

Original research articles based on limited empirical data

## Cross-Cultural Adaptation of the Home Literacy Environment Questionnaire for Brazil

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### Abstract

Home literacy encompasses practices adopted at home to promote children's learning. In Brazil, few studies have addressed this topic, and the instruments used to measure the construct are nearly nonexistent. This study aims to adapt the Home Literacy Environment Questionnaire (Buvaneswari & Padakannaya, 2017) to the Brazilian context through a cross-cultural adaptation process. The procedure followed six steps: translation of the original instrument, reconciliation of versions, expert evaluation, assessment by the target audience, back-translation and approval by the original authors, and a pilot study. Thirty-two mothers of four-to-six-year-old children from diverse sociocultural backgrounds participated in the pilot study. The results indicated that participants experienced no difficulties completing the questionnaire. Along with the instrument adaptation, sociodemographic data were collected from the families. Preliminary analyses were conducted to explore correlations between families' socioeconomic characteristics and the dimensions of the home literacy questionnaire. The findings align with existing literature: higher maternal education levels and family income were associated with higher scores in the home literacy dimensions. In conclusion, the adapted instrument demonstrates semantic and cultural equivalence with the original, uses clear language, exhibits good psychometric properties, and is suitable for the Brazilian context.

**Keywords:** Literacy, Learning, Reading, Children, Surveys and Questionnaires

### ADAPTAÇÃO TRANSCULTURAL DO QUESTIONÁRIO DE AMBIENTE DE LITERACIA FAMILIAR PARA O BRASIL (HOME LITERACY ENVIRONMENT QUESTIONNAIRE)

#### Resumo

Literacia familiar (ou home literacy) consiste em práticas realizadas no ambiente familiar que favorecem a aprendizagem infantil. No Brasil, pesquisas relacionadas a esse tema ainda são escassas e os instrumentos de medida para o construto quase inexistentes. O presente estudo tem como objetivo realizar a adaptação transcultural do questionário Home Literacy Environment Questionnaire (Buvaneswari & Padakannaya, 2017) para o português e o contexto brasileiro. Foram realizadas seis etapas neste procedimento: tradução do instrumento de origem, síntese das versões, avaliação por especialistas, avaliação pelo público-alvo, tradução reversa e aprovação pelos autores originais, e estudo piloto. No estudo piloto, participaram 32 mães de crianças que possuíam aproximadamente entre quatro e seis anos de idade e de diferentes níveis socioculturais. O estudo piloto demonstrou que os participantes não tiveram dificuldades em preencher o questionário. Complementarmente às etapas de adaptação do instrumento, avaliamos também as características sociodemográficas das famílias. Análises preliminares foram realizadas para entender como fatores familiares relacionados com o nível socioeconômico se correlacionaram com as medidas do instrumento de literacia familiar. Os resultados dessa análise foram consistentes com os encontrados na literatura. Ou seja, quanto maior a escolaridade materna, maior a renda familiar mensal, e escores mais elevados nas dimensões de literacia familiar apresentadas no questionário. Ao final do estudo, realizamos a tradução e adaptação um instrumento que possui equivalência semântica e cultural com a original, linguagem clara, boas propriedades psicométricas e adaptado ao contexto brasileiro.

**Palavras-chave:** Alfabetização, Aprendizagem, Criança, Leitura, Levantamentos e Questionários

### ADAPTACIÓN TRANSCULTURAL DEL CUESTIONARIO SOBRE EL ENTORNO DE LITERACIA FAMILIAR PARA BRASIL (HOME LITERACY ENVIRONMENT QUESTIONNAIRE)

#### Resumen

originales y estudio piloto. En el estudio piloto participaron 32 madres de niños de aproximadamente cuatro a seis años de edad y de diferentes niveles socioculturales. El estudio piloto demostró que los participantes no tuvieron dificultades para completar el cuestionario y, además de las etapas de adaptación del instrumento, también se evaluaron las características sociodemográficas de las familias. Se llevaron a cabo análisis preliminares para comprender cómo los factores familiares relacionados con el nivel socioeconómico se correlacionaban con las medidas del instrumento de alfabetización familiar. Los resultados de este

análisis fueron consistentes con los encontrados en la literatura. En otras palabras, cuanto mayor es el nivel educativo de la madre, mayor es el ingreso familiar mensual y mayores puntuaciones en las dimensiones de alfabetización familiar presentadas en el cuestionario. Al final del estudio, tradujimos y adaptamos un instrumento que tiene equivalencia semántica y cultural con el original, lenguaje claro, buenas propiedades psicométricas y adaptado al contexto brasileño.

*Palabras-clave:* Alfabetización, Aprendizaje, Niño, Lectura, Encuestas y Cuestionarios

Learning to read and write can be one of the most significant challenges in a child's life within literate societies (Gough & Hillinger, 1980). While the role of schools in literacy is undeniably significant, the process begins long before formal education (Whitehurst & Lonigan, 1998). Research indicates that activities conducted at home, even before a child starts school, play a crucial role in the later development of oral and written language. In other words, the family's involvement is fundamental to children's learning (Altun et al., 2021; Borges & Azoni, 2021; Cardoso & Mota, 2015).

Home literacy refers to the characteristics of the family environment that contribute to developing reading and writing skills later in life (Payne et al., 1994). Examples illustrating this construct include parents and children reading storybooks together, children being exposed to books, the number of books accessible to a child, and the living conditions shaped by the family's socioeconomic status. These practices positively impact child development overall and, more specifically, foster oral and written language skills (Mendelsohn et al., 2020; Incognito & Pinto, 2021; Sénechal et al., 1998; Ong'ayi et al., 2019).

In the Brazilian context, home literacy lacks a clear and consistent definition. For this article, home literacy will be defined as the reading practices and experiences with written language that a child is exposed to within their home environment, extending beyond literacy to encompass broader literacy practices (Mota, 2014). Although home literacy is rarely discussed in the Brazilian context, understanding the nature of these activities is crucial, as they can significantly influence a child's literacy development (Mota, 2014).

Direct exposure to children's books and parental teaching is strongly associated with children's literacy skills, including a more extensive vocabulary and improved language comprehension (Sénéchal & LeFevre, 2002). Opportunities for exploration and learning, such as access to books and educational toys, are essential for child development (Ong'ayi et al., 2019). Oliveira et al. (2016) investigated various parenting practices. They found that the availability of material resources—such as the number of books at home and tools for drawing and writing—was the most significant factor influencing word reading. In other words, children need regular exposure to writing to develop reading skills, making such resources a necessary part of their daily routines.

Having resources available is insufficient; children must actively engage with these resources to foster literacy. However, the availability of books and other educational materials at home increases the likelihood of such interactions. Parental involvement, whether maternal, paternal, or even another family member's engagement in activities like storytelling and book reading, is associated with preschoolers' enhanced ability to identify letters, recognize symbols, and read words (Ong'ayi et al., 2019). The home literacy environment may also encompass children observing their parents reading (books, newspapers, or even bills), writing (shopping lists, letters, plans), visiting libraries, and having opportunities to read and write independently of their parents (Kassow, 2006). Additionally, other studies emphasize the importance of

parents' beliefs in the value of reading and writing at home as a significant aspect of home literacy (Altun et al., 2021; Buvaneswari & Padakkannaya, 2017; Myrti & Jiang, 2019).

Mata and Pacheco (2009) categorize home literacy practices into three types. The first involves daily family activities, such as reading and writing recipes or reading packaging labels. The second pertains to entertainment, including games and playing during leisure time, such as storytelling and rhyming games with children. The third category comprises training practices focused on teaching, such as helping children learn to read and write their names or the names of family members. These family practices significantly predict children's educational development (Haney & Hill, 2004; Faver & Lonigan, 2006).

Cardoso and Mota (2015) examined daily family practices, such as the number of children's books at home and the frequency of library visits, alongside literacy skills, including the children's phonological awareness, knowledge of letter names, and receptive vocabulary. Their findings revealed that children attending private schools outperformed their peers on all measures assessed. Interestingly, they also observed that economic status, as associated with social class, did not determine home literacy practices. For instance, children from families earning between one and four times the minimum wage who were enrolled in private schools performed similarly to their peers from the same schools but with different socioeconomic backgrounds. These results suggest that factors such as schooling and/or parental investment in children's education may mitigate potential economic disadvantages. Consequently, the study concluded that home literacy practices were not directly linked to children's literacy outcomes. Cardoso and Mota proposed that this result might be attributed to the low socioeconomic status of the families in the sample, which could limit the extent of home-based activities supporting children's learning.

Piccolo et al. (2012) conducted a longitudinal study to examine the impact of various factors on the reading performance of Brazilian children, exploring correlations between preschoolers' reading abilities and psychosocial and socioeconomic variables. Their findings indicated that reading competence is influenced by psychosocial factors such as maternal age and education, average family income, household size, the number of hours a mother spends with her child each day, and maternal psychopathology. Specifically, they found that a smaller household size and greater maternal involvement were associated with improved reading ability in children. Overall, the study revealed that higher socioeconomic status corresponds to better performance in reading tasks.

There is a consensus in international and Brazilian literature regarding the importance of understanding aspects of the family environment that contribute to child development. Recognizing the experiences children bring from their homes to school is crucial in supporting the development of foundational literacy skills (Farver et al., 2013). Therefore, investigating factors related to home literacy is essential, and expanding research on home literacy and child learning in the Brazilian context is vital to identifying the key components of this construct.

Understanding home literacy practices is a public health concern, given their critical role in supporting children's language development (Borges & Azoni, 2021). Despite increasing interest in home literacy in Brazil, there is a lack of instruments to investigate this topic. Mota (2014) emphasizes the need for empirical evidence to address the low reading performance and high rates of school failure in Brazil. Among other priorities, the construction and/or adaptation of instruments tailored to the Brazilian context is essential.

One instrument currently available to assess home literacy practices in the Brazilian context is the Home Literacy Questionnaire (Cardoso & Mota, 2015; Palinha & Mota, 2019), developed by Mota in 1998 based on studies conducted with children in California, USA. However, this questionnaire is designed for brief assessments and addresses only a limited range of family environment facets, comprising just 24 items. Moreover, the items were developed and evaluated in the 1990s, potentially reflecting a family context that differs significantly from that of contemporary families.

Given the limited availability of studies in Portuguese and the abundance of materials in English, cross-cultural adaptation of existing instruments offers a potential solution to address gaps in understanding certain constructs (Borsa & Bandeira, 2014). Adapting an instrument from one language to another is a complex process that requires an in-depth understanding of the similarities and differences between populations, as well as rigorous testing across various segments of the target population (Hambleton & Rogers, 1991). When conducted with scientific rigor, the adaptation process provides several advantages, such as enabling comparisons across different samples and increasing the potential for generalizing results (Borsa et al., 2012).

A search in international indexes for questionnaires assessing home literacy identified a promising instrument: the Home Literacy Environment Questionnaire, developed by Buvaneswari and Padakkannaya (2017) in English for use with families in India. This questionnaire was created through extensive research and encompasses five dimensions: the physical (literacy) environment, parental literacy habits, the child's literacy habits, parent-child interactions for language and literacy activities, and parental beliefs about literacy. These dimensions are closely associated with developing key aspects of emergent literacy, including letter knowledge, phonological awareness, and vocabulary. The questionnaire demonstrates acceptable levels of internal consistency (Cronbach's alpha) and content validity, making it a promising tool for assessing children's home literacy.

The primary objective of this study is to describe the cross-cultural adaptation of the Home Literacy Environment Questionnaire, developed by Buvaneswari and Padakkannaya (2017), for the Brazilian context, following the guidelines of Beaton et al. (2000), Borsa and Bandeira (2014), Borsa et al. (2012), and Gjersing et al. (2010). The internal consistency of the questionnaire's items will also be assessed. This process aims to produce an easy-to-understand instrument with strong internal consistency capable of evaluating the dimensions of home literacy within the Brazilian context.

Several predictors are associated with children's language acquisition. Research indicates that a family's socioeconomic status—encompassing educational, occupational, and income factors—directly impacts a child's cognitive development (Alves & Soares, 2009, Piccolo et al., 2012). For instance, parents with higher educational attainment are more engaged in home literacy activities, leading to better outcomes in literacy-related tasks (Incognito & Pinto, 2021; Mendelsohn et al., 2020; Myrti et al., 2019). Accordingly, this study's secondary objective is to examine how family factors related to socioeconomic status correlate with the measures of the literacy instrument and to determine whether these correlations align with those reported in the literature.

### Method

The following steps were undertaken in the cross-cultural adaptation process: 1) translation into Portuguese; 2) synthesis of the two translated versions; 3) evaluation of the synthesized version by an expert panel; 4) assessment of the final version by the target audience; 5) back-translation and approval by the original authors; and 6) a pilot study (Beaton et al., 2000; Borsa & Bandeira, 2014; Borsa et al., 2012; Gjersing et al., 2010). During the pilot study, participants completed the questionnaire and provided information about their family socioeconomic status to examine how these factors relate to the different dimensions addressed by the home literacy instrument.

### Participants

Two bilingual (Portuguese–English) judges translated the instrument into Portuguese in the first step. In the second step, the two researchers responsible for the project reconciled the translated versions. The third step involved three professionals with expertise in psychological assessment who evaluated the Home Literacy Environment Questionnaire. In the fourth step, two mothers of four-year-old children from São João del-Rei, MG, Brazil, qualitatively analyzed the items. In the fifth step, the instrument was back translated by a bilingual English–Portuguese judge. Finally, 32 mothers participated in the sixth step, the pilot study.

### Instruments

#### ***Home Literacy Environment Questionnaire (Buvaneswari & Padakannaya, 2017)***

The questionnaire was originally written in English to assess kindergarten children living in India who spoke Tamil and English and attended English-language schools. The 55-item instrument was developed based on various articles and comprises five dimensions of home literacy: physical environment (eight items); parental literacy habits (eight items); child's own literacy habits (six items); parent-child interaction for language and literacy activities (23 items); and parental beliefs about literacy (ten items). It is a self-report instrument in which parents rate the frequency and importance of items on a five-point scale, ranging from *never* to *very often* and from *definitely disagree* to *definitely agree*.

### Socioeconomic Form

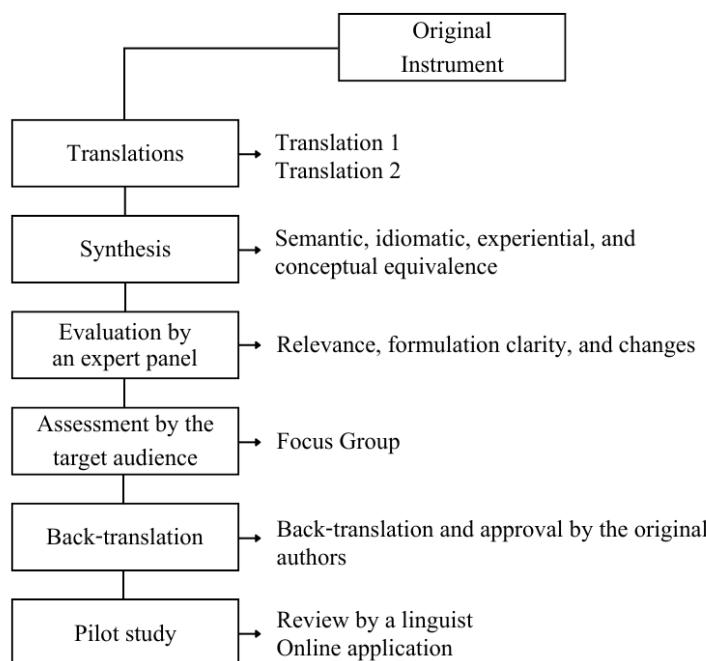
The authors developed a form based on the literature with a dual objective: to characterize the sample and to investigate whether sociodemographic characteristics of the home environment, such as parental education, income, children's age, and type of school attended, are associated with the facets of home literacy assessed in the adapted instrument.

### Procedures

The authors of the Home Literacy Environment Questionnaire (Buvaneswari & Padakkannaya, 2017) were contacted via email. They authorized translating and adapting the English version for the Brazilian context. In 2022, the steps Borsa et al. (2012) recommended were followed to ensure the instrument's content validity, psychometric properties, and overall validity, as illustrated in Figure 1.

**Figure 1**

*Cross-Cultural Adaptation Steps*



### Instrument's translation

The objective of the first step was to translate the instrument from English into the target language, Brazilian-Portuguese. The translators were instructed not to translate the items literally but to consider the language, culture, and context of the construct under study (Beaton et al., 2000). Two independent translations were produced to minimize the risk of linguistic, cultural, or interpretative biases. The translators were fluent in English and native speakers of Brazilian Portuguese. Following the recommendations of Beaton et al. (2000), one translator was familiar with the construct being studied, while the other was not. This difference in translator profiles is essential to avoid personal idiosyncrasies influencing the translation. Both translators were provided with the original version, a form for presenting the translation of items, and detailed instructions and considerations.

### Synthesis of the Translated Versions

The two translated versions were reconciled by comparing potential semantic, idiomatic, conceptual, linguistic, and contextual divergences (Borsa et al., 2012), and a single version was obtained. Specifically, the authors evaluated each item based on four key aspects: semantic equivalence (grammatical and vocabulary correspondence of the items to the new language), idiomatic equivalence (colloquial correspondence), experiential equivalence (whether the items remain coherent within the target culture), and conceptual equivalence (whether the concepts addressed in each item are appropriate) (Borsa et al., 2012).

### Expert Evaluation of the Reconciled Version

As Borsa and Bandeira (2014) suggested, three experts assessed the instrument's practical aspects, including linguistic elements, structure, layout, instructions, font, and organization. The experts, experienced in the fields of child development and psychological assessment, rated each item on a five-point Likert scale based on the following criteria: Relevance (R) ("Is the item relevant to assess the construct?"), Formulation (F) ("Is the item well formulated?"), Clarity (C) ("Is the item clear and easily understood?"), and Change (C) ("Should the item be changed? If so, what change is suggested?"). A blank space was also provided for additional suggestions. This step was conducted in person, with the experts discussing each item individually.

### Target Audience Assessment

Two participants were invited to participate in a focus group to evaluate whether the target audience found the questionnaire's items, instructions, and overall presentation easily comprehensible. The participants, mothers of two preschool children, were asked to complete the questionnaire and share their perceptions of the instrument. They were first provided with an explanation of the concept of home literacy before responding to the items. After completing the questionnaire, the items were read aloud to them, and they were asked to provide feedback on each item regarding its clarity in terms of language, conceptual understanding, and layout.

### **Back Translation**

The translated version was back translated to ensure it accurately reflected the original instrument. The back translation was performed by a translator whose native language is English (the original language of the instrument), fluent in Portuguese but unfamiliar with the construct. The translator was provided with the translated version and a form for indicating the translations of the items, along with specific instructions and considerations. The back-translated version was then sent to the instrument's authors to evaluate whether the translated items corresponded to the original construct. This step was essential for ensuring that the translated and adapted items retained the same conceptual meaning as the original instrument. Finally, a specialist in the Portuguese language reviewed the instrument to identify and correct any potential spelling or grammatical errors.

### **Pilot Study**

The pilot study involved mothers who completed the questionnaire online using the Google Forms platform. An introductory and informative text was shared on social media to publicize the survey. Participants were asked to provide their consent and were given detailed instructions to facilitate the completion of the questionnaire. They were also encouraged to report any difficulties or suggestions they encountered while answering the items to ensure the clarity and accuracy of the instrument, avoiding confusing or ambiguous questions. The questionnaire included items addressing the participants' socioeconomic characteristics, such as the age and gender of the children and guardians, family income, the respondent's education level, and the number of children in the family. This phase aimed to test the translation and cross-cultural adaptation of the instrument in a small sample reflecting the target population's characteristics. Following the recommendations of Gjersing et al. (2010), 30 to 40 parents of preschool children were invited to participate.

### **Institutional Review Board**

This study was approved by the Institutional Review Board, by sector CEPSJ, CAAE n°52770221.2.0000.5151.

## **Results**

### **Instrument's Translation**

Most items did not present significant translation challenges, as both translators produced similar translations without notable discrepancies. However, the translators flagged two items. Item 23 from the fourth dimension, the interaction between parents and children, "translate the stories into our home language when my child does not understand English words," was highlighted with reservations because it refers to a bilingual context uncommon for Brazilian children. Similarly, Item 10 from the fifth dimension, parental beliefs, "I think that it is important

to develop my child's ability to hear the separate sounds in spoken words, such as 'f' in 'fish' ([p] in [padagu] in Tamil)," was noted as requiring greater complexity in translation, as it involves sounds from other languages that need to be appropriately adapted.

### **Reconciliation of the Translated versions**

The two translations were largely similar, with only a few items requiring adjustments. Examples were added to clarify "refined movements" in Item 3 of the first dimension, physical environment: "*Brinquedos ou jogos que exigem movimentos refinados, como recortar, desenhar ou abotoar*" [Toys or games that require refined movements, such as cutting, drawing, or buttoning]. Item 23 of the fourth dimension, parent-child interactions, "I translate the stories into our home language when my child does not understand English words," was recommended for removal as it does not reflect the Brazilian context. Finally, an example was added to Item 10 of the last dimension to improve parents' understanding: "*Acho que é importante desenvolver a capacidade do meu filho(a) de perceber os sons das letras das palavras, como 'ffff' em 'faca' ou 'zzzz' em 'zebra.'*" [I think that it is important to develop my child's ability to hear the separate sounds in spoken words such as "f" in "faca" [knife in Portuguese] or "z" em "zebra].

### **Expert Panel Assessment**

The experts suggested changes to some items. Item 6 of the first dimension, physical environment, "*Livros do alfabeto/ blocos/ letras magnéticas/ cartões de memória/ livros de atividades*" [Alphabet books/blocks/magnetic letters/flashcards/workbooks] was considered unclear and poorly formulated. Hence, the experts suggested replacing "letras magnéticas" [magnetic letters] with "letras com imãs" [letters with magnets], and removing "cartões de memória" [flashcards]. The relevance of the first item of the second dimension, parental literacy habits, "*Nossa família compra e lê o jornal diário*" [Our family buys and reads the daily newspaper] was rated 3 on the five-point Likert scale because, in the current cultural context, most Brazilians read the news online. Thus, the experts suggested removing the word "buy" so that there would not be two pieces of information in the same item, and reading the news would also include other forms of news rather than just printed newspapers. Item 7 of the same dimension, "*Eu pessoalmente gosto de ler e tenho o hábito da leitura*" [I personally like to read, and I have the habit of reading] was also considered to have two pieces of information. Hence, the expert panel suggested replacing the item with "*Eu pessoalmente tenho o hábito de ler*" [I personally have the habit of reading] so that the item would only contain information regarding the habit of reading. The relevance of item 4, from the third dimension, children's habits, "*Meu filho(a) finge ler livros ou conta histórias para si mesmo*" [My child pretends to read books or tells stories to him/herself] was rated 3 on the five-point Likert scale. Thus, the item's final part was suggested: "*conta histórias em voz alta*" [tells stories out loud]. The first item of the fourth dimension, parent-child interactions, "*Eu ensino simples palavras de boas maneiras (por favor, desculpe, obrigado etc.)*" [I teach words simple of good manners (please, sorry, thank you, etc.)]" was considered unclear and poorly formulated. Therefore, the

experts suggested inverting the order of the sentence to “*Eu ensino palavras simples relacionadas às boas maneiras (por favor, desculpe, obrigado etc.)*” [I teach simple words related to good manners (please, sorry, thank you, etc.)]. The wording and clarity of fourth item in the same dimension, “*Eu nomeio ilustrações em livros e converso sobre as ilustrações*” [I name illustrations in books and talk about the illustrations] was rated 3 on the five-point Likert scale. The experts considered it vague, as it did not refer to whom the conversation was directed. Hence, they suggested that the target audience assess it to verify comprehension. The clarity of item 15, “*Quando lemos, peço ao meu filho(a) que indique diferentes letras/números impressos no livro*” [When we read, I ask my child to point out different letters/numbers printed in the book], was rated 4 on the five-point Likert scale. Hence, the word “point out” was suggested to be replaced with “name.” The word “*novas*” [new] in item 20, “*Meu filho(a) e eu fazemos novas rimas brincando com palavras/sons*” [My child and I make new rhymes by playing with words/sounds] was suggested to be removed for better comprehension and allow for a broader scope of rhymes. Item 23 in the original version “*I translate the stories into our home language when my child does not understand English words*” was removed from the translated version because it concerns bilingual children (English and Tamil), which does not portray the context of most Brazilians, who usually speak only one language.

The questionnaire items worded as “*Meu filho(a) me vê escrevendo/digitando*” [My child sees me writing/typing] were rewritten as “*Meu/minha filho(a)*” to accommodate the gendered pronouns used in Portuguese (30 items). Items four and five of the second dimension, “*Meu filho(a) me vê jogando jogos de palavras, palavras cruzadas etc.*” [My child sees me playing word games, crossword puzzles, etc.] and “*Gosto de conversar sobre livros relacionados a vários assuntos com amigos e familiares*” [I like to talk about books related to various subjects with friends and family] were considered uncommon in Brazil and closely related to the families' socioeconomic level. The experts believed that it might not be very relevant but suggested leaving the item and checking whether it would be correlated with the families' socioeconomic level.

### **Focus Group**

The fourth stage involved an assessment by the target audience. The participants suggested adding a description of home literacy at the beginning of the questionnaire, as this is not commonly understood by the Brazilian population. Consequently, an explanation was incorporated into the final version. A modification was also proposed for the first item of the second dimension, “*Nossa família lê jornal diariamente*” [Our family reads the newspaper daily]. Participants reported that they did not read newspapers but consumed news online, suggesting a change to include news in general. Additionally, a clearer opposition of ideas was recommended for the third item of the same dimension. The item was revised to: “*Meu/Minha filho/a me vê lendo coisas não relacionadas ao trabalho, mas por prazer (como hobby, por exemplo)*” [My son/daughter sees me reading things that are not work-related but for pleasure (as a hobby, for example)]. For the sixth item, “*Eu vou a livrarias/biblioteca junto com meu filho(a)*” [I go to bookstores/libraries

with my son/daughter], mothers noted that they do not necessarily take their children to bookstores or libraries, but rather to stores that sell similar materials, reflecting the context of their city. Lastly, the term “*dia a dia*” [day to day] was suggested for inclusion in the sixth item of the last dimension, “*Os pais devem selecionar livros com base em ilustrações coloridas, conteúdo interessante e linguagem corriqueira*” [Parents should select books based on colorful illustrations, interesting content, and everyday language], to enhance understanding.

### **Back Translation and Authors' Assessment**

The back-translation process was relatively straightforward, with the translator making few suggestions. One recommendation was to add the word “*têm*” [have] to the instructions for the first dimension to enhance clarity: “*As perguntas a seguir estão relacionadas aos materiais usados para ler e escrever em sua casa. Selecione um número, de 1 a 5, para indicar a frequência com que você usa (ou têm) estes itens em sua casa com seu/sua filho(a)*” [The following items are related to the materials used for reading and writing in your home. Select a number, from 1 to 5, to indicate how often you use (or have) these items in your home with your child]. The original authors agreed with this addition, approved the process, and confirmed that all items retained their original meanings.

### **Pilot Study**

#### **Sample Characterization**

The pilot study included 32 mothers with an average age of 37.41 (ranging from 23 to 46). Most mothers had completed higher education (62.5%) and reported a monthly family income of two to five times the minimum wage (56.3%). The children had an average age of 5 and 3 months, with a minimum of 3.48 and a maximum of 6.45. Among the children, 53.1% were boys, and 46.8% were girls. Regarding their schools, 53.1% attended public schools, while 46.8% attended private schools. Most families had two children (53%) or one child (37%) living in the same household.

### **Home Literacy Questionnaire**

The participants were asked to flag any confusing items or suggest changes to make the questionnaire more suitable for the Brazilian context. None of the participants reported difficulties or provided suggestions for improvement, indicating that the instrument was easy for families to understand.

Cronbach's alpha (Cronbach, 1951) was used to analyze the internal consistency of the adapted items. This statistical tool quantifies, on a scale from 0 to 1, the extent to which all items in a test measure the same construct and is thus related to the interrelationship of the items within the test. In this study, the Home Literacy measure was treated as a construct with five dimensions. The original instrument reported internal consistency values only for the dimensions, as the authors of the original instrument recommended that when an instrument includes

subscales, the internal consistency measure should be applied separately to each subscale (Buvaneswari & Padakannaya, 2017). Following this guidance, we performed the consistency analyses for each dimension separately. The alpha value for the physical environment dimension (8 items, Figure 2) was .813; for the parental literacy habits dimension (8 items, Figure 3), it was .890; and for children's habits (6 items, Figure 4), it was .785. For the interaction of children with language and literacy activities dimension (22 items, Figure 5), the alpha was .951, and for parental beliefs (10 items, Figure 6), it was .883. All dimensions demonstrated internal consistency values above .7.

### Figure 2

#### *Physical Environment Dimension*

As perguntas a seguir estão relacionadas aos materiais usados para ler e escrever em sua casa. Selecione um número, de 1 a 5, para indicar a frequência com que você usa (ou têm) estes itens com seu/ sua filho/(a): 1 - Nunca; 2- Raramente; 3- Às vezes; 4- Frequentemente; 5- Muito frequentemente

- 1 Brinquedos que ensinam cores, formas, tamanhos etc.
- 2 Três ou mais quebra-cabeças
- 3 Brinquedos ou jogos que exigem movimentos refinados, como recortar, desenhar ou abotoar
- 4 Livros de crianças (no mínimo 10)
- 5 Brinquedos que ajudam a ensinar os nomes de animais, veículos, frutas etc
- 6 Livros do alfabeto/ blocos/ letras com ímãs/ livros de atividades para pintar, colorir, riscar, contornar
- 7 Existe um local próprio para livros e brinquedos em casa
- 8 Os brinquedos e livros são acessíveis à criança

### Figure 3

#### *Parental Literacy Habits Dimension*

As perguntas a seguir estão relacionadas às suas atividades de leitura/ escrita. Selecione um número, de 1 a 5, para indicar a frequência que você faz as seguintes atividades: 1- Nunca; 2- Raramente; 3- Às vezes; 4- Frequentemente; 5- Muito frequentemente.

- 1 Nossa família lê jornal/notícias, diariamente
- 2 Meu/Minha filho/(a) me vê escrevendo/digitando
- 3 Meu/Minha filho/(a) me vê lendo coisas não relacionadas ao trabalho, mas por prazer, como um hobby
- 4 Meu/Minha filho/(a) me vê jogando jogos de palavras, como, por exemplo: palavras cruzadas, caça-palavras etc.
- 5 Gosto de conversar sobre livros relacionados a vários assuntos com amigos e familiares
- 6 Eu vou a livrarias/ bibliotecas/ lojas que vendam livros junto com meu/minha filho/(a)
- 7 Eu, pessoalmente, tenho o hábito de ler
- 8 Meu/Minha filho/(a) me vê lendo livros/ revistas/ jornais

**Figure 4***Child's Literacy Habits Dimension*

As perguntas a seguir estão relacionadas ao interesse de seu/sua filho/(a) em atividades de leitura e escrita.

Selecione um número, de 1 a 5, para indicar a frequência que seu/sua filho/(a) faz as seguintes atividades: 1- Nunca; 2- Raramente; 3- Às vezes; 4- Frequentemente; 5- Muito frequentemente

- 1 Meu/Minha filho/(a) pede ajuda para aprender as letras do alfabeto
- 2 Meu/Minha filho/(a) pede ajuda para escrever
- 3 Meu/Minha filho/(a) pede para ler livros para ele/(a)
- 4 Meu/Minha filho/(a) finge ler livros ou conta histórias em voz alta
- 5 Meu/Minha filho/(a) mostra interesse em ler placas/letreiros quando saímos
- 6 Meu/Minha filho/(a) mostra interesse em identificar um produto, olhando para um anúncio ou para a embalagem do produto

**Figure 5***Parent-Child Interactions Dimension*

As perguntas a seguir estão relacionadas às suas interações com seu/sua filho/(a). Selecione um número de 1 a 5 para indicar a frequência que você e seu/sua filho/(a) fazem as seguintes atividades: 1- Nunca; 2- Raramente; 3- Às vezes; 4- Frequentemente; 5- Muito frequentemente

- 1 Eu ensino palavras simples relacionadas às boas maneiras (por favor, desculpe, obrigado etc)
- 2 Eu encorajo meu/minha filho/(a) a falar e tenho tempo para ouvi-lo/la
- 3 Eu ensino rimas e canções infantis para meu/minha filho/(a)
- 4 Eu nomeio as imagens nos livros e converso sobre as ilustrações com meu/minha filho/(a)
- 5 Eu leio histórias para meu/minha filho/(a)
- 6 Eu aponto o dedo para as palavras em revistas/jornais/ livros
- 7 Eu ajudo meu/minha filho/(a) a resolver quebra-cabeças
- 8 Eu incentivo meu/minha filho/(a) a encenar uma história
- 9 Eu incentivo meu/minha filho/(a) a ler os rótulos de produtos, placas de rua e letreiros
- 10 Quando leio, tento parecer animado/a para que meu/minha filho/(a) continue interessado
- 11 Eu faço muitas perguntas ao/a meu/minha filho/a quando lemos
- 12 Tento tornar a história mais real para meu/minha filho/(a), relacionando-a com a vida dele/dela
- 13 Quando leio, falamos tanto sobre as ilustrações quanto sobre a história
- 14 Quando leio, incentivo meu/minha filho/(a) a recontar a história
- 15 Quando leio, peço para meu/minha filho/(a) mostrar diferentes letras/números impressos no livro
- 16 Eu brinco com jogos relacionados à leitura com meu/minha filho/(a)
- 17 Euuento histórias para meu/minha filho/(a)
- 18 Eu aponto o dedo do meu/minha filho/(a) para as palavras quando leio para ele/ela
- 19 Eu falo com meu/minha filho/(a) sobre o que aconteceu durante o dia
- 20 Meu/Minha filho/(a) e eu fazemos rimas brincando com palavras/sons
- 21 Eu mudo minha voz para representar os personagens quando leio para meu/minha filho/(a)
- 22 Eu converso com meu/minha filho/(a) sobre o que ele/a assiste na TV

**Figure 6***Parental Beliefs Dimension*

As declarações a seguir estão relacionadas às suas crenças sobre as atividades de leitura e escrita de seu/sua filho/(a), em sua casa.

Selecione um número, de 1 a 5, para indicar o quanto você concorda com essas afirmações:

1- Concordo definitivamente; 2- Discordo; 3- Não tenho certeza; 4- Concordo; 5- Concordo definitivamente

- 1 Os pais podem ensinar o alfabeto para seus/suas filhos/(as), além do que é ensinado na escola
- 2 Os pais podem ajudar seus/suas filhos/(as) a ler e escrever palavras, além do que é ensinado na escola
- 3 A maioria das crianças se sai bem na leitura de palavras na escola porque seus pais as ensinam a ler em casa
- 4 Os pais têm a responsabilidade de ensinar habilidades de leitura e escrita a seus/suas filhos/(as)
- 5 A maioria dos pais deve complementar as habilidades de alfabetização que seu/sua filho/(a) aprende na escola, ensinando essas habilidades em casa
- 6 Os pais devem selecionar livros baseando-se em ilustrações coloridas, conteúdo interessante e linguagem corriqueira (do dia a dia)
- 7 Os pais devem desenvolver a confiança e o interesse de seus filhos em colocar ideias no papel da forma que puderem (desenho, escrita etc.)
- 8 Os pais devem ajudar seus filhos a desenvolverem a capacidade de dividir uma palavra em partes ou sílabas para ler novas palavras
- 9 Acho que é importante que meu/minha filho/(a) desenvolva um amplo interesse pela leitura
- 10 Acho que é importante desenvolver a capacidade do meu/minha filho/(a) de perceber os sons das letras das palavras, como "ffff" em "faca" ou "zzzz" em "zebra"

**Home Literacy Questionnaire and Sociodemographic Form**

Table 1 presents the results of the dimensions of the questionnaire used to assess Home Literacy. While there are no expected scores for each dimension, higher scores indicate a greater family commitment to reading and writing activities within the family environment. The results are presented concisely to facilitate interpretation. The scores for each dimension are divided into two major groups: children attending public schools and children attending private schools. The literature suggests that differences in results between parents of children in public and private schools extend beyond other socioeconomic variables (Cardoso & Mota, 2015).

The mothers obtained mean scores above average in the physical environment dimension, similar among children attending public and private schools. Only one item in this dimension showed a difference: "Existe um local próprio para livros e brinquedos em casa" [There is a specific place for books and toys at home] obtained a higher mean score among students attending private schools, though it was not statistically significant (Private M = 4.06; Public M = 3.88).

The items "Meu/Minha filho/(a) me vê jogando jogos de palavras, como, por exemplo: palavras cruzadas, caça-palavras etc." [My child sees me playing word games, such as crosswords, word searches, etc.] (Private M = 2.06; Public M = 2.64) and "Eu vou a livrarias/bibliotecas/lojas que vendam livros junto com meu/minha filho/(a)" [I go to bookstores/libraries/stores that sell books with my child] (Private M = 2.46; Public M = 2.76) in the second dimension obtained low mean scores, suggesting these practices are not very common among Brazilians.

The items in the third dimension referring to public school students obtained a relatively higher mean score than those concerning students attending private schools. For example, the item “*Meu/Minha filho/(a) pede ajuda para escrever*” [My child asks for help to write] obtained a mean score of 4.47 among children in public schools and 3.53 among children in private schools, which was statistically significant ( $p = .008$ ).

A different mean score was observed for the item “*Eu leo histórias para meu/minha filho(a)*” [I read stories to my child] in the fourth dimension based on the type of school, with children in private schools scoring higher (Private  $M = 4.13$ ; Public  $M = 3.70$ ), though this difference was not statistically significant. In contrast, the item “*Quando leo, peço para meu/minha filho/(a) mostrar diferentes letras/números impressos no livro*” [When I read, I ask my child to show me different letters/numbers printed in the book] showed a higher mean score for public schools, though it was not statistically significant either (Private  $M = 2.86$ ; Public  $M = 3.05$ ).

All items in the fifth and last dimension concerning children attending private schools obtained higher mean scores. The item “*A maioria das crianças se sai bem na leitura de palavras na escola porque seus pais as ensinam a ler em casa*” [Most children do well in reading words at school because their parents teach them to read at home] (Private  $M = 4.46$ ; Public  $M = 3.76$ ) and “*Os pais têm a responsabilidade de ensinar habilidades de leitura e escrita a seus/suas filhos/(as)*” [Parents have the responsibility to teach reading and writing skills to their children] (Private  $M = 4.40$ ; Public  $M = 3.76$ ) showed statistically significant differences ( $p = .030$  and  $p = .048$ , respectively).

**Table 1**

Total Means ( $M$ ) and Standard Deviations ( $SD$ ) of the dimensions in the Home Literacy Questionnaire

No.	Dimension (Number of items)	Private School $M$ ( $SD$ )	Public School $M$ ( $SD$ )
1	Physical environment (8)	3.92 (0.46)	3.83 (0.80)
2	Parental literacy habits (8)	3.21 (0.71)	3.21 (1.05)
3	Children's literacy habits (6)	3.85 (0.65)	4.11 (0.72)
4	Parent-child literacy interaction (22)	3.72 (0.60)	3.64 (0.81)
5	Parental beliefs (10)	4.52 (0.49)	4.20 (0.43)

Spearman's correlation analyses were conducted between the items of the Home Literacy Questionnaire and the sociodemographic form. In alignment with the literature, sociodemographic variables were expected to correlate with at least some dimensions of the Home Literacy Questionnaire.

The total score for the physical environment dimension showed a positive correlation with maternal education ( $p = .39$ ,  $p = .025$ ) and monthly family income ( $p = .37$ ,  $p = .035$ ), indicating that higher levels of education and income were associated with higher scores in this dimension. Parental literacy habits correlated positively with maternal education ( $p = .36$ ,  $p = .041$ ). The total score for the children's literacy habits dimension did not correlate with any socioeconomic variables.

The fourth dimension, parent-child interactions in literacy-related activities, showed a positive correlation with monthly family income ( $\rho = .37$ ,  $p = .035$ ), suggesting that higher income levels were associated with higher scores in this dimension. Lastly, parental beliefs correlated with the type of school the children attended ( $\rho = .35$ ,  $p = .045$ ), with mothers of children in private schools obtaining higher scores in this dimension compared to those in public schools.

### Discussion

This study's primary objective was to perform the cross-cultural adaptation of the Home Literacy Environment Questionnaire (Buvaneswari & Padakannaya, 2017) to the Brazilian context, following the guidelines provided by Beaton et al. (2000), Borsa and Bandeira (2014), Borsa et al. (2012), and Gjersing et al. (2010). Alongside the adaptation process, a pilot study was conducted, and socioeconomic information was gathered from the target audience to characterize the study sample and explore how the facets of home literacy assessed by the questionnaire are associated with the families' economic and social factors.

In this study, a questionnaire addressing home literacy was cross-culturally adapted into Brazilian Portuguese. The resulting version features clear language and well-formulated items relevant to the context of the general population. Structural, semantic, idiomatic, experiential, and conceptual equivalence with the original instrument was maintained throughout the adaptation process. Additionally, the authors of the original instrument reviewed the adapted version to ensure that the primary meaning of all items was preserved.

The assessment of parental characteristics, family practices, and the availability of learning resources at home has become increasingly significant. This study carried out the cross-cultural adaptation of an instrument designed to evaluate various aspects of home literacy, as highlighted in the literature: physical environment, parental literacy habits, children's literacy habits, parent-child interactions in literacy activities, and parental beliefs about the role of the family environment in fostering reading and writing skills.

Studies have shown that the five factors assessed by this instrument represent key family practices in children's educational development (Faver & Lonigan, 2006). Opportunities for children to explore and learn, such as the availability of books and toys, are fundamental to their development. Resources like materials for drawing and writing, the number of books available, visits to libraries, and opportunities for children to read and write independently of their parents are crucial contributors to child development (Kassow, 2006).

The home literacy environment also encompasses children's observation of family reading and writing habits, even in informal contexts (Mata & Pacheco, 2009). Another essential parental practice is active involvement or engagement in children's literacy-related activities, mainly through parent-child interactions (Ong'ayi et al., 2019). Additionally, studies emphasize parental belief in the importance of fostering reading and writing at home as a vital component of home literacy (Altun et al., 2021).

The items' internal consistency was also assessed to determine whether they measure the same construct. Among the various measures of internal consistency, Cronbach's alpha is the most widely used and provides a comprehensive analysis of internal consistency patterns (Tavakol & Dennick, 2011). In the original instrument, Cronbach's alpha values were below .7 in three dimensions: physical environment, parental literacy habits, and parental beliefs about literacy.

In the pilot study conducted with the adapted instrument, all dimensions demonstrated internal consistency values above .7 (Cronbach, 1951), indicating good psychometric properties in the initial assessment. These indices were even higher than those of the original instrument. However, the alpha value for the dimension of children's interaction activities with language and literacy (22 items) was exceptionally high at .951.

While a high alpha value ( $> .90$ ) may indicate strong reliability, it is influenced by the test's length and dimensionality. High values can suggest item redundancies, implying that the test may need to be shortened (Tavakol & Dennick, 2011). This highlights the importance of balancing test length and dimensionality to ensure reliability without redundancy.

Studies indicate that households with higher socioeconomic status are associated with more factors related to home literacy (e.g., Pandith et al., 2022). The second objective of this study was to conduct a preliminary analysis to determine whether the adapted instrument correlates with sociodemographic data reported in the literature. The findings revealed a close relationship between maternal education and facets of home literacy as measured by the adapted questionnaire. Higher levels of maternal education were associated with higher scores on several items, such as "Children's books (at least 10)" and "Eu, pessoalmente, tenho o hábito de ler" [I personally have the habit of reading].

Monthly family income also positively correlated with the dimensions of the physical environment and parent-child interaction in literacy activities, aligning with studies that highlight the importance of this variable in home literacy and children's learning (Ong'ayi, 2019; Myrti & Jiang, 2019).

The literature specific to the Brazilian context indicates that parents of children attending private schools tend to achieve higher scores on home literacy measures (e.g., Cardoso & Mota, 2015). These findings partially align with the results of this study. Parents of children attending private schools scored higher on the fifth dimension, which addresses parental beliefs about the importance of reading and writing at home—a significant facet of home literacy (e.g., Altun et al., 2021).

Cross-cultural adaptation represents the first step in establishing this instrument for measuring home literacy in Brazil. In this study, we conducted a preliminary investigation of key socioeconomic variables hypothesized to correlate with the construct. Future research is necessary to evaluate the instrument's psychometric properties, particularly its validity and reliability within the Brazilian context.

This study has limitations, notably that it was conducted during the COVID-19 pandemic in Brazil, requiring adjustments to apply the pilot study online. The online method may have biased the results, as the sample obtained had a higher socioeconomic level than typically expected for the Brazilian context, likely influencing the findings. Future studies should consider collecting data in person to include participants with more diverse educational backgrounds and monthly family incomes, better representing the broader Brazilian population.

### **Final Considerations**

In this study, a home literacy questionnaire was translated and adapted for the Brazilian context, ensuring semantic and cultural equivalence with the original instrument. The adapted version is easily applicable to the target population, specifically parents of preschool-aged children. This represents the first step in establishing a measurement instrument tailored to the Brazilian context for use in public and private schools as well as clinical settings. The questionnaire facilitates comparisons of home literacy outcomes between Brazil and other countries, helping to identify cultural similarities and differences.

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