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ELECTRONIC INSTRUMENT FOR PHONOLOGICAL AWARENESS SCREENING AND ASSESSMENT

RESULTS OF A USABILITY STUDY

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BACKGROUND

Phonological awareness (**PA**) is an explicit linguistic competence that plays a crucial role in the development of oral language, as well as in the process of learning to read and write (Alves, 2012). **PA** is a constellation of heterogeneous skills whose components have different properties and develop at different times (...) can not be considered as a unitary construct (...) but should be seen as a cognitive skill that involves different linguistic levels (syllables, intra-syllabic units, phonemes) and can be tested through different tasks (Freitas, 2004).
Factors that facilitate or hinder the execution of phonological awareness skills are: (i) **nature of the phonological unit** (syllable, word...), (ii) **word length** - number of segments/syllables in the target (foot, banana, fridge, bottle, hippopotamus...), (iii) **phoneme position** in the word (initial, final...), (iv) **phonemic constitution of words** (/s/, /p/...), (v) **complexity of the phonological awareness task** (segmentation, substitution...) (adapted from Kameenui, 1995).

e.ConF:IRA Consciência Fonológica Instrumento de Rastreio e Avaliação em formato eletrónico

Studies carried out for the eConF.IRA App construction, an electronic instrument for Phonological awareness screening and assessment:

2008-2011: tasks (types) and phonological properties of stimuli (at the word, syllable, phoneme and accent levels)

2009-2015: psychometric aspects – validity and reliability

2015-2016: pictographic properties of stimuli

2015-2016: usability

The **current version** of the instrument **derives from these studies, focused on the assessment of linguistic, psycholinguistic, methodological and psychometric aspects, and presents data on content and construct validity and reliability** (internal consistency) (Castro, Alves, Correia & Soares 2018).

eConF.IRA is constituted by 18 subtests aiming to assess the more relevant phonological unit - word, stress and syllable (word extension, syllable constituency and rhyme), and phonemes, through different level of phonological tasks.

OBJECTIVE

Usability validation of **e.ConF.IRA** - Phonological Awareness: Screening and Assessment Instrument [electronic format]

METHODS

Research methods applied for evaluating the **usability of eConF.IRA**:

Study 1

- **observation** of a sample with common characteristics of future users (**3 SLT**) running the whole App
  Before the evaluation
  - create a New Record, create an Institution, create an Evaluator
  During the evaluation
  - start assessment, quote different types of responses, browse the App
  After the evaluation
  - record information, check responses, and rectify quotes and/or ratings
  - consult results in different formats: in table and in graphs
  - send results by email

- **inquiry** of a small group of users.
  Completion and analysis of the European version of SUS - System Usability Scale (Likert scale from 1 to 5 with 10 questions) (Martins et al., 2015)

RESULTS

Inquiry results considering Nielsen's heuristics (1990, 1993, 1995)

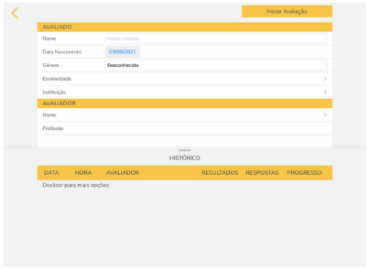
learning facility	10/12
efficiency	9/9
ease of memorization	3/3
error minimization	3/3
satisfaction	8/9

RESULTS

Observation:

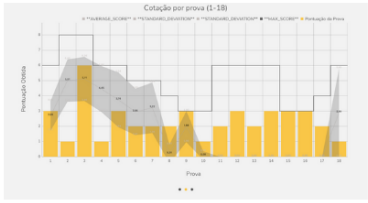
Before the evaluation > successfully performed by the 3 SLT

- create a New Record, create an Institution, create an Evaluator



During the evaluation > successfully performed by the 3 SLT
- start assessment, quote different types of responses, browse the App (except 1 SLT, in a specific browsing task)

After the evaluation > successfully performed by the 3 SLT
- record information, check responses, and rectify quotes and/or ratings (except 1 SLT, in a specific error record task)
- consult results in different formats: in table and in graphs
- send results by email



CONCLUSIONS

The usability of an instrument is the essential condition for its acceptance by the user (Nielson, 1993).
The study recorded **success in the tasks performed by the SLT sample** (78 of 81 tasks by each one), before, during and after the evaluation process with the App **eConF.IRA**.
The **SUS** - System Usability Score Index (under Brooke, 1986, 1995) registers an **excellent level of usability (90 points).**
Both **observation and survey contributed to the validation of the tool's functionality** in terms of the usability parameters (Nielsen, 1993, 1995; Smith & Mayes, 1996): (i) Ease of Learning, (ii) Ease of Use and (iii) Satisfaction in Use of the System by the User.

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