing	WdId	1st	31	0	4	1.32	1.04	0.71
		2nd	42	0	5	1.42	1.45	
	SylId	1st	31	2	5	4.41	0.76	0.86
		2nd	42	1	5	4.38	1.03	
	RhyId	1st	31	0	5	3.96	1.27	0.23
		2nd	42	0	5	4.3	1.09	
	RhyProd	1st	31	0	4	0.67	1.22	0.009*
		2nd	42	0	5	1.52	1.41	
	SylSynth	1st	31	3	5	4.8	0.47	0.20
		2nd	42	4	5	4.92	0.26	
	ExcSyl	1st	31	0	3	1.35	1.17	0.12
		2nd	42	0	5	1.85	1.58	
	ExcPhon	1st	31	0	2	0.35	0.66	0.76
		2nd	42	0	3	0.4	0.76	
	InSndId	1st	31	0	5	2.77	1.4	0.18
		2nd	42	0	5	3.21	1.35	

Caption: WdId-Word identification; SylId-Syllable identification; RhyId-Rhyme identification; RhyProd-Rhyme production; SylSynth--Syllable synthesis; ExcSyl-Exclusion of syllables; ExcPhon-Exclusion of phonemes; InSndId-Initial sound identification.
Statistical test: ANOVA

Table 5 - Comparison of performance on "Comprehension" tasks as a function of schooling.

Ability	Task	Grade	N	Min	Max	Mean	SD	p-value
Comprehension	Cloze I	1st	31	1	4	2.45	0.76	0.88
		2nd	42	1	4	2.47	0.67	
	Cloze II	1st	31	0	2	0.02	0.45	0.07*
		2nd	42	0	1	0.16	0.15	
	Comp	1st	31	0	3	1.19	0.9	0.03*
		2nd	42	0	5	1.83	1.42	

Caption: Comp-Reading comprehension
Statistical test: ANOVA

The correlational study between variables revealed positive correlations that were statistically significant between several of the RRST[12], tasks. Letter identification showed positive correlation with tasks under Reading and Writing, as well as with several of the tasks under Phonological Processing skills. The tasks under Word dictation and Pseudoword dictation also exhibited moderate and strong correlations with the majority of tasks contained in the instrument. Table 6 shows only moderate and strong correlations, i.e., Spearman's correlation coefficients whose values are higher than 0.40 ($r^2 > 0.40$).

Table 6 - Spearman's correlation coefficient values obtained for the instrument tasks

	KnWr	IdLtt-Snd	WdRd	PsW-dRd	WdDct	PsWd-Dct	WdId	RhyId	Rhy-Prod	ExcSyl	Exc-Phon	InSndId
AudDisc					0.42	0.42						
KnWr	0.45	0.41	0.46	0.48	0.5	0.46						
LttId		0.49	0.73	0.74	0.72	0.74	0.43	0.45	0.49	0.53		0.42
IdLttSnd			0.5	0.58	0.49	0.5				0.48		
WdRd				0.9	0.86	0.84			0.46	0.55		
PsWdRd					0.88	0.89			0.53	0.61		
WdDct						0.93			0.55	0.62		0.43
PsWdDct									0.53	0.62		
WdId												
SylId												
RhyId									0.44			
RhyProd												
SylSynth												
ExcSyl										0.46	0.48	

Caption: AudDisc-AuditoryDiscrimination; KnWr-Knowledge about writing; LttId-Letter Identification; IdLttSnd-Identification of letter sounds; WdRd-Word reading; PsWdRd-Pseudoword reading; WdDct-Word dictation; PsWdDct Pseudoword dictation; WdId-Word identification; SylId-Syllable identification; RhyId-Rhyme identification; RhyProd-Rhyme production; SylSynth-Syllable synthesis; ExcSyl-Exclusion of syllables; ExcPhon-Exclusion of phonemes; InSndId-Initial sound identification
Statistical test: Spearman's correlation test. All values depicted in the table are statistically significant, with a Spearman's correlation coefficient >0.40, i.e., indicative of moderate (between 0.40 and 0.70) or strong (>0.70) correlations.

■ DISCUSSION

The purpose of this investigation was to study the performance of 1st- and 2nd-grade schoolchildren of elementary school on tasks that assess abilities and skills considered as predictors of successful reading and writing acquisition.

When assessing general performance, measured by the total raw RRST[12] scores, it was possible to identify those students whose performance was less than average, as indicated by scorings lower than 1ST in relation to the group's mean. There was no difference between genders as far as general performance is concerned, which has been reported elsewhere[13,14].

For the current sample, it was observed that 1st-graders' general performance was lower when compared to that of 2nd-graders, as illustrated by the differences in the percentage of correct responses in "RRST[12]", which demonstrates the effect of schooling on the acquisition of some abilities capable of influencing total test scores. There is evidence that some early reading skills are greatly influenced by schooling, whereas other abilities depend on stimulation in the familiar surroundings[15]. A study conducted with the objective to verify the effect of schooling on the performance on self-regulation vocabulary growth and improved early reading skills has verified that the first two years of preschool are associated with gains in competencies for word decoding and alphabet knowledge, with cumulative efect[16].

As for the sample studied, the performance on "Oral language" and "Knowledge about writing" skills on average was similar in both groups, which indicates, once again, that these abilities do not depend exclusively on exposure to schooling during primary school. The fact that the tasks were simple and easy should also be considered when assessing those skills with the help of RRST[12], which was developed as an instrument for screening early skills considered as precursors to written language[11,12]. Being able to identify letters and their sounds is an important ability for literacy acquisition, since it makes for quick and instant access to the phonemes that correspond to their respective graphemes. In Brazilian Portuguese, nearly all letter names involve the sound they represent (example: letter M = "eme", stands for the phoneme /m/)[17,18].

When assessed for "Reading and Writing", both in reading tasks and those involving word and pseudoword dictation, the two groups showed differences, which indicates progression in coding and decoding as influenced by schooling. Such reading processing at the word level depends on an increasingly greater integration of orthographic, phonological and semantic information[19]. A review of recent literature confirms what other authors had already attested, that is, the contribution made from all of these levels of linguistic analysis to the reading and writing of words, in an interactive and non-sequential approach[20].

Greater difficulty in decoding, reading and writing words that are new, long or less frequently used and that have irregularities is observed in students in the first grades, because the child at the early stages of reading acquisition has to rely on grapheme-phoneme conversion rules in a process that has not yet been fully automated. With time, experience and training in reading, which can be provided and promoted by schooling itself, the interaction between phonological and orthographic information and the meaning of words makes word recognition and writing progressively easier [21,22].

Besides reading and writing difficulties, the results obtained with this study are indicative of performance differences between the groups on only one task in phonological processing, namely rhyme production. Similar performance was observed for 1st- and 2nd-grade schoolchildren on the other tasks. A possible explanation for this pattern may be related to the nature of the rhyme manipulation task[23]. Unlike other tests that presuppose a perception process for this linguistic unit, the task at hand involves asking children to produce rhymes.

It is important to bear in mind that, in the screening instrument used in this study, the phonological processing component included solely tasks aimed at assessing phonological awareness skills, while those aimed at assessing the abilities to access the lexicon and phonological memory, for instance, were not left aside. It is also important to emphasize that the similarity in performance on these tasks indicates that both groups can be generally considered as being at the same stage of phonological development. Even though the study has not delved into analyzing tasks in comparison to one another, the mean distribution reveals poor performance on the tasks under Exclusion of phonemes, both for 1st- and 2nd-grade students.

Some authors affirm that syllable and rhyme awareness develops earlier than phonemic awareness, given the fact that longer phonological units, such as syllables and rhymes, are more perceptible and thus more easily manipulated[24-26]. The analyses presented in this study do not allow such considerations to be made, since performance was not statistically compared across tasks in a same group. Nevertheless, when performance is observed from the perspective of the group's means, it can be noted that both 1st- and 2nd-graders experienced greater difficulty in tasks involving phonemes as compared to tasks involving syllable and rhyme manipulation.

The study showed moderate and strong correlations between phonological processing skills and the students' performance on word and pseudoword reading and writing, which has also been reported in other studies, both for speakers of Brazilian-Portuguese[13] and those of languages whose orthography is more opaque[1]. These results are in agreement with a study that identified a strong correlation between the performance on pseudoword reading with several phonological processing skills, with vocabulary, or with knowledge about writing – the latter being a predictive factor for pseudoword decoding[26].

Tasks under Letter identification showed strong correlations with reading and writing competencies, which confirms evidence that letter recognition is a strong predictor of both writing and reading performance[24,25]. The appropriation of the alphabetic principle involved in grapho-phonemic correspondence depends on the understanding that letters are equivalent to sound segments. In addition, the more automated the access to letter names and the sounds they represent, the more efficient the word decoding, since access to the lexicon is made easier by the fast integration of orthographic and phonological information, as is also the case with word reading[17,26].

The schoolchildren's performance profile, as assessed by the instrument, reveal conformity with the findings reported in literature, which opens up a promising path for using this initial screening instrument for abilities and skills that are predictive of reading and writing success in the first grades of primary school. The simplicity of tasks stands out as a limitation of the instrument. Such tasks shall be analyzed in future psychometric studies on a larger and stratified sample in order to identify the effects from some items and the discriminating power between the groups.

■ CONCLUSION

Schooling influenced performance on tasks involving phonological processing and reading and writing competencies.

The performance of 1st- and 2nd-grade students differed on the following tasks: Word reading; Pseudoword reading; Word dictation; Pseudoword dictation; Rhyme production; Reading comprehension.

Phonological processing skills and knowledge about writing correlated with performance on coding and decoding, both of which are involved in the writing and reading of isolated items.

RESUMO

Objetivo: estudar o desempenho de escolares de 1º e 2º anos do Ensino Fundamental (EF), em tarefas que avaliam habilidades e competências consideradas preditoras do sucesso do aprendizado da leitura e escrita. **Métodos:** 73 crianças, entre seis e oito anos de idade, estudantes do 1º e 2º anos do EF de escola da rede pública de ensino da cidade de São Paulo, foram avaliadas por meio da aplicação do Instrumento de Avaliação da Leitura Inicial, composto por 20 tarefas envolvendo as habilidades e competências de linguagem oral, conhecimento sobre escrita, processamento fonológico, compreensão e leitura e escrita. **Resultado:** foi possível constatar que alguns escolares, tanto de 1º como de 2º ano, obtiveram desempenho inferior à média de seus grupos nas habilidades consideradas preditoras para o sucesso da leitura. Esse desempenho foi identificado a partir da porcentagem total de acertos obtida no Instrumento e a consequente classificação dos escolares em intervalos de percentis. Os grupos escolares diferenciaram-se apenas nas tarefas relacionadas às habilidades do processamento fonológico e nas competências de leitura e escrita, com melhor desempenho para os escolares do 2º ano, nas seguintes provas: (a) leitura de palavras; (b) leitura de pseudopalavras; (c) ditado de palavras; (d) ditado de pseudopalavras; (e) produção de rimas; (f) compreensão de leitura. **Conclusão:** a escolarização influenciou o desempenho em habilidades de processamento fonológico e competências de leitura e escrita. Habilidades de processamento fonológico e de conhecimento de escrita mostraram-se correlacionadas ao desempenho em codificação e decodificação, envolvidas na escrita e leitura de itens isolados.

DESCRITORES: Criança; Leitura; Avaliação

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