Validation of risk indicators for the constitution of the reader/scribe

Validação dos indicadores de risco para a constituição do leitor/escrevente

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ABSTRACT

Purpose: To evaluate risk factors for the constitution of the reader/scribe. **Methods**: This is an exploratory study in which a retrospective questionnaire about the child before entering elementary school, based on preliminary indicators for the constitution of the subject reader/scribe, was applied to a population of 293 parents of elementary school students from a public school in São Paulo. The findings were crossed with the diagnostic survey of writing of students from the 1st to the 5th grade and with the evaluation of text production of students from the 3rd to the 5th grade. Data was statistically analyzed. **Results and discussion**: The questionnaire showed acceptable reliability and the analysis of convergent validity presented positive correlation considered valid, statistically significant with the diagnostic survey of writing, that is, the higher the score the better the performance in the survey questionnaire. There was statistically positive correlation between the questionnaire and the performance of the students on text production in cases where parents had complaints regarding the reading and writing of their children. Exploratory factor analysis validated the proposed construct. **Conclusion**: The questionnaire is easy to apply and inexpensive, and the results showed acceptance by the respondents -- fundamental characteristics of instruments that serve public health and education. The research allowed validating 8 of 15 risk indicators initially proposed for the constitution of the reader/scribe. This validation confers quality to the construct and opens possibilities for its use in health promotion, prevention and rehabilitation in reading, writing and therapy.

RESUMO

Objetivo: Validar indicadores de risco para a constituição do leitor/escrevente. **Método:** Trata-se de um estudo exploratório em que um questionário retrospectivo sobre a criança antes da entrada no ensino fundamental, baseado nos indicadores preliminares para a constituição do sujeito leitor/escritor, foi aplicado a uma população de 293 pais de alunos do ensino fundamental I, de uma escola pública de São Paulo. Os achados foram cruzados com a sondagem diagnóstica de escrita dos alunos de 1º. a 5º. ano e com a avaliação da produção de texto em alunos de 3º. a 5º. ano. Os dados foram analisados estatisticamente. **Resultados e discussão:** O questionário, de confiabilidade aceitável, na análise da validade convergente, apresentou correlação positiva considerada regular, estatisticamente significativa com a sondagem diagnóstica de escrita, ou seja, quanto maior o escore no questionário melhor o desempenho na sondagem. Entre o questionário e o desempenho na produção de texto, houve correlação estatisticamente positiva nos casos em que os responsáveis apresentaram queixa em relação à leitura e escrita de seus filhos. A análise fatorial exploratória validou o constructo proposto. **Conclusão:** O questionário é de fácil aplicação e baixo custo e os resultados demonstraram aceitação pelos respondentes, características fundamentais a instrumentos que servem à saúde e educação públicas. A pesquisa permitiu validar 8 dos 15 indicadores de risco inicialmente propostos para a constituição do leitor/escrevente. Esta validação imprime qualidade ao constructo e abre possibilidades de sua utilização na promoção de saúde, prevenção de alterações na leitura e escrita e na terapêutica.

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INTRODUCTION

Health and risk indicators are part of health epidemiology. This differs from clinical practice because it focuses on protecting the community from health risks and not rehabilitating the individual in his specificity[1] . According to the descriptors in Health[2], they are measurements that summarize relevant situations for which it would be important to know their development over time.

Is it right to use health and risk indicators when we study reading and writing problems? Are reading and writing problems related to health or to education?

Since it is assumed that the insertion of the child in the practice of writing is the adult reader/writer, an instance of constituted language[3], actions in society involving family, school, and the community in general, would be ways of offering more and better opportunities for the child to engage in writing. On the other hand, we know that it is impossible to completely avoid symptoms in this field.

Under these conditions, health promotion is a term that can assist us in constructing the purpose of the risk indicators for the reader/scribe's constitution.

According to some authors[4], it is important to consider the general determinants of health conditions, in order to reflect upon their promotion. They use the concept of quality of life and include issues such as nutrition, housing, sanitation and insertion in education.

In the area of reading and writing, we find in the national literature research related to early intervention programs with children in elementary education at risk for dyslexia[5,6]. Based on the cognitive theory, they look for factors that indicate that the child presents a risk for dyslexia by evaluating for phonological abilities and the letter-sound correspondences. The proposed intervention program works with the abilities that had results that were worse than expected.

According to other authors[7], actions in this field would be geared to the group and the environment (in the broad sense of environment), such as physical, social, political, economic, and cultural. In this way, it becomes impossible to separate health from education. It is fundamental to implement health promotion through inter-sectorial actions.

According to another author[8], in psychodynamic approaches (in psychology as in psychoanalysis) it is common to encounter difficulty in making rigorous descriptions of psychological processes that can serve as a basis for comparisons. However, if the medical material used in behavioral approaches of psychology is not appropriate to the procedures of psychodynamic approaches, it is up to them to create their own methods of sharing their knowledge in a scientific way accessible to society, public health, and other areas of knowledge. In spite of dealing with phenomena of subjectivity and singularity, in an attempt to validate their practices, the author states that the method can be compared to that of economy, marketing, pedagogy, and other areas in which the variables leave the system unstable. It is possible, however, to monitor and induce them based on quantified and, especially, qualified trends and counter-trends.

Several authors[9-13] recognized the importance of conducting discussions on health and risk indicators in Speech-language pathology, especially in the area of human communication, seeking to contribute to public health.

Additionally, other authors[12], considering the capture of the child through the writing process prior to formal literacy, proposed four theoretical axis, subdivided into 15 phenomenic signs - named preliminary indicators for the constitution of the reader/writer subject:

"1st axis:" Presume a reader/writer subject "

1 - When reading to the child, the adult points where he/she is reading, so that the child "accompanies" the reading.

2 - The adult asks the child to read to him/her.

3 - The adult asks the child to write.

4 - The adult "pretends" to read the child's drawings and "scribbles".

2nd axis: "Recognize the subject as a reader/writer"

5 - The child "pretends" to read and/or write.

6 - The child writes and asks the adult to read.

7 - The child "writes" and reads it to the adult.

8 - The child offers to read in the place of the adult.

9 - The child reads/writes when asked.

3rd axis: "Respond to the writing of the other"

10 - The child brings text-carrying objects for the adult to read.

11 - The child differentiates drawings and numbers from texts.

12 - The child has a favorite storybook or magazine.

4th axis: "Manifest authorship"

13 - The child writes about topics of his/her interest.

14 - The text of the child has context.

15 - When incapable of writing a certain word, the child "invents."

As a follow-up, they propose the use of these indicators in promoting writing and suggest that they be tested and validated.

For basic data indicators, the Ministry of Health's RIPSA - Rede Interagencial de Informação para a Saúde[14] points out that the validity of an indicator depends on its sensitivity and specificity; other attributes being measurability, relevance and cost-effectiveness. Indicators must detect a phenomenon to be analyzed, in a way that identifies it independently of other phenomena, and it must be comprehensible and relevant to its users, as health managers.

In the search for these attributes, this article continued the research of other authors[12] with the goal of validating the risk indicators for the constitution of the reader/writer subject. For the validation process, we verified how a population of parents responds to them based on the constitution of their children as readers/scribes, prior to their initiating the 1st year of elementary school. Based on that, we evaluated the reliability of the instrument, internal consistency of the set of indicators,

convergent validity of the indicators in relation to current data (at the time) of children's reading and writing performance, and the validity of the construct.

We understand that the theoretical axes summarize the relations of the subject with the writing and with *the other,* and the indicators are some of their phenomenic representatives. In proposing that the child reads and writes by integrating a 4-axis structure, we point out that these indicators do not refer to only a particular axis but to axis in their stratified articulation.

Another change we made in the current research is of terms used to refer to the child who begins to read and write, from the "subject who reads/writes" to "reader/scribe". The term *subject* refers to the subject in psychoanalysis, to the subject of the unconscious, and even if the subject's constitution relates to language in an inseparable way, it would be an extrapolation to use the term *subject* in this context, so we withdrew it. We also substituted the term *writer* for *scribe*, since we are here dealing with the one who is in the process of being constituted by writing, but who will not necessarily become a writer in the sense of producing literary work[15,16].

METHODS

This is an exploratory study with a quanti-qualitative approach. Data collection took place in a public school on the outskirts of São Paulo. We used a retrospective questionnaire about the child before entering the first year of elementary school, based on the preliminary indicators for the constitution of the reader/writer[12] to a group formed by parents of students. The findings were crosschecked with the written diagnostic survey for students from 1ST to 5th grade and with the evaluation of text production in 3rd to 5th grade students. Before we initiated the study, we requested written authorization from the principal of the target school. This study was approved by the Research Ethics Committee of the Municipal Health Department of São Paulo (number 39277414.7.0000.5482).

We sent an invitation letter explaining the project accompanied by a questionnaire (in Annex A) to the parents or guardians of the students in the elementary grades, except for one 3rd grade room, because they had participated in the pilot study, preliminary to this one. There were six 1st grade, five 2nd grade, five 3rd grade, four 4th grade, and three 5th grade rooms, totaling 548 students. All students whose parents answered the questionnaire were included. We also used student evaluation data from the "Survey and Diagnosis" for convergent validity.

The following materials were used:

- Form (in Annex A) containing identification data of the guardian and of the child; retrospective questionnaire adapted from the risk indicators for the constitution of the subject who reads and writes; and open questions about other writing data of the child and the family.

- "Survey and Diagnostics" - evaluation carried out according to the Programa Ler e Escrever (Read and Write Program) [17], of the Education Department of the State of São Paulo, based on the constructivist theory, and carried out by the teachers to follow the child's interaction with writing.

In this evaluation, when the student does not produce texts, a dictation of words of the same semantic field is given as well as a sentence containing at least one of the dictated words. The dictated words must be a part of the child's vocabulary, but should not be words whose spelling he/she has memorized. From 3rd grade on the child is expected to produce texts. It is suggested that the production of texts be evaluated with different textual genres, ranging from notes to informative texts, for 3rd, 4th, and 5th grades. The diagnosis based on the survey is carried out by the teacher, who classifies the students into five categories regarding performance in literacy: pre-syllabic, syllabic without sound value, syllabic with sound value, syllabic literate, and literate. According to the production of text the students are classified in four categories: insufficient, fair, good and very good. These assessments occur five times a year, in the months of February, April, July, September, and November.

The teachers were asked to send the questionnaire to their students' parents or guardians along with the school bulletin, and to give the researcher access to the charts with the results of "Survey and Diagnosis".

The 3rd survey of the year was used, which was carried out in May 2014, as well as an evaluation of text production by the students (3rd to 5th grades), from the same period as the survey, which was carried out by the teachers of the respective grades.

The data obtained was entered into an Excel spreadsheet and analyzed by the SPSS 22.0 "Statistical Package for the Social Sciences" program for Windows. For statistical significance, a descriptive level of 5% was adopted ($p \leq 0.005$).

The internal and external validities of the instrument were calculated and the descriptive analysis of data was performed using absolute and relative frequencies, measures of central tendency (average and median) and dispersion (standard deviation, minimum and maximum).

The quantitative variables were checked for normality by the Komolgorov-Smirnov test and, since they did not present a normal distribution, non-parametric tests were applied. For the comparison between groups according to the score generated by the proposed questionnaire, all sixteen questions were added, assigning the number 1 (one) for affirmative answers and 0 (zero) for the negative ones. In this way, an index ranging from 0 to 16 points was obtained, and the higher the score, the better the "status" (there were more positively scored indicators) of the child, according to the questionnaire. Non-parametric tests (Mann-Whitney and Kruskal-Wallis) were applied in order to verify possible groups with different behaviors between the scales.

For the internal consistency of the questionnaire, Cronbach's alpha coefficient was used. The convergent validity was performed by Spearman's nonparametric test (r), comparing the total score of the proposed questionnaire versus the survey and text, the latter correlation being performed for children from the 3rd grade on. For the validity of the construct the exploratory factorial analysis (EFA) was used, applying the analysis of main components, for confirmation of the factors,

and the Varimax rotation method. The parameters for validation are shown in Chart 1.

RESULTS

Of the 548 questionnaires sent, 293 were completed and returned. The average age of the students was 7.9 years (SD = 1.5), median 8 years, minimum 6, and maximum 12 years. Mothers totaled 81.4% of the respondents, while the other questionnaires (17.6%) were answered by fathers, grandparents, siblings, uncles and a stepfather. Three questionnaires did not contain information on the respondents.

Regarding the educational level of respondents, 4.7% did not attend school; 20.3% had an incomplete primary educational level; 29% completed primary level; 11.2% had incomplete high school level; 24.3% had completed high school; 5.8% had incomplete higher education, and 4.7%, completed higher education. Respondents' average age was 34.4 years (SD = 8.4), median age of 32 years, ranging from 16 to 70 years. It is noteworthy that 29 respondents did not fill out the information on age.

Among text media available at home, 70.6% indicated having the Bible, followed by books (63.1%), and comics (59%). Among reading materials referred to as "other" (12.3%) were magazines, dictionaries, calendars, miscellaneous leaflets, and product labels. Only 11 (3.7%) respondents did not mention the existence of any text medium. On the other hand, of those that indicated the existence of media, the average was 3.1 (SD = 1.6), median 3, minimum 1, and maximum 7.

Table 1 indicates that, for validation of the indicators, newspapers, books, the Bible, and comic books were considered as reading materials. For the informant's age, a cut-off point was applied based on the median value of the variable, while the categories assigned for educational level and reading material was empirical.

It should be noted that unanswered questions, those filled out with *do not know* or with both options (*yes* and *no*) were excluded, reducing the number of questionnaires for the validation of indicators to 190.

The analysis was started by comparing the median distributions of the score obtained with the questionnaire in order to verify if there was a difference between the groups mentioned below. Statistically significant differences were found for gender (p <0.001), age of the informant (p = 0.002), complaint (p = 0.005) and reading material (p = 0.001).

In the analysis by Cronbach's alpha coefficient, it was verified that the reliability of the questionnaire was $\alpha_{Cronbach}$ = 0.73, considered acceptable[18]. In relation to the strata, the majority presented Cronbach's alpha > 0.70. For the analysis, 1st and 2nd grades were grouped into one category and 3rd, 4th, and 5th grades in another due to having similar profiles, both in

Chart 1. Parameters for validation

Cronbach's alpha value	Reliability
> 0.9	Excellent
0.8 –| 0.9	Good
0.7 –| 0.8	Acceptable
0.6 –| 0.7	Questionable
0.5 –| 0.6	Poor
< 0.5	Unacceptable
Spearman's r Value (-1 a 1)	Convergent validity
0	No correlation
< 0.25	Weak
0.25 –| 0.50	Regular
0.50 –| 0.75	Moderate
≥ 0.75	Strong
Construct Validity	
Acceptable value for commonality (variance)	≥ 0.500
AFE Viability Value (0 a 1)	≥ 0.60
Kaiser-Meyer-Olklin Method (KMO)	
Bartlett Sphericity	≤ 0.05

Source: Gliem and Gliem[18], Pallant[19], Hulley[20]

Table 1. Descriptive analysis data and Cronbach's Alpha Coefficient

Variable	Category	N	Average	(dp)	Median	Minimum	Maximum	p*	$\alpha_{Cronbach}$
Gender	Male	92	12.1	(3.0)	12	2	16	<0.001	0.74
	Female	97	13.5	(2.3)	14	6	16		0.66
School grade	1st and 2nd	105	12.6	(2.7)	13	3	16	0.255	0.72
	3rd to 5th	85	13.0	(2.9)	14	2	16		0.75
Informant's age	< 33	88	12.1	(3.0)	13	2	16	0.002	0.76
(years)	≥ 33	83	13.5	(2.2)	14	4	16		0.62
informant's education	none Primary incomplete	37	12.5	(3.1)	13	2	16	0.599	0.77
	Primary completed + High School incomplete	81	12.7	(2.5)	13	6	16		0.67
	≥ High School completed	65	13.0	(2.6)	14	5	16		0.72
Complaints	No	149	13.0	(2.7)	14	2	16	0.005	0.73
	Yes	40	11.8	(2.8)	12	3	16		0.71
Reading Material	None	12	13.0	(2.9)	13.5	7	16	0.001	0.77
	1-2	95	12.0	(3.1)	12	2	16		0.75
	3-4	83	13.7	(2.0)	14	6	16		0.58

* Median comparison test

relation to the time elapsed between when the facts took place and the moment of completion of the questionnaire, as well as regarding the expected level of literacy. Respondent education level of: "*did not attend* and *primary - incomplete* "; "*completed primary,* and *incomplete high school*"; and "*completed high school, higher education – incomplete,* and *completed higher education*", were grouped into 3 categories for the same reasons.

The convergent validity analysis (Table 2) was done using the correlation between the score obtained by the questionnaire, survey, and student's performance in text production. The questionnaire presented a positive correlation, statistically significant with the survey ($r = 0.27$, $p < 0.001$), classified as regular.

Likewise, male gender, age, and absence of complaints presented a statistically significant positive correlation between the proposed questionnaire and the survey. The correlation between the categories of the variable *reading material* and the result of the survey is noteworthy. Categories 1 to 2 and 3 to 4, *reading materials* present in the children's home, showed a statistically significant positive correlation between the questionnaire score and the survey: $r = 0.21$ ($p = 0.044$) and $r = 0.28$ ($p = 0.010$), respectively.

There was no statistically significant correlation between the questionnaire index and students' text production, except for the group of respondents who complained about the child's current writing ($r = 0.55$, $p = 0.029$).

We observed that there was no statistically significant correlation between the questionnaires answered by respondents who presented complaints ($r = 024$, $p = 0.144$) and the survey.

The exploratory factorial analysis (EFA) was done with the objective of finding out if the set of questions of the questionnaire presents a profile consistent with the proposed construct, in this case, the profile of the child as it relates to writing before starting 1st grade of elementary school. We also looked for factors that would explain the correlation between the questions.

The EFA was repeated three times, and each time it was repeated, the questions that presented values of variance (commonality) <0.50 were withdrawn, namely: questions 5, 6, 8, 12, 13, 14 and 15. In doing so we reached the best result (Table 3), with the parameters KMO = 0.643 and Bartlett sphericity $X^2 = 424.6$ ($p < 0.001$), indicating feasibility for factorial analysis. In this set of factors, 72.7% of the total variance of the model was explained, attesting the validity of the proposed construct. The final set contains questions 1, 2, 3, 4, 7, 9, 10, 11, and 16 (Chart 2), combined into 4 factors (Table 4).

DISCUSSION

The research allowed us to validate preliminary indicators for the constitution of the reader/writer[12].

In reliability verification the questionnaire showed acceptable internal consistency.

A convergent validity study showed a statistically positive correlation between the questionnaire and the survey conducted by the teachers. From this data, we can infer that the result obtained through the questionnaire is related to the hypothesis of the literacy level of the child. The convergent validity also pointed out that the greater the presence of written materials, the better the correlation with the questionnaire. With this data it is possible to conjecture that there is a positive correlation

Table 2. Convergent validity by Spearman correlation test between the proposed questionnaire and the variables survey and text

Variables	Categories	Survey			Text		
		n	R	P	N	R	P
General		189	0.27	<0.001	79	0.03	0.825
Gender	Male	92	0.24	0.019	30	0.06	0.769
	Female	96	0.18	0.080	48	-0.11	0.461
Informant's age (years)	< 33	88	0.29	0.006	31	0.13	0.492
	≥ 33	82	0.27	0.016	40	-0.12	0.459
Complaints	No	149	0.26	0.001	62	-0.19	0.132
	Yes	39	0.24	0.144	16	0.55	0.029
Reading material	None	12	0.50	0.100	6	0.22	0.675
	1-2	94	0.21	0.044	41	0.20	0.207
	3-4	83	0.28	0.010	32	-0.31	0.094

Table 3. Values of variances of the general analysis, according to questions

Questions	Variance
1. Did you use to read to your child?	0.733
2. When reading to your child did you point to where you were reading?	0.762
3. Did you use to ask your child to read?	0.774
4. Did you use to ask your child to write?	0.749
7. Did your child pretend he/she was reading and/or writing?	0.719
9. Did your child "write" and read it to someone?	0.733
10. Did your child read to you?	0.699
11. Did your child read/write when someone asked?	0.597
16. When the child did not yet know how to write, did he/she write "in his/her own way"?	0.779

Chart 2. Validated questions and corresponding indicators

Questions	Indicators
1. Did you use to read to your child?	1. When reading to the child, the adult points to where he/she is reading so that the child can "follow".
2. When reading to your child did you point to where you were reading?	
3. Did you use to ask your child to read?	2. The adult asks the child to read to them.
4. Did you use to ask your child to write?	3. The adult asks the child to write.
5. Did your child pretend he/she was reading and/or writing?	4. The child "pretends" to read and/or write.
6. Did your child "write" and read it to someone?	5. The child "writes" and reads his/her writing to the adult.
7. Did your child read to you?	6. The child volunteers to read.
8. Did your child read/write when someone asked?	7. The child reads/writes when asked to.
9. When the child did not yet know how to write, did he/she write "in his/her own way"?	8. When the child does not know how to write he/she writes "in his/her own way".

Table 4. Number and questions distributed according to factors

Questions	Factors			
	I	II	III	IV
Q.9	0.841	--	--	--
Q.10	0.820	--	--	--
Q.11	0.755	--	--	--
Q.2	--	0.867	--	--
Q.1	--	0.838	--	--
Q.3	--	--	0.864	--
Q.4	--	--	0.830	--
Q.16	--	--	--	0.876
Q.7	--	--	--	0.815

between the number of different text media available to the child and subsequent reading and writing performance.

Concerning the parents or guardians who complained about the child's current reading and writing performance, there was no statistically significant correlation among the questionnaires answered. It can be assumed that the parents or guardians that presented complaints about their children's current reading and writing performance may have distorted recollections of the preschool period causing a bias, perhaps because they are looking for clues as to why the child is currently experiencing difficulties.

The validity of construct was obtained through exploratory factorial analysis (EFA) with the general population of subjects and culminated in a final set of 9 questions.

Although the indicators corresponding to the "*respond to the other's writing*" axis have been left out of the questionnaire, it does not affect the final result, since the model is supported by a structure, which means that each of its four constituting elements obtains its value from the relationship with the others.

Concerning questions "*Before knowing how to write, did your child scribble*?" and "*When the child show you the scribble did you say what you thought it was*?", also left out of the questionnaire, we can conjecture that they refer to a fun dimension of reading and writing and refer more strongly to the axis "*to suppose a reader/scribe*" and "*to manifest authorship*", indicators that are also present in the questions "*Did your child pretend he/she was reading and/or writing?*" and "*When the child did not yet know how to write, did he/she write "in his own*

way?". It is suggested that they be removed to avoid redundancy and to optimize the results.

Question 8, "*Did your child "write" something and ask someone to read it?*", also obtained results that indicate fragility as an indicator, suggesting that there were difficulties in its interpretation by the respondents, which seems to indicate wording that would have been ambiguous or unclear.

EFA also allowed the organization of the questions into 4 factors that indicate the correlation between the remaining questions (Table 4). Eliminating those below the required performance value, the questionnaire was reduced from sixteen to nine questions.

From this result, we will discuss the correlations between the questions in each factor:

FACTOR 1 - Questions 9, "*Did your child "write" and read it to someone?*", 10, "*Did your child read to you?*", and 11, "*Did your child read/write when someone asked?*" are close in content and relate primarily to the axis of "*recognizing a reader/scribe*" and "*responding to the other's writing*".

FACTOR 2 - Question 1, "*Did you use to read to your child?*", was added to the questionnaire as a precondition for question 2, "*When reading to your child, did you point to where you were reading?*". Therefore, one cannot be present without the other. Both point to the reading habits of the families and to the theoretical axis "*assuming a reader/scribe*".

FACTOR 3 - Questions 3, "*Did you use to ask your child to read*?" and 4, "*Did you use to ask your child to write*?" relate more strongly to the axis "*assuming a reader/scribe*" and, because they have been answered in a similar way by the subjects of the

research, they point to the fact that, when presuming a reader, it is also presumed he/she writes.

FACTOR 4 - Questions 7, "*Did your child pretend he/she was reading and/or writing?*" and 16, "*When the child did not yet know how to write, did he/she write 'in his/her own way'*"? are grouped because they relate to the possibility of the child playing with language, assuming a position of authorship initiated by the adult's recognition that he/she reads and writes. The four factors detailed and explained above confirm, with the aid of statistics, the four theoretical axes for the constitution of the reader/scribe.

EFA permitted a reduction of the questionnaire to questions that point to the proposed construct, removing those that were only serving as noise in the set. Organizing in factors has confirmed that issues considered differentials in the constitution of the reader/scribe are, indeed, differentials.

This analysis made it possible to confirm known issues in the field and to take others as hypotheses. The fact that adults close to the child practice reading is fundamental for presuming the child to be a reader and for acknowledging in him/her the act of reading.

The presence of text media in the child's home, which is common in a literate society, also demonstrated its effects, since, as we saw in our data, only 3.75% of the respondents reported not having them. We emphasize, however, that it does make a difference if these media intermediate situations of adult/child/writing interaction. The same is true for writing: it is necessary that someone else be attentive and curious about what the child is doing so that his/her scribbles, drawings, or texts be interpreted and gain meaning.

Helping adults, parents, or educators recognize the presence of authorship in texts of young children can also have effects on their future performance in reading and writing, since many of them (94.6%) express authorship before formal literacy.

In this study, 65.2% of the population of respondents did not finish high school, presenting low educational levels, which may indicate infrequent reading habits without including more complex text media such as books. This leads us to consider the possibility of intervening in health promotion, as speech therapists, on two fronts: one, with families who, in general, have been open to dialogue about their child's reading and writing; and another, with daycares and preschools, which are in a privileged position for the interaction between the literate adult (educator) and the child, and to provide actions that lead to literacy.

CONCLUSION

The research allowed validation of 8 of 15 preliminary indicators for the constitution of the reader/writer proposed in a previous study[12]. Each indicator is not related to only one of the axis, but to all of them, because it is a structure in which values are obtained from the articulation of the elements between themselves.

Investment in instruments based on a conception of language that understands the child-adult-language (written) relationship as a basis for the constitution of a reader/scribe is differential due to its mark of valuing subjectivity. These indicators propose marks to be monitered in the population and, at the same time, lead the observer to discern aspects of the child-adult interaction that point to what is unique in the emergence of a reader/scribe.

Validation of this instrument gives it quality and opens possibilities for use in health promotion, prevention of reading and writing abnormalities, as well as in therapy. Therefore, we suggest the continuity of this research with other exploratory studies to verify its applicability, such as application in the observation of the interaction between pre-school children and adults, and application in populations of different socioeconomic levels and ages.

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Author contributions

JAV conducted this study as a part of her master's degree in fonoaudiologie under the guidance of Prof. RMF, PhD. Data collection came from the Pastor Paulo Leivas Macalão public school in the city of São Paulo, state of São Paulo, Brazil.

ANNEX A. QUESTIONAIRE

IDENTIFICATION

CHILD'S NAME: _____
DATE OF BIRTH: _____ **CURRENT AGE**: _____
SCHOOL GRADE: _____

INFORMANT: ☐ MOTHER   ☐ FATHER   ☐ OTHER RELATIONSHIP TO THE CHILD_____

NAME: _____
DATE OF BIRTH: _____

EDUCATION: ☐ NONE   ☐ INCOMPLETE PRIMARY SCHOOL (UP TO 4TH GRADE)
☐ COMPLETED PRIMARY SCHOOL (THROUGH 8TH GRADE)   ☐ INCOMPLETE HIGH SCHOOL
☐ COMPLETED HIGH SCHOOL   ☐ INCOMPLETE HIGHER EDUCATION
☐ COMPLETED HIGHER EDUCATION

PRINTED MATERIAL AT HOME: ☐ NEWSPAPERS   ☐ BOOKS   ☐ BIBLE   ☐ COMICS   ☐ RECIPE BOOKS
☐ SUPERMARKET FLIERS   ☐ OTHER WHICH ONES? _____

WOULD YOU LIKE TO ADD ANYTHING ABOUT YOUR CHILD'S READING AND WRITING? _____
_____
_____

To the parent or guardian: We are conducting a research with PUC/SP – Pontifical Catholic University of São Paulo. We would like to ask you to participate in this research by answering some questions about your child, before he/she started first grade. Thank you!

• Please answer Yes or No.

	YES	NO	DON'T KNOW	OBSERVATIONS
1- Did you use to read to your child?				
2- When reading to your child did you point to where you were reading?				
3- Did you use to ask your child to read?				
4- Did you use to ask your child to write?				
5- Before knowing how to write, did your child scribble?				
6- When the child showed you the scribble, did you say what you thought it was?				
7- Did your child pretend he/she was reading and/or writing?				
8- Did your child "write" something and ask someone to read it?				
9- Did your child "write" and read it to someone?				
10- Did your child read to you?				
11- Did your child read/write when someone asked?				
12- Did your child bring books or magazines for someone to read?				
13- Did your child know the difference between drawings, numbers and words?				
14- Did your child have a favorite magazine or storybook?				
15- Did you understand your child's writing?				
16- When the child did not yet know how to write, did he/she write "in his/her own way"?				

_____
_____