DEVELOPMENT OF KARUTA MEDIA TO IMPROVE EARLY READING SKILLS OF FIRST-GRADE STUDENTS

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Abstract

Reading ability is one of the fundamental skills that supports students' academic success, especially in the early years of primary education. However, many first-grade students still face challenges in acquiring sufficient reading proficiency. This study aims to develop an educational game-based learning media using Karuta to improve the early reading skills of first-grade primary school students. The research employed the Research and Development (R&D) approach with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. The media was validated by media and content experts and tested in a one-group pretest-posttest design involving 26 students. Validation results showed that the Karuta media was highly valid, with scores of 86.6% from media experts and 97.6% from content experts. The t-test analysis indicated a significant improvement in students' early reading skills after using the media (p = 0.000 < 0.05). Furthermore, students gave highly positive responses (99.4%) regarding the media's attractiveness, ease of use, and usefulness in supporting reading. These findings suggest that Karuta-based learning media is not only feasible but also effective and engaging in helping young learners develop foundational reading skills. It can serve as an innovative and interactive alternative for teachers in early grade classrooms to foster students' interest and achievement in reading.

Keywords: *Learning Media; Karuta Media; Early Reading; First-Grade Elementary School*

Abstrak

Kemampuan membaca merupakan salah satu keterampilan dasar yang mendukung kesuksesan akademik siswa, terutama pada tahun-tahun awal pendidikan dasar. Namun, banyak siswa kelas satu masih menghadapi tantangan dalam mengembangkan kemampuan membaca yang memadai. Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis permainan menggunakan Karuta guna meningkatkan keterampilan membaca awal siswa kelas satu sekolah dasar. Penelitian ini menggunakan pendekatan Penelitian dan Pengembangan (R&D) dengan model ADDIE (Analisis, Desain, Pengembangan, Implementasi, Evaluasi). Media tersebut divalidasi oleh ahli media dan konten, serta diuji dalam desain pretest-posttest satu kelompok yang melibatkan 26 siswa. Hasil validasi menunjukkan bahwa media Karuta sangat valid, dengan skor 86,6% dari ahli media dan 97,6% dari ahli konten. Analisis t-test menunjukkan peningkatan yang signifikan dalam keterampilan membaca awal siswa setelah menggunakan media (p = 0,000 < 0,05). Selain itu, siswa memberikan tanggapan yang sangat positif (99,4%) terkait daya tarik media, kemudahan penggunaan, dan kegunaannya dalam mendukung membaca. Temuan ini menunjukkan bahwa media pembelajaran berbasis Karuta tidak hanya layak tetapi juga efektif dan menarik dalam membantu siswa muda mengembangkan keterampilan membaca dasar. Media ini dapat menjadi alternatif inovatif dan interaktif bagi guru di kelas awal untuk meningkatkan minat dan prestasi siswa dalam membaca.

Kata Kunci*: Media pembelajaran; Media Karuta; membaca permulaan; Kelas satu Sekolah Dasar*

INTRODUCTION

Reading is a basic skill that influences all learning activities at school. Children who experience difficulties in reading, especially early reading, will encounter obstacles in other academic aspects (Rakimahwati et al., 2022). Failing to address children's reading difficulties early will significantly affect their academic achievement and self-confidence. Therefore, appropriate intervention is crucial to support long-term learning success, especially during the early stages of reading (Xu, 2025). Pulkkinen et al. (2022) found that children with reading fluency issues exhibit limitations in basic cognitive aspects such as rapid automatized naming (RAN) and phonological awareness. Even first graders exhibit low self-efficacy and self-concept in reading. This demonstrates that they face both technical reading challenges and develop negative views of their abilities (Pulkkinen et al., 2022).

Nicholas and Rouse (2021) highlight the strong connection between learning to read and the development of oral language skills and phonological awareness in children. When providing reading instruction, it is essential to view phonological development as a holistic process. This includes understanding sentences, words, syllables, rhymes, and phonemes. Unfortunately, many early childhood educators focus more on letter recognition (phonics) without first establishing the necessary foundation of sound awareness. Distinguishing and processing sounds within words is vital for early reading success (Nicholas & Rouse, 2021).

Research by Tang (2024) reinforces the importance of phonological aspects in reading acquisition. The study revealed a significant correlation between functional connectivity in the inferior frontal gyrus (IFG) of infants' brains and their phonological skills by preschool age ($r = 0.38$, $p < 0.05$). Additionally, these phonological skills served as the primary mediator in predicting early reading abilities by primary school age ($r = 0.43$, $p < 0.05$). Research indicates that 56% of children's reading ability variation is linked to their phonological development during early childhood. These findings confirm that phonological skills are a

critical foundation for reading; neglecting them can result in low early reading abilities (Tang et al., 2024).

Early reading is not only a technical skill involving letter and sound recognition, but it also plays a critical role in developing critical thinking, communication skills, and a child's sense of identity (O'Reilly,.et all,2024). At this stage, children begin to establish connections between written symbols and meaning, which form the foundation for reflective thinking and self-expression (Wang & Shao, 2025). Early reading skills help children understand their surroundings, stimulate curiosity, and enhance social skills through interactions with texts (Dermawan et al., 2025). In other words, failure to develop early reading skills can hinder various aspects of children's holistic development, both cognitively, affectively, and socially (Sun et al., 2024).

Research conducted by Fadhilah and Hikmat (2022) at SDN Srengseng Sawah 15 Pagi Jakarta Selatan showed that out of 32 first-grade students, 5 students (approximately 16%) had difficulty reading, particularly in distinguishing and pronouncing letters such as p, q, b, and d. These difficulties stem not only from internal factors within students but also from external influences, such as a lack of interest in reading and insufficient experience in early childhood education (PAUD) or kindergarten (TK) insufficient attention and motivation from parents, and a home environment that does not support learning activities. Additionally, children tend to be more interested in playing games and spending time outside the home rather than learning to read (Fadhilah & Hikmat, 2022). Interviews with teachers of Grade 1 at Al-Ghaffaar Islamic Elementary School revealed that many students still have difficulty recognizing letters, such as b and d, m and n, and v and w. The materials used, including puzzles and storybooks, have been ineffective in improving reading skills. Additionally, the Calistung classes have also not produced satisfactory results. Additionally, it was found that students generally enjoy working together, although some students are less active in interacting. This situation highlights the necessity for developing engaging learning materials that effectively address students' needs to enhance their reading

skills.

The incorporation of game-based learning tools in education is considered innovative and creative (Lyons et all., 2024). Game-based media has been shown to enhance learning interest, boost student engagement, and foster a positive learning environment (Salsabila Dhia Candra & Sismulyasih, 2024). However, there remains a limited availability of educational media that utilize interactive, contextual, and enjoyable methods to address challenges in early reading. The use of less innovative media makes learning less engaging and boring. The media used in primary schools largely fails to facilitate phonological skills and active student participation (Astuti & Nurhayati, 2022).

Karuta media is an innovative solution to address students' low reading skills. Karuta is a traditional Japanese card game that originated from a combination of an ancient Japanese poetry game called Kai-aware and Portuguese playing cards called carta, which were introduced in the 16th century. Karuta developed during the Edo period (1600–1868) and consists of two sets of cards: Yomifuda (reading cards) and Torifuda (capture cards). Players must listen to the content of the Yomifuda being read aloud, then race to find and grab the corresponding Torifuda as quickly as possible (Miyakawa et all., 2021). In this research design, the traditional Japanese card game Karuta has been adapted for Indonesian students. The modified version was specifically tailored to meet the needs of first-grade primary school students by incorporating high-frequency Indonesian words, contextual illustrations, and a game duration that aligns with the attention spans of children aged 6 to 7 years.

In the game of karuta, players listen to the opening lines of a poem read aloud (kamino-ku) and must quickly identify and pick up the card that corresponds to the poem's ending (shimono-ku). This process enhances listening skills, recognizes initial sounds, and efficiently connects sounds to their written forms (Yamada, et al., 2018). This activity aligns with the fundamental principles of early reading, such as phonological awareness, letter recognition, and sound-letter association (Kirby et al., 2025). Karuta offers an enjoyable and interactive learning

experience, enhancing student motivation through its game-like elements. The game's mechanisms instill values such as sportsmanship and responsibility, requiring self-assessment without a referee (Yamada, et al., 2016).

However, the use of karuta materials in early reading instruction has sparked considerable debate within the academic community. An excessive gamification approach is considered to create dependence on external stimuli and hinder the development of intrinsic motivation (Waluyo & Balazon, 2024). Some education experts controversially question the relevance of adopting Japanese-based media for Indonesian language learning, arguing that it may obscure local cultural identity and cause linguistic disorientation among students (Kerubo, 2024). Concerns exist that the competitive aspects of karuta may create anxiety and diminish self-efficacy among students who read at a slower pace (Fishstrom et al., 2024).

This study aims to address the identified problems and research gaps by developing karuta media as an innovative solution to enhance the early reading skills of first-grade elementary school students. Specifically, the objectives of this study are to: (1) create karuta media that is tailored to the characteristics and learning needs of first-grade students in early reading, (2) produce karuta media that meets validity criteria based on expert evaluations, and (3) develop visually appealing and interactive karuta media that can effectively improve the early reading skills of first-grade students at Al-Ghaffaar Islamic Elementary School.

RESEARCH METHOD

The research utilized a Research & Development (R&D) approach. The development model employed in the study was the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The researcher selected the ADDIE model due to its structured steps compared to other development models. The initial step involved analyzing the existing problems in the school. Through interviews with classroom teachers and observations of students, the researcher identified the problem as students' low reading skills, which were still

at the stage of recognizing letters. Subsequently, the researcher designed learning media to address the analyzed problem. After that, the researcher developed the designed product. At this stage, the researcher sought validation from media experts and subject matter specialists to ensure that the developed media was appropriate, practical, and effective in enhancing students' initial reading skills. Based on the feedback from the validators, the media underwent revisions to align with their suggestions for improvement. The improved media, deemed suitable for testing, could then be implemented with the students. The researcher will evaluate if the product effectively improves students' reading skills. The product will undergo further evaluation for improvements in future research.

The research was conducted at SD Islam Al-Ghaffar and involved 26 first-grade students. This study utilized a group-based learning model comprising two schemes: large classes and small classes. The sample selection was based on pre-field interviews with first-grade teachers at SD Islam Al-Ghaffar using purposive sampling, which is the selection of samples based on the researcher's objectives. The product trial design used a one-group pretest-posttest design, in which the experimental research design involved only one group for the study. The group was given a pretest before the product was implemented, then given the treatment, and finally given a posttest after the product was used.

The data collection techniques and instruments used were observation, interviews, documentation, scales, questionnaires, and tests. Observation provides researchers with a deep understanding of the actual problems in students' reading skills. Interviews are essential for understanding teachers' perspectives on students' initial reading skills, The challenges they face when it comes to reading, and the strategies and methods teachers use to tackle these issues. Documentation is needed to record or document the research process. Questionnaires are used to assess the practicality of the developed media. Tests measure students' reading skills before and after using the Karuta media.

The feasibility testing of karuta media requires data analysis after conducting limited trials and field trials. The analysis covers validity, appeal, and

reading skills.

1. Analysis of Karuta Media Validity

To determine the suitability of Karuta media, the following criteria can be used:

Table 1. Assessment criteria based on validators

No.	Validity criteria	Validity level
1.	80-100	Highly valid
2.	60-80	Valid
3.	40-60	Sufficiently valid
4.	20-40	Less valid
5.	0-20	Very less valid

Source: Modified by Akbar, 2017

The karuta media is deemed suitable for use if its validity rate exceeds 60%.

2. Analysis of the Attractiveness of Karuta Media

The data to be analyzed to determine the attractiveness of Karuta media was obtained from student response questionnaires. The data was analyzed using the following attractiveness criteria:

Table 2. Student response questionnaire criteria

No.	Attractiveness criteria	Attractiveness level
1.	80-100	Very attractive
2.	60-80	Interesting
3.	40-60	Fairly interesting
4.	20-40	Less interesting

5.	0-20	Very uninteresting

Karuta media is considered attractive if the attractiveness level is above 60%.

3. Reading Skill Analysis

The data to be tested in improving students' reading skills was obtained from pre-tests and post-tests. The test contained indicators of basic reading skills, namely the ability to recognize vowel and consonant symbols, distinguish words with the same initial letters, distinguish words with the same initial syllables, and arrange syllables into words. The test scores were analyzed using a t-test in SPSS 25 to evaluate improvements in students' reading skills. Decision-making used a significance level of 0.05 for the hypotheses, namely:

• Ho = There is no difference in students' reading skills before and after using karuta media for early reading.

• Ha = There is a difference in students' reading skills before and after the use of karuta media in early reading.

RESULTS AND DISCUSSION

The product to be developed in this study is karuta. The results of the karuta media development study are explained as follows:

1. Analysis

The analysis phase involved observing and interviewing classroom teachers to assess the early reading skills of first-grade students at Al-Ghaffar Islamic Elementary School. The observation results yielded the following information: a) There are still students who are not fluent in reading, b) many students have difficulty distinguishing between similar letters, such as b and d, p and q, e, and f, and so on, c) media is greatly needed to assist students in learning to read.

2. Design

The researcher created karuta media using the Canva application to enhance the reading skills of first-grade students. The karuta was designed to appeal strongly to

students, aiming to improve their reading abilities.
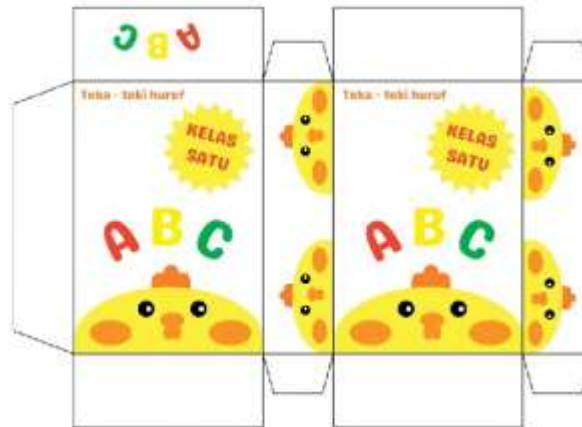
Figure 1. Karuta Packaging Design

Figure 1 shows the cover of the karuta media packaging. The packaging features images decorated with letters that form a letter puzzle. The packaging is made of 400-gram duplex cardboard. The cover is rectangular in shape to match the shape of the karuta cards.

Furthermore, there are two groups of cards: puzzle cards and answer cards. Puzzle cards are designed as questions and feature images to help students guess the answers, while answer cards contain the answers to the puzzle cards and are labeled with letters from A to Z. The cards are printed on 260 gsm art paper and measure 7×9 cm.

Figure 2. Puzzle Card

Figure 2 is a puzzle card with simple questions to stimulate students' curiosity. To improve students' understanding, simple contextual illustrations can help them make educated guesses about the answers. The images are intended to improve students' memory and support their thought processes and information connections.

Figure 3. Answer card

Figure 3 shows the front and back of the answer card. This card contains the

answers to the puzzle cards. The answers are written clearly and concisely and are presented in a format that matches the puzzle cards to facilitate matching.

3. Development

Validators then validated the completed media cards. There were two types of validators: media experts and subject matter experts. The criteria for validators were that they must have a minimum of a master's degree for both media and subject matter experts. For media experts, validators must have expertise in the media field, particularly in the design of media cards. Meanwhile, subject matter experts must have expertise in the field of Indonesian language. The validators fill out the validation instrument to determine whether the media is suitable for use with first-grade elementary school students. The validation results from the media and subject matter experts are as follows:

Table 3. Media expert validation assessment

No.	Assessment Aspect	Average Presentation	Validation Category
1.	Layout and visual design	84%	Highly valid
2.	Visual quality and appeal	100%	Highly valid
3.	Ease of use	80%	Highly valid
4.	Media structure and durability	80%	Highly valid
5.	User guidelines and instructions	100%	Highly valid
Total score		**86,6%**	**Highly valid**

The validation instrument provides a column for suggestions. Media experts suggest replacing the Karuta media packaging. The packaging is designed to be easily torn, especially if it is intended for first-grade elementary school students. The validators suggest using clear zipper bags for media packaging. On the outer zipper bag, a

rectangular sticker titled 'Media Karuta' is affixed. Inside the zipper bag, there is a small A5-sized instruction card made of thick art paper. The instruction card includes an explanation of the Media Karuta, usage instructions, as well as the advantages and disadvantages of the Media Karuta. The instruction card is then laminated. Two sets of cards (puzzle cards and answer cards) are also placed inside a small zipper bag. The two bags containing the cards are labeled with stickers titled "Puzzle Cards" and "Answer Cards." The large and small zipper bags containing the Karuta media have clasps that can be fastened to keep them neatly organized.

Table 4. Expert material validation assessment

No.	Assessment Aspect	Average Presentation	Validation Category
1.	Material suitability	100%	Highly valid
2.	Accuracy and scientific validity of material	86,7%	Highly valid
3.	Clarity of presentation	100%	Highly valid
4.	Language and readability	100%	Highly valid
5.	Attractiveness and usefulness	100%	Highly valid
Total skor		**97,6%**	**Highly valid**

Expert validators provided suggestions on the material on the flashcards to provide more examples, especially those related to the real world and children's daily lives. The writing on the flashcards was enlarged and given brighter colors to attract students to apply the flashcard media in early reading learning.

4. Implementation

       After revising the product and following the validators' suggestions, the karuta media can be tested on first-grade students at Al-Ghafffar Islamic Elementary School. The class is divided into large and small groups. The large group consists of 4-5 people, while the small group consists of 3 people. This division was done to assess how effective the Karuta media was in different learning situations. The large class was used to enhance collaboration and competition between groups, while the small class provided an opportunity to observe each individual's abilities more intensively. The implementation took place over two weeks, with a total of four meetings. Each meeting lasted 120 minutes, which was adjusted to the Indonesian language lesson schedule at SD Islam Al-Ghaffar. In each session, students were divided into groups based on a predetermined scheme, and then played Karuta media according to the applicable rules.

       Before the karuta media was implemented, students were given a pre-test. Researchers observed students' early reading skills by administering a test instrument containing letters of the alphabet, simple words, and so on. The test was based on indicators of initial reading skills, namely the ability to distinguish and recognize vowels and consonants, recognize words with the same initial letters, understand words with the same initial syllables, and be able to combine syllables into a complete word. The implementation of the karuta media began with the formation of groups of 3-5 people to play the game. Each group has one student who acts as the reader to read the riddles (Yomifuda) on the karuta cards. Meanwhile, the other group members sit facing each other and compete to pick up the answer cards (Torifuda) scattered on the floor by guessing based on the pictures on the cards. The student who collects the most cards with correct answers is declared the winner. However, if there is an error in guessing the card's content, the card is given to the opponent to read. If the opponent can read it correctly, the card becomes theirs. This process is repeated until all cards have been played.

Figure 4. Implementation of Karuta Media

In small groups, the learning atmosphere tends to be calmer, and less active students can be more involved because interactions take place in smaller groups. Conversely, large groups create stronger competitive dynamics and reinforce the spirit of cooperation. Furthermore, after the implementation of the Karuta media, the researcher administered a post-test to the students with the aim of determining whether the reading skills of first-grade students had improved or not. The test results will be analyzed using a t-test to determine whether there has been an improvement in the reading skills of first-grade students at Al-Ghaffar Islamic Elementary School or not..

Table 5. Results of the pre-test and post-test T-test analysis

	Std. Deviation	Std. Error Mean	df	Sig. (2-Mean tailed)
Pre-Test- Post-Test	6.09863	1.21973	24	.000

The results of the T-test on the Paired Samples Test indicate that the product trial to improve students' reading skills has a probability value (Sig.) of 0.000, which is smaller than the tolerable error rate of 0.05. Therefore, the trial to improve students' reading skills has a probability value (sig.) < 0.05, so Ha is accepted and Ho is rejected. This indicates that there is a very significant difference in the reading skills of first-grade students at Al-Ghaffar Islamic Elementary School before and after the use of the product

After determining the students' learning outcomes, a student response questionnaire was administered to assess how appealing the media was as a learning tool. The results of the student response questionnaire regarding the karuta media are as follows:

Table 6. Student response questionnaire

No.	Assessment Aspect	Average Presentation	Interest Category
1.	Interest in playing karuta	100%	Very interesting
2.	Legibility of writing	99,5%	Very interesting
3.	Use of karuta	98,7%	Very interesting
Total Score		**99,4%**	**Very interesting**

The student response questionnaire showed an average percentage of 99.4%, indicating that the karuta media was very interesting for students in Grade 1 at Al-Ghaffar Islamic Elementary School.

5. Evaluation

The results of the analysis of the validated Karuta media design were categorized as valid, meaning that the media is suitable for use by students in Grade 1 at Al-Ghaffar Islamic Elementary School. Student responses were also quite positive in accepting reading instruction using Karuta, which was categorized as highly engaging. This is evident from the student response survey that was distributed. Analysis of pre-test and post-test data indicates that the Karuta media can improve the initial reading skills of first-grade students.

However, the Karuta media still has several shortcomings, particularly in terms of physical design and implementation in less conducive classroom settings. For example, during the learning sessions, some students experienced difficulty maintaining attention due to external distractions in larger class sizes. Furthermore, while the game rules were clear, some students took longer to understand the gameplay mechanics, particularly those

with limited prior reading experience or learning challenges. These observations emphasize the importance of providing customized support and offering repeated demonstrations when utilizing media.

Further evaluation is needed to enhance the Karuta media, enabling it to become a more effective tool for supporting the sustainability of the teaching and learning processes. Improvements may include using more durable materials, such as laminated cards or magnetic boards, which are more resistant to wear and tear during repeated classroom use. Additionally, integrating audio-visual elements or digital formats may enhance accessibility for diverse learners, including those with special needs.

In addition to demonstrating short-term effectiveness, the Karuta media also holds promise for long-term benefits as a medium for early reading instruction in elementary schools. The use of this educational game-based medium fosters enjoyable and stress-free learning habits from an early age, encouraging students to become more active and enthusiastic in the reading process. In the long term, Karuta can enhance phonological skills, letter awareness, and students' confidence in reading, particularly for those who struggle in the early stage.

Moreover, the game-based interaction inherent in Karuta has the potential to enhance social and emotional learning. As students engage in group-based competition and collaboration, they also develop soft skills such as teamwork, turn-taking, communication, and empathy. These experiences enrich the learning process beyond cognitive outcomes and contribute to a more holistic approach to literacy instruction.

The flexibility of Karuta makes it a practical tool for various learning settings. It can be implemented during regular lessons, additional Calistung (reading, writing, and numeracy) sessions, or targeted remedial programs. Teachers may also adapt the cards to suit different reading levels, thematic content, or integrate local cultural elements to make the material more contextualized.

In conclusion, while Karuta media has proven effective in enhancing early reading skills and student motivation, its future development should emphasize scalability, durability, inclusivity, and adaptability. With ongoing revisions and creative expansion, Karuta has the potential to become a sustainable and innovative literacy solution aligned with the diverse needs of young learners.

CONCLUSION

The development of Karuta media is proven to be feasible and effective in enhancing the early reading skills of first-grade students. This conclusion is supported by the validation results obtained from expert reviewers, with the media expert providing a score of 86.6% and the subject matter expert assigning a score of 97.3%. Both are classified as "highly valid." These findings indicate that the Karuta media fulfills the requirements for instructional design, usability, clarity, and material appropriateness for young learners.

The implementation of Karuta media in the classroom demonstrated a substantial improvement in students' early reading abilities. Quantitative analysis showed an increase in reading proficiency from a previously low to a moderate level, with a gain score of 71.4%. Additionally, a paired sample t-test revealed a significant difference in student performance before and after using the media, with a p-value of 0.000 (less than 0.05). This statistical evidence confirms that the Karuta media significantly enhances early literacy outcomes.

In addition to cognitive gains, the affective domain also experienced positive outcomes. The student interest questionnaire received an overwhelmingly positive response, with an average score of 99.4%, indicating that the media was highly appealing and motivating. These results highlight that the Karuta media not only supports the development of fundamental reading skills but also engages students through an enjoyable and interactive learning experience.

Based on the outcomes of this study, it is recommended that future researchers explore the development of Karuta media on a broader scale, incorporating various themes, languages, or regional cultural elements to enhance its contextual relevance. Further studies can also focus on digital adaptations of the media and their long-term impact on students' literacy development. Incorporating Karuta media into inclusive education environments can offer effective solutions for addressing the diverse needs of students.

Overall, the Karuta-based learning media presents itself as an innovative,

flexible, and sustainable alternative for supporting early grade reading instruction. With continued refinement and adaptation, it has the potential to become a standard component of early literacy programs across primary schools.

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