

Translation and cultural adaptation of the Rapid Online Assessment of Reading (ROAR) for Brazil

Tradução e adaptação cultural da avaliação on-line rápida de leitura (ROAR) para o Brasil

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Abstract

The article presents the translation, cultural adaptation, and content validation of the ROAR application for the Brazilian context. It is a methodological, cross-sectional, and observational study. Translators, back-translators, and expert judges were invited for the translation and adaptation process. In the final version, the lexical decision task included 60 words, 60 pseudowords, and 140 sentences. The judges' reassessment showed 100% agreement on the adequacy of the following: the lexical decision task with words and pseudowords; selected words; visual presentation and task instructions, as well as for sentence comprehension: the sentence comprehension task; font style; and task instructions. The items were adjusted, and the application was finalized for implementation as a pilot study. The methodology applied demonstrated the feasibility of the translation, cultural adaptation, and validation of the ROAR application for rapid, automated, and group-based reading assessment in Brazilian Portuguese.

Keywords: reading; comprehension; educational measurement; students; educational technology.

Resumo

O artigo tem como objetivo apresentar a tradução, adaptação cultural e validação de conteúdo do aplicativo ROAR para o contexto brasileiro. Trata-se de um estudo metodológico, transversal e observacional. Para a tradução e adaptação foram convidados tradutores, retrotradutores e juízes especialistas. Na versão final, a tarefa de decisão lexical incluiu 60 palavras, 60 pseudopalavras e 140 sentenças. A reavaliação dos juízes teve 100% de concordância de adequação em: tarefa de decisão lexical com palavras e pseudopalavras; palavras selecionadas; apresentação visual e instruções da tarefa, bem como na compreensão de sentenças: tarefa de compreensão de frases lidas; fonte das letras; instruções da tarefa. Os itens foram ajustados e o aplicativo finalizado para ser implementado como estudo-piloto. A metodologia adotada demonstrou viabilização da tradução, adaptação cultural e validação do aplicativo ROAR para avaliação rápida, automática e coletiva de leitura para o português brasileiro.

Palavras-chave: leitura; compreensão; avaliação educacional; estudantes; tecnologia educacional.

INTRODUCTION

Reading is a complex skill that involves multiple and interdependent cognitive processes. Among these, decoding and comprehension stand out as essential abilities for reading, within a cognitive psycholinguistic framework (Coltheart, 2005; Hoover; Gough, 1990). They contribute to solid academic performance, as they are predictive of reading development (Good; Simmons; Kame'enui, 2001; Denton et al., 2022; Marques et al., 2024).

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Study conducted at Departamento de Fonoaudiologia, Faculdade de Medicina, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brasil, and at the Stanford Graduate School of Education, Stanford, CA, United States.



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Decoding is a skill that refers to word recognition processes, in which orthographic symbols are transformed into language. When well-established, it supports the development of the orthographic mental lexicon, contributing to improved reading comprehension and fluency (Penna; Sabaté; Burin, 2014. Silvano; Godoy, 2022).

Within visual word recognition, the dual-route model is regarded as a prominent theoretical framework (Coltheart et al., 2001; Ellis; Young, 1988; Morton, 1969, 1979). In this model, skilled word recognition in an alphabetic writing system can be achieved through two routes: the phonological (indirect) route, which involves phonological mediation, and the direct route, also known as the lexical route. Throughout the development of reading skills, there is a transition from reading based on grapheme-phoneme correspondences to rapid and accurate word recognition. This shift reflects a progressive reduction in reliance on the phonological route and an increased reliance on the lexical route, as expected over the course of formal education (Oliveira; Capellini, 2010; Ferraz et al., 2021).

Reading ability is not limited to the capacity to decode visually presented words; rather, it involves the comprehension and interpretation of the text's meaning. Proficient reading is achieved when decoding is automatized and cognitive resources are available to support comprehension of the decoded material (Varizo et al., 2022).

Reading comprehension refers to the process by which readers construct meaning from text, involving cognitive and linguistic processes that support access to word meaning (Coelho; Correa, 2017; Puglisi, 2010). Throughout this process, the reader establishes a mental representation of the text's meaning and integrates new information with prior knowledge (Saraiva et al., 2020). Reading comprehension abilities are essential to academic success, as students must be able to understand, organize, summarize, and evaluate information extracted from texts, thereby contributing to knowledge acquisition (Bastug, 2014).

Research demonstrates that, in assessment processes, a substantial proportion of experimental studies that have informed the development of reading models have focused on factors influencing the processing of isolated words, including access to their pronunciation and meaning. In Brazil, there are widely used assessment instruments for assessing word and pseudoword reading abilities (Lúcio et al., 2018; Pinheiro, 2007, 2013; Pinheiro; Vilhena, 2023; Salles; Piccolo; Miná, 2017); however, there are still relatively few studies focused on technologies for their large-scale implementation.

The assessment and monitoring of reading abilities throughout the school years are essential for evaluating reading outcomes and are recognized as predictors of academic success (Denton et al., 2022; Sucena; Silva; Marques, 2021). Therefore, these practices should be established as a priority public policy across all countries, as is already observed in developed nations (Daane et al., 2005; Canada, 2007; Hempenstall, 2016; National Reading Panel, 2000; Walker et al., 2015).

Of concern, Brazil presents a challenging context with regard to literacy and reading across all stages of life, particularly given the most recent results from international assessment programs, such as the Programme for International Student Assessment (PISA) and the Progress in International Reading Literacy Study (PIRLS). According to PISA, only 2% of Brazilian students achieved a high level of reading proficiency. Brazil's results indicated performance below the international average compared to other countries (Brasil, 2022, 2023). It should be emphasized that the PIRLS assessment, conducted with a sample of Brazilian public and private schools, took place during a period that still reflected substantial impacts resulting from the COVID-19 pandemic. Such a critical situation necessitated comprehensive measures that go beyond pedagogical approaches, encompassing socio-economic and cultural policy interventions. The implementation of systematic assessment and monitoring instruments of reading, in order to identify students at risk of developing reading difficulties, as well as those with existing reading difficulties, is essential to support targeted educational measures and appropriate referrals. A key aspect of such monitoring is that it should be as rapid and automated as possible, in order not to constitute additional demands for primary and secondary school teachers.

In light of this context, and to contribute to the assessment and monitoring of the reading process, the Rapid Online Assessment of Reading (ROAR) was developed by researchers

in the United States. This instrument allows for the rapid and efficient assessment of phonological awareness, word decoding, and sentence-level reading comprehension, supporting schools in identifying struggling readers in a fraction of the time required by conventional methods through lexical decision and sentence comprehension tasks (Yeatman et al., 2021). In Brazil, two modules are currently in the process of validation: ROAR-word and ROAR-sentence.

ROAR is a lexical decision and sentence-level semantic judgment instrument that does not require detailed scoring of decoding errors. Accordingly, it directly assesses students' ability to recognize words and to process sentence structure during silent reading, without the need to monitor pronunciation or oral reading errors. This characteristic makes it particularly suitable for large-scale screening, enabling the rapid identification of students who require additional support in reading. By relying on lexical decision (i.e., accurate word identification) and sentence coherence judgments, ROAR avoids the complexity and time demands associated with scoring decoding errors typical of oral reading assessments. (Yeatman et al., 2021)

Given the context presented and considering the urgent need to contribute to rigorously developed assessment instruments, particularly through the advancement of technological resources that enable large-scale evaluation as a contribution to public policies in education and school health, the present study aims to present the processes of translation, cultural adaptation, and content validation of ROAR for the Brazilian context.

METHODS

The present study is characterized as methodological, cross-sectional, and observational, and was approved by the Research Ethics Committee - CAAE 35589420.5.0000.5149 and by the University Institutional Review Board (IRB) under protocol number 73649. In the initial phase of ROAR adaptation of the Brazilian context, two tasks associated with reading ability were selected: a lexical decision task, involving the reading of words and pseudowords, and a sentence comprehension task, focusing on the processing of true and false sentences.

The translation and adaptation of ROAR into Brazilian Portuguese were carried out in accordance with the guidelines of the American Educational Research Association (2014). Before this process, authorization was obtained from the authors of the original instrument, and both a team of translators and a committee of expert judges were established for this purpose.

The translation and adaptation process was not limited to linguistic translation. It also took into account cultural and linguistic characteristics that could influence the measurement of the intended constructs. In order to do so, two teams were established: a translation team and a back-translation team, both composed of independent translators. Two translators whose native language (L1) is English and who are fluent in Brazilian Portuguese were invited to translate the original test into Brazilian Portuguese. For the back translation, two translators whose native language is Brazilian Portuguese and who are fluent in English were recruited. In each pair, one translator was a field specialist and the other a non-specialist.

Regarding the panel of expert judges, five specialists were invited to evaluate the relevance of the items developed by the researchers and to provide critical revisions. Among the judges, two were male, and three were female, with professional experience ranging from five to 35 years (mean = 22 years). In terms of academic qualifications, two held doctoral degrees and three held master's degrees. All had extensive experience in the field, including one linguist, one psychologist, one psychopedagogue, and two speech-language pathologists. With the teams established, the next step involved conducting the translation and cultural adaptation of ROAR, as described below.

Lexical decision task

Following the framework of Yeatman et al. (2021), the purpose was to develop a lexical decision task designed to provide a self-administered, accurate, and reliable measure of reading automaticity.

Participants are required to indicate, through answer options, whether visually presented stimuli correspond to words or pseudowords. The stimuli cover a broad range of difficulty levels, enabling a precise evaluation of the reading abilities of students in Grades 1–5, with an administration time of approximately five to ten minutes. In contrast to oral reading tasks, the lexical decision task facilitates collective administration and provides automated results, bypassing the need for complex speech recognition algorithms.

A total of 80 words were selected for the task based on linguistic and psycholinguistic criteria, including lexical frequency, word length, syllabic complexity, and orthographic regularity (Forster; Chambers, 1973; Rastle; Coltheart, 1999; Soares et al., 2023). By incorporating various grammatical classes, the selection ensures a broad presentation of different cognitive processing levels.

Regarding the lexical frequency, the words were distributed according to their frequency of exposure across the different grades of elementary school. Evidence suggests that exposure frequency directly facilitates access to the mental lexicon, significantly influencing both lexicality accuracy and response latencies (Krause; van Rij; Borst, 2024). To this end, word selection was based on their occurrence in public and private school textbooks, ensuring that the items were compatible with the lexical knowledge expected for each specific school age group. Furthermore, the words were distributed evenly across grade levels in order to avoid an excessive concentration of items representative of a single grade.

Additionally, 80 pseudowords were generated using the LexPorBR software to maintain linguistic similarity to the selected real words. By controlling word length, syllabic structure, and orthographic patterns, we ensured that these items mirrored the linguistic characteristics of the original stimuli (Brazilian Portuguese), preventing immediate identification as non-words due to non-existent language patterns.

To ensure content validity, expert judges evaluated whether each item accurately reflected the underlying theoretical construct, drawing on their extensive research and educational experience. The 160 items were organized into spreadsheets and sent to the judges for evaluation, and, according to their feedback, the necessary adjustments were made. The judges were instructed to select the 60 most relevant items from each list. The criteria considered included the frequency of suggestions and recommendations provided for each item. Finally, the adjustments proposed by the judges were duly implemented. The final version was reviewed by a linguistic expert judge and subsequently approved by the researchers.

Sentence comprehension task

This task consists of 160 sentences that are unequivocally true or false. It is designed to require minimal prior knowledge, utilizing simple syntactic structures and basic vocabulary, such as in Yeatman et al. (2024a). The sentences are presented in a randomized order and require silent reading followed by a judgment of sentence coherence (true or false). Participants are instructed to press the left arrow key if the sentence is false (absurd) or the right arrow key if the sentence is coherent (true).

In this task, the sentences from the original ROAR's English version could be directly translated. However, ensuring coherence, cultural adaptation, and appropriate syntactic and lexical adjustments is essential. To achieve this, the sentences were translated from English into Brazilian Portuguese by two native English-speaking translators. The researchers then synthesized the translations and submitted them for back-translation. This step was carried out by translators whose first language is Brazilian Portuguese to ensure fidelity. Following the translation and back-translation process, the cultural adaptation of the sentences into Brazilian Portuguese was performed by three researchers. Items describing situations atypical of Brazilian culture were adjusted, as illustrated in Chart 1.

In order to ensure the task content validation, the same five experts who evaluated the lexical task were invited again. Criteria such as the frequency of suggestions and recommendations provided by the judges for each item were also considered. The judges' contributions were incorporated into the sentences. The final version of the list was re-evaluated by a linguistic expert judge and approved by the researchers.

Chart 1. Sentences adapted for the Brazilian context.

Original version (English)	Translated version (PT-BR)	Culturally adapted version (English)
The United States of America is in Africa.	Os Estados Unidos da América estão na África.	O Brasil está na África.
Halloween is a holiday in February.	Halloween é um feriado em fevereiro.	Carnaval é um feriado em outubro.
Another name for a present is a gift.	Outro nome para um presente é um presente.	Outro nome para presente é uma lembrancinha.
Snow always falls in the summer.	A neve sempre cai no verão.	Sempre faz frio no verão.

Source: ROAR assessment data, 2024.

Application development

After receiving feedback from the judges on both tasks and making the necessary adjustments, the application was developed with 60 words, 60 pseudowords, and 140 sentences. To make the task more engaging and playful, the application was gamified. It follows the theme “In the world of magical words,” featuring wizards and animals as characters, set in a magical forest, and based on the interface already established for the English version of ROAR.

The items generated within the gamified interface were sent to the programming team, and a demonstration version of the application, including instructions and an online form for the final evaluation of the tasks, was sent to the judges. For this stage, the research team developed an evaluation form based on a Likert scale for the final version of the test. The judges evaluated the items using the categories “adequate,” “partially adequate,” and “not adequate.” Based on the feedback received, the necessary adjustments were implemented. This format reflects the final version that will be administered to the students.

Thus, the lexical decision and sentence comprehension tasks were finalized. Both will be administered on a large scale in an automated, fast, and accurate manner to provide a reliable and self-administered measure of reading skills.

ROAR provides a rapid and accurate assessment of fundamental reading skills without requiring extensive analysis of oral errors or supervised reading (Yeatman et al., 2021). The online administration significantly reduces educators’ workload. This format eliminates the need for printing and distributing physical materials, thereby reducing operational costs, and also enables large-scale implementation, which is essential in regions where resources are limited and time for intervention is scarce. Additionally, the brief and self-administered nature of the test ensures that results are obtained efficiently, with minimal disruption to regular school activities (Yeatman et al., 2021).

Data analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), 22.0 version. The collected data were subjected to descriptive analysis, including frequency distribution of the variables, to evaluate the distributional properties of the data.

RESULTS

The findings reflect data from two ROAR tasks developed and culturally adapted for Brazilian Portuguese, followed by validation by expert judges.

Lexical decision task

Two lists were sent to the judges for evaluation: one containing 80 words with information on frequency, grammatical class, syllabic structure, and number of syllables; and another containing 80 pseudowords with information on number of syllables and syllabic structure. The judges were asked to assess the relevance of the selected items, indicate 60 items to compose each list, and provide comments regarding the words and pseudowords.

The judges’ evaluations of the word list focused on consonant-vowel (CV) syllabic structure, rapid recognition, low frequency, word length, and complexity, as well as polysemic and polymorphic words and verbal inflection. On average, each judge provided observations or suggestions for the removal or replacement of 31 words. Chart 2 displays the words most commonly recommended for removal or replacement.

Chart 2. The judges’ considerations of the words.

Recommended replacements	Considerations
rio; casa; bola; jogo	polysemic word
parlendas; aventureiro; reler	polymorphic word
pipa	regionalism
vai; equivale	inflected verb
Items recommended for removal from the list	
jogo; número; leão; mais; jogo; mais; correr; conversa; composição; táxi; sossegar; personagem; retratar; redor; estrofe; sugestão; laboratório; enchente; pesquisar; orientação.	

Source: Research data, 2024.
Key: words in bold indicate items recommended for removal by more than two judges.

Chart 3 details the feedback concerning the pseudoword list, focusing on low-frequency patterns, homophonous pseudowords, lexical proximity to real words, invalid syllabic structures, and CCVC (consonant-consonant-vowel-consonant) patterns.

Chart 3. The judges’ considerations of the pseudoword stimuli.

Pseudowords	Number of judges	Considerations
plante	3	real word. Verb (to plant)
trova	2	real word. Noun
pando	1	adjective
vrima	2	phonologically legal spelling. Infrequent “VR” structure
quelba	1	noun. City in the United Arab Emirates
trusco	1	complex CCVC structure for second-grade students
fua	1	noun
planto	3	real word. Verb
vroco	2	orthographically possible, infrequent “VR” structure
fuzo	1	homophonic pseudoword of a real word (“fuso”)
zruco	3	The “ZR” structure does not exist in Brazilian Portuguese
trin	2	ortographically possible, but the “-in” ending is uncommon in Brazilian Portuguese
iscrimpo	1	priming effect due to similarity with the pseudoword “istrimo”

Source: Research data, 2024.

The lexical decision task was completed with 120 items, consisting of 60 words and 60 pseudowords. Once the lists were integrated into the app, the five expert judges performed a follow-up assessment based on the Likert scale. Their evaluations are detailed in Chart 4.

Chart 4. Distribution of responses for items in the word and pseudoword task.

Word and pseudoword task	Adequate	Partially adequate	Inadequate
Word and pseudoword lexical decision task: general overview	5 (100%)	0 (0%)	0 (0%)
Selected words	5 (100%)	0 (0%)	0 (0%)
Font type	4 (80%)	1 (20%)	0 (0%)
Font size	3 (60%)	2 (40%)	0 (0%)
Stimulus presentation time	3 (60%)	0 (0%)	2 (40%)
Keyboard response strategy	3 (60%)	2 (40%)	0 (0%)
Visual presentation of stimuli	5 (100%)	0 (0%)	0 (0%)
Task instructions	5 (100%)	0 (0%)	0 (0%)

Source: Study data, 2024.

Key: Likert scale options: Adequate, Partially adequate, Inadequate.

It should be noted that two judges reported that the stimulus presentation time, initially 350 milliseconds for the entire corpus, was inadequate. While the fonts remained unchanged, the entire corpus was converted to uppercase. Regarding the keyboard layout, modifications were not possible as this configuration is part of the tool's fixed structure and is essential to its functionality (Figure 1).



Figure 1. App screen display for the lexical decision task.
Caption: If the participant judges the item to be a real Portuguese word, they should click the right arrow. If they judge it to be a non-existent word (pseudoword), they should click the left arrow.

Sentence comprehension task

The 140 sentences, which were translated, back-translated, and adjusted by the researchers, were also presented to the judges, who evaluated the items according to the proposed Likert scale. No inadequacies were identified across any of the evaluated criteria. Chart 5 describes the judges' evaluations.

All fonts were adjusted to uppercase, which improved the visual presentation (Figure 2). Sentences considered long and those identified as ambiguous by the judges were removed. Based on this objective evaluation, the items were adjusted and the application finalized for its initial implementation in a pilot study.



Figure 2. App screen display for the sentence comprehension task.
Caption: If the participant judges the sentence to be true, they must click the right arrow; if they judge it to be false, they must click the left arrow.

Chart 5. Distribution of responses for items in the sentence comprehension task.

Sentence comprehension task	Adequate	Partially adequate	Inadequate
Sentence reading comprehension task, general overview	5 (100%)	0 (0%)	0 (0%)
Selected sentences	3 (60%)	2 (40%)	0 (0%)
Font type	5 (100%)	0 (0%)	0 (0%)
Font size	4 (80%)	1 (20%)	0 (0%)
Sentence length	4 (80%)	1 (20%)	0 (0%)
Keyboard response strategy	3 (60%)	2 (40%)	0 (0%)
Visual presentation of stimuli	4 (80%)	1 (20%)	0 (0%)
Task instructions	5 (100%)	0 (0%)	0 (0%)

Source: Research data, 2024.

DISCUSSION

This phase of the research aimed to present the process of translation, cultural adaptation, and content validation of the ROAR application for the Brazilian context. The objectives were achieved through the development of the Brazilian Portuguese version.

It is well established that students with reading difficulties may be at risk of not consolidating decoded information, which can negatively impact academic performance and, consequently, affect an individual's personal and social life. Therefore, early detection of reading challenges is vital for ensuring timely support and preventing long-term difficulties across different aspects of students' lives (Denton et al., 2022).

As evidenced in the review conducted by Wanzek et al. (2018), the authors demonstrated the effectiveness of reading interventions among elementary school students. At this stage, students deepen their experiences with written language, requiring skills such as whole-word recognition and reading comprehension (Wanzek et al., 2018). Thus, the school environment is well-suited for the assessment and monitoring of these fundamental skills for effective reading, highlighting the importance of tracking the development of these competencies throughout elementary education.

Public policy frameworks in nations such as the United States, Canada, and the United Kingdom ensure that the systematic assessment of reading remains a component of the educational curriculum (Daane et al., 2005; Canada, 2007; Hempenstall, 2016; National Reading Panel, 2000; Walker et al., 2015). As a result, deficits are identified early, reducing their impact on students' academic performance. However, standardized reading monitoring initiatives have not yet been implemented across all Brazilian schools, which represents a significant challenge for the quality of education and educational development. Such initiatives are of great importance, as they emphasize reading as a fundamental activity for high-quality educational development in a country.

The implementation of digital tools such as ROAR, particularly in low-income contexts, offers a solution to the challenges faced by Brazilian education, especially with regard to the screening and monitoring of reading skills. Brazil, in particular, faces a scenario in which reading difficulties are widespread, with below-average performance in international assessments, according to data from PISA (Brasil, 2022) and PIRLS (Brasil, 2021), and with students presenting difficulties that are not identified in time for effective intervention (Brasil, 2022).

One of the main advantages of ROAR is its structure based on lexical decision and sentence comprehension tasks. The lexical decision task, by including a balanced combination of real words and pseudowords, allows for the precise assessment of students' visual word recognition and phonological decoding skills. As noted by Soares et al. (2023), the length of items and the integration of pseudowords are key factors affecting decoding accuracy during the early reading stages of Brazilian Portuguese.

In the early school years, students tend to show greater ease in decoding short, real words, whereas pseudowords and longer items present a greater challenge, requiring more significant cognitive effort to process (Soares et al., 2023). As they progress, their decoding skills improve, and they increasingly rely on the lexical route (Soares et al., 2023; Zoccoli; Monteiro; Soares, 2018). Therefore, when creating a list of words and pseudowords, it is important to include both short and long items, as well as a combination of real words, which can be recognized via the lexical route, and non-words, which require the use of the phonological route.

For this reason, words suggested by the judges were excluded based on specific parameters such as syllabic structure, rapid recognition, low frequency, word length and complexity, as well as the presence of polysemy, morphological variation, and verb inflection. Low-frequency words were removed due to the potential reliance on the phonological route, which is specifically targeted in the pseudoword task. Polysemous and morphologically variable words, as well as verb inflections, could introduce bias in the assessment process due to their variability. Regarding the pseudoword list, items characterized as “homophonic” or “similar to real words” were excluded, as they could introduce bias through rapid recognition, linguistic experience, or prior lexical knowledge, thereby reducing the assessment of phonological processing as intended (Almeida; Santos; Freitas, 2023). Items featuring non-existent syllabic structures were excluded to prevent recognition interference, along with Consonant-Consonant-Vowel-Consonant (CCVC) structures due to their complexity.

According to the literature, reading words or pseudowords with more complex structures tends to become more efficient with increasing age (Justi; Justi, 2017). Furthermore, the child's grade level must be taken into account, following the criteria established during the item's development for the Brazilian ROAR lexical decision task.

The ROAR sentence comprehension task, by rapidly assessing students' ability to identify coherent and absurd sentences, provides an efficient and quick measure of reading comprehension skills (Yeatman et al., 2024b). This approach facilitates the identification of difficulties without requiring complex or time-consuming evaluations, which are often impractical in low-income settings. This means that the results can be used rapidly to inform pedagogical decision-making, enabling more targeted and timely interventions. Based on the judges' evaluation, items were excluded based on excessive length or semantic ambiguity to ensure the validity of the results and reduce potential bias.

Regarding the experts' judgment on the time parameter in the lexical decision task, it was decided to conduct student testing in two ways: half of the set with stimuli presented briefly on the screen (disappearing after 350 milliseconds), and the other half remaining visible until the response key is pressed. All participants will undergo the assessment following this specific procedure. This test administration format is being used experimentally in the United States to investigate whether the exposure time of words on the screen affects students' performance.

While the font and size remained unchanged, all items were standardized to uppercase. This configuration is widely recognized as more accessible for children in the early stages of literacy. Children in the early stages of literacy development are more familiar with uppercase letters, as these are commonly used in instructional materials, which facilitates the recognition of letter forms. According to the Brazilian National Common Curricular Base (Brasil, 2018), first-grade students are expected to recognize, distinguish, and associate all types of letters. In Brazil, children in the early years of elementary education are typically introduced to uppercase letters (Silveira, 2022). Therefore, these adjustments were considered in order to avoid potential difficulties for beginning readers in recognizing lowercase letters.

The procedural stages, including the design of lexical stimuli, sentence translation, and content validation by specialists, were carried out carefully in accordance with the criteria established by the *Standards for Educational and Psychological Testing* (American Educational Research Association, 2014), developed by three North American organizations. This document compiles the most robust and widely used psychometric recommendations and definitions, covering all stages from test development to score interpretation.

As described by Harkness and Schoua-Glusberg (1998), the back-translation technique consists of translating a text into another language and then translating this version back into the original language. This procedure aims to evaluate the back-translation against the source text to verify linguistic accuracy and enhance the overall robustness of the translation process (Harkness; Schoua-Glusberg, 1998). Based on this analysis, it was possible to establish a reliable final version of the tests, ensuring that the developed instrument is scientifically grounded and validated by experts.

CONCLUSION

The present study presented the process of translation, cultural adaptation, and validation of the Rapid Online Assessment of Reading (ROAR) into Brazilian Portuguese and contributes by detailing the methodological procedures involved in the development of this important tool, which has the potential to support educational public policies in the country. It should be emphasized that this is not a diagnostic tool for reading disorders, but rather an important educational screening instrument. The instrument is being administered in different educational contexts in Brazil, including municipal and state school systems, with elementary and middle school students. The implementation covers local-scale samples as well as panels with national representativeness, addressing diverse environments with different degrees of administrative capability, as well as broad socioeconomic and geographic diversity (covering 24 Brazilian states). They also include students enrolled in learning recovery programs and populations in greater situations of social vulnerability.

These initial experiences indicate that the instrument is operationally feasible on a large scale and can be used in highly diverse contexts, which reinforces its potential to support educational monitoring at the system level. Nevertheless, further studies are needed to consolidate evidence regarding its psychometric properties across different populations and to further investigate its capacity to distinguish distinct performance profiles.

Future research should broaden the scope of the instrument's application to include multiple regions nationwide, ensuring greater diversity of contexts and contributing to the refinement of its psychometric parameters. Furthermore, it is essential to also investigate its effectiveness for continuous progress monitoring, particularly in school environments.

Therefore, by enabling the translation and cultural adaptation of the ROAR into Brazilian Portuguese, supported by content validation by expert judges, the study provided a rapid, group-administered, automated, and accessible assessment of the fundamental skills required for effective reading. This facilitates the identification of specific difficulties among students and enables more targeted educational interventions.

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DDP: Statistical analysis, Data analysis, Visual preparation, Writing, Review. LMA: Conceptualization, Methodology, Data analysis, Project administration, Resources, Validation, Writing, Review. RCS: Data acquisition, Data analysis, Writing, Review. KVR: Data management, Data collection, Data analysis, Visual preparation, Writing. GL and JDY: Conceptualization, Funding acquisition, Project administration, Resources, Software, Validation.

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