WRITTEN TEST FOR THE ASSESSMENT AND ANALYSIS OF WRITING SKILLS

VALIDATION OF THE SUBTESTS 1 TO 8: GRAPHIC SHAPES, LETTERS, SYLLABLES, WORDS AND PSEUDOWORDS

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BACKGROUND

Writing is a learnt competence that follows the literate subjects throughout their academic and social lives. Due to the difficulties observed in the initial stages of learning, this competence should be given the upmost attention. This written test for assessment and analysis of writing skills **(PEACE)** intends to contribute to the assessment of that competence, under holistic perspective of the writing process in terms of its graphic, orthographic and linguistic (phonological) dimensions (Soares, 2017; Rebelo, 1993; Pinto, 1994; Cunha & Capellini, 2009; Fayol, 2016; Barbeiro, 2000; Koch & Elias, 2017).
PEACE is constituted by **14 subtests** aiming to assess the three dimensions of emergent writing productions, through different linguistic and non-linguistic units, as mentioned bellow.

Language and Non Language units analyzed in the PEACE:
Graphic shapes, Letters, Graphemes and Phonemes, and Syllables: subtests 1 to 5
Words and Pseudowords (~non-words): subtests 6 to 8
Sentences and Texts: subtests 9 to 14

Dimensions analyzed in the PEACE:
Graphic and Orthographic dimension: subtests 1 to 3
Graphic, Orthographic and Linguistic (Phonological) dimension: subtests 4 to 5
Orthographic and Linguistic (Phonological) dimension: subtests 6 to 8
Orthographic and Linguistic (Phonological) dimension: subtests 9 to 14

Study 1

OBJECTIVES

Construct validation of the subtests 6 to 8, centered in the assessment and analysis of orthographic and phonological aspects (with words and pseudowords).

METHODS

In order to collect informations for the **thematic analysis**, a **literature review** and **analysis of existing instruments** were carried out. This thematic analysis was taken to identify the criteria to integrate the tests.
The stimuli were selected taking into account the linguistic, orthographic and graphic criteria.
A **Focus Group** was carried out to validate the structure and selection of stimuli from subtests 1 to 8.
Five SLT with high professional and scientific competences in the domain of reading and writing skills (assessment and intervention) participated in this Focus Group.

RESULTS

General issues:
- Inclusion of words and pseudowords
- Inclusion of dictation and spontaneous writing elicitation

Specific aspects of Subtests 6 (Writing pseudowords)
Spelling conversion:
- admit several orthographic options, both in stimuli by phonological and morphological composition

Extension of the test:
- reduce stimuli through statistical analysis,
- maintenance of the more productive stimuli.

Specific aspects of Subtest 7 and subtest 8 (Writing of words elicited by dictation and image, respectively)
Construction of tests and selection of stimuli:
- maintenance of the proposed criteria: consideration of phonological and orthographic variables

Quantitative and Qualitative Analysis
Maintenance of the proposed criteria:
- maintenance of the success rating for quantitative analysis and error rating for qualitative analysis
Example of quantitative analysis:
  chuva → chuva (1 point)
Example of qualitative error analysis:
  chuva → juva (compromise of the voicing contrast

Version 1

Study 2

OBJECTIVES

Content and **usability validation** to pilot the adequacy of the subtests 1 to 8 (graphic shapes, letters, syllables, words and pseudowords) come from version 1.
Reduction of the number of items in each subtests by index difficulty analysis
Validation of the cues quality and quantity to reach the target in subtest 8 (with stimuli elicited by images).

METHODS

A **small-scale pilot study** was carried out in order to test the usability of the instrument, the application procedures, execution time, stimuli, images, semantic cues, registration of the child's responses, registration and classification of the examiner's analyses.
The **difficulty index of items** was carried out and organized by schooling criteria, in order to reduce the items in each subtests.
The study population were children of the 1st cycle of basic education. The convenience sample consisted of 18 students.

RESULTS

The pilot test allows to observe and make decisions about the quantity and the quality of the cues required to reach the target (items) and about the size of the subtests (numbers of items).
The results reported the case of the subtest 8 (all grades), the only subtest with stimulus elicited by images.
Number of occurrences required to activate the target in subtest 8

Cues sequency presentation	1 grade	2 grade	3 grade	4 grade	Total
Pictographic	58%	70%	73%	76%	71%
Pictographic + Semantic	12%	11%	10%	13%	11%
Pictographic + Semantic + Segmental	8%	9%	8%	5%	7%
Pictographic + Semantic + Segmental + Syllabic	14%	8%	5%	4%	7%
Pictographic + Semantic + Segmental + Syllabic + Free cue from evaluator	8%	2%	4%	2%	4%

Difficulty Index analysis from VERSION 1 to 2 - e.g. Subtest 8 (1st grade)

Subtests	Nr items - version 1	Difficulty Index	Nr items
Subtest 8	74	Difficult	20
		Medium	51
		Easy	3

Subtests	Nr items - version 2	Difficulty Index	Nr items
Subtest 8	37	Difficult	3
		Medium	31
		Easy	3

Number of items from VERSION 1 to 2 in all subtests of the 1st grade

**PEACE version 1
398 itens**

Subtests	Nr items - version 1
Subtest 1	13
Subtest 2	16
Subtest 3	15
Subtest 4	29
Subtest 5	30
Subtest 6	147
Subtest 7	74
Subtest 8	74

**PEACE version 2 :
228 itens**

Subtests	Nr items - version 2
Subtest 1	10
Subtest 2	10
Subtest 3	10
Subtest 4	22
Subtest 5	28
Subtest 6	74
Subtest 7	37
Subtest 8	37

CONCLUSIONS

The data of the pilot study contribute to **improve the test specifications and task types**. The results of this study will have a direct impact on the procedures of the instrument, its size and duration. The objective of **study 1 is completed**, it was possible to obtain version 1 of the test. **Study 2** had 2 objectives. **The reduction of the number of stimuli was achieved**. For the cues to activate the target in subtest 8, **one more study will carried out in order to obtain better recognition values for the images.** This is subsequently agreed with aspects as applicability and acceptability by the professionals who will apply it. The next steps are: (1) cues validation study (pictographic/images, semantic, segmental, syllabic and free cues to trigger the target); (2) PEACE standardization for European Portuguese.

REFERENCES:
Barbeiro, L. (2000). Profundidade do processo de escrita. Educação & Comunicação. (5): 64-76
Cunha, V. L. & Capellini, S. A. (2009). Alfabetização e desenvolvimento de habilidades metalinguísticas em escolares com transtornos de aprendizagem. V Congresso Brasileiro Multidisciplinar de Educação Especial.
Fayol, M. (2016). A Aquisição da Escrita. Gradiva.
Koch, I. V., & Elias, V. M. (2017). Ler e Escrever estratégias de produção textual. Editora Contexto.
Pinto, M. G. L. C. (1994). Desenvolvimento e Distúrbios da Linguagem. Porto Editora.
Rebelo, J. A. S. (1993). Dificuldades de Leitura e da Escrita em Alunos do Ensino Básico. Edições ASA
Soares, M. (2017). Alfabetização – a questão dos métodos. Editora Contexto.