

Development of Interactive Media Abacaga Adventure to Improve Capabilities Early Children's Beginning Reading

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Abstract

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This study aimed to identify learning needs, develop a prototype, and examine the validity, practicality, and effectiveness of the Abacaga Adventure interactive media for reading for beginners in early childhood. The ability of reading for beginners constitutes a critical dimension of children's language development; however, instructional practice in the field continues to rely predominantly on less interactive media that are inadequately aligned with the developmental characteristics of young learners. Such conditions contribute to difficulties among children in letter recognition, syllable reading, and simple word comprehension. Consequently, the development of instructional media that is engaging, enjoyable, and accessible is essential to support the process of reading for beginners. This study employed a research and development (R&D) approach using the 4-D model, comprising four phases: define, design, develop, and disseminate. Data were collected through observation, interviews, and questionnaires. The research subjects consisted of four teachers, and data were analyzed using both qualitative and quantitative techniques. The findings reveal that the Abacaga Adventure interactive media is highly needed by teachers as an alternative instructional medium for reading for beginners. The media prototype was developed in the form of an interactive calendar encompassing sequential stages of letter introduction, syllables, words, and simple sentences, accompanied by a user guide. The result of media validation obtained a score of 82.25%, categorized as highly valid. Practicality, as assessed through the teachers' response questionnaires obtained a score of 85.75%, classified as highly practical, while the effectiveness obtained 85.75%, categorized as highly effective. Based on the aforementioned findings, it is concluded that the Abacaga Adventure interactive media is feasible for use, as it has been demonstrated to be valid, practical, and effective in enhancing the ability of reading for beginners in early childhood.

Keywords: Interactive Media, Abacaga Adventure, Reading for Beginners., Early Childhood

Abstrak

Penelitian ini bertujuan untuk mengetahui gambaran kebutuhan, menghasilkan prototipe, serta menguji kevalidan, kepraktisan, dan keefektifan media interaktif Abacaga Adventure pada permulaan membaca anak usia dini. Kemampuan membaca permulaan merupakan aspek penting dalam perkembangan bahasa anak, namun pembelajaran di lapangan masih sering menggunakan media yang kurang interaktif dan kurang sesuai dengan karakteristik anak usia dini. Kondisi tersebut menyebabkan sebagian anak mengalami kesulitan dalam mengenal huruf, membaca suku kata, dan memahami kata sederhana. Oleh karena itu, pengembangan media pembelajaran yang menarik, menyenangkan, dan mudah digunakan menjadi penting untuk mendukung proses pembelajaran membaca

permulaan. Metode yang digunakan dalam penelitian ini adalah penelitian dan pengembangan dengan model 4-D, yaitu define, design, develop, dan disseminate. Teknik pengumpulan data dilakukan melalui observasi, wawancara, dan kuesioner. Subjek penelitian terdiri atas empat guru, sedangkan teknik analisis data menggunakan analisis kualitatif dan kuantitatif. Hasil penelitian ini menunjukkan bahwa media interaktif Abacaga Adventure sangat dibutuhkan oleh guru sebagai alternatif media pembelajaran membaca permulaan. Prototipe media dikembangkan dalam bentuk kalender interaktif yang memuat tahapan pengenalan huruf, suku kata, kata, hingga kalimat sederhana, serta dilengkapi panduan penggunaan. Hasil validasi media memperoleh persentase 82,25% dengan kriteria sangat valid. Kepraktisan media berdasarkan angket respon guru memperoleh persentase 85,75% dengan kriteria sangat praktis, sedangkan keefektifan media memperoleh persentase 85,75% dengan kriteria sangat efektif. Berdasarkan hasil penelitian, dapat disimpulkan bahwa media interaktif Abacaga Adventure layak digunakan karena valid, praktis, dan efektif dalam meningkatkan kemampuan membaca permulaan anak usia dini.

Kata Kunci: Media Interaktif, Abacaga Adventure, Membaca Permulaan, Anak Usia Dini

INTRODUCTION

The development of literacy during the early years has become a global educational concern because it serves as a fundamental foundation for children's future academic achievement, communication abilities, and lifelong learning habits. During this critical developmental period, children experience rapid growth across multiple domains, including cognitive, socio-emotional, physical-motor, and language development. Educational experiences provided during these formative years therefore play a decisive role in shaping children's readiness for subsequent stages of education and their ability to engage successfully with increasingly complex learning tasks (Adawiyah & Fithriyani, 2022; Yafie et al., 2024). Consequently, early childhood education should provide comprehensive, engaging, and developmentally appropriate learning experiences that enable children to understand their environment while fostering independent learning in a joyful, supportive, and conducive atmosphere.

Among the various developmental domains, language development occupies a central position because it supports children's capacity to communicate, express ideas, and interact meaningfully with their surroundings. One of the most important manifestations of language development is the emergence of early reading skills. The introduction of developmentally appropriate reading experiences not only supports literacy acquisition but also contributes to broader cognitive growth by encouraging children to recognize symbols, understand meanings, and establish connections between spoken and written language. Therefore, early reading instruction should be introduced gradually through engaging learning experiences that provide stimulation aligned with children's developmental characteristics and learning needs.

The significance of literacy development extends beyond formal educational settings. Literacy experiences acquired through interactions with family members and the surrounding environment substantially influence children's language acquisition and

communication competence. Brashear (1988) argued that literacy development is shaped by everyday practices such as exposure to road signs, food labels, explanations of environmental print, discussions surrounding storybooks, and opportunities for drawing and illustration (Herlina & Emmi, 2019). These experiences contribute not only to children's understanding of written language but also to the development of social values and character formation. In this regard, the lack of systematic approaches for integrating literacy and character education from an early age has become an important concern, emphasizing the necessity of holistic educational strategies involving family, school, and community contexts (Sinring, 2015).

The acquisition of reading skills occurs through a sequence of developmental stages. According to Chall's theory of reading development, children initially pass through a pre-reading stage characterized by curiosity, interest, and emerging awareness of written language before progressing to the decoding stage, where they begin to connect symbols with sounds and meanings (Muhamad Irgi Abdillah Az-zarkasyi et al., 2024). These developmental processes are particularly significant because they influence children's readiness to understand print concepts, including letter orientation, word spacing, and book-handling conventions. As highlighted by Slavin (2011), children's knowledge and skills related to emergent literacy determine their readiness to engage with written language and formal reading instruction (Herlina & Emmi, 2019).

Beyond preparing children for formal schooling, early reading development contributes substantially to broader cognitive growth. Gestalt theory suggests that learning occurs most effectively when children engage in meaningful and integrated experiences rather than fragmented instructional activities (Shofia Rohmah et al., 2023). Consequently, literacy instruction for young children should be embedded within child-centered learning environments that encourage exploration, interaction, and active participation. Such environments enable children to construct knowledge naturally while maintaining motivation and enjoyment throughout the learning process.

Despite increasing awareness of the importance of literacy development, many educational settings continue to employ conventional instructional approaches that provide limited opportunities for interaction and exploration. The continued use of less engaging methods may hinder children's ability to develop foundational reading skills effectively. Although structured reading and writing activities can strengthen letter and word recognition while contributing positively to language and cognitive development (Herlina, 2020), inappropriate implementation may produce adverse effects when instructional demands exceed children's developmental readiness. Therefore, effective early literacy instruction requires contextual, interactive, and experience-based approaches that integrate sounds, texts, images, and family literacy practices to support holistic language and literacy development.

Children's interest and curiosity play a particularly important role in this process. Reading activities presented in attractive and enjoyable ways are more likely to foster positive attitudes toward literacy and encourage sustained engagement with books and written language. Developing a love of reading from an early age is therefore essential

and should be continuously nurtured as part of children's daily experiences. Teachers and parents must create supportive learning environments where reading is associated with enjoyment rather than pressure. When literacy experiences are embedded within playful and meaningful activities, children are more likely to develop both competence and confidence in their emerging reading abilities.

This perspective aligns closely with contemporary approaches to early childhood education that emphasize play-based learning as a fundamental mechanism for development. Through play, children explore ideas, experiment with language, and interact with learning materials in ways that support literacy growth. As a result, educational interventions designed for young children should incorporate playful and engaging elements while maintaining clear instructional objectives related to language and literacy development. In accordance with the characteristics of early childhood learning, foundational reading skills can be introduced within preschool educational frameworks through developmentally appropriate learning experiences (Made et al., 2024).

The development of literacy is not limited to reading readiness alone but also supports children's overall communication abilities. Literacy skills enable children to communicate through spoken language, written symbols, gestures, and various forms of expression. As children mature, their vocabulary expands, their pronunciation becomes increasingly accurate, and their ability to comprehend and produce language develops progressively. Consequently, strengthening early reading skills is expected to help children establish strong linguistic foundations, develop broader appreciation for diversity, and stimulate creativity and critical thinking.

Because early reading serves as the foundation for later literacy achievement, its development must be supported through systematic and appropriate instructional strategies. The effectiveness of literacy instruction is strongly influenced by the methods and learning resources used during educational activities. Innovative instructional approaches have been shown to contribute significantly to children's reading proficiency by strengthening foundational literacy competencies and facilitating progression toward more advanced reading skills (Simatupang et al., 2023). Therefore, selecting learning resources that correspond to children's developmental characteristics and learning needs is essential.

In this regard, educational media have become increasingly important as pedagogical tools that facilitate literacy development. Attractive visual learning media can accelerate learning by presenting letters, words, and language concepts through engaging visual representations. Educational media also support the integration of auditory and visual information, thereby enhancing children's literacy experiences (Nur Maulida et al., 2023). Their importance extends beyond aesthetic appeal, as appropriately designed educational media can significantly improve children's early reading skills and overall learning outcomes (Herlina et al., 2025). Furthermore, innovative and interactive media have been recognized as effective tools for increasing

engagement, promoting meaningful learning experiences, and supporting cognitive development among young learners (Herman et al., 2025).

Recent studies have consistently demonstrated the contribution of educational media to early literacy development. Umayra et al. (2024) reported that educational media play an important role in improving children's reading readiness and making literacy learning more enjoyable. Similarly, Huda et al. (2024) found that alphabet calendar media enhanced children's letter recognition skills while encouraging innovative learning practices. Bella (2024) also demonstrated that word-based learning media significantly improved children's literacy abilities. Furthermore, Nurjanah and Mawardah (2024) revealed that the use of the Abacaga book significantly improved children's pre-reading skills, particularly in terms of letter recognition and pronunciation accuracy, while minimizing confusion among learners. These findings collectively indicate that educational media can facilitate literacy development by providing engaging and meaningful learning experiences that support language acquisition and reading readiness.

Although previous studies have produced encouraging results, challenges related to early reading development remain evident in kindergarten settings. Preliminary observations conducted at Al Furqan Islamic Kindergarten in Makassar revealed that 15 out of 22 children in Group A experienced considerable difficulties in recognizing, naming, and writing basic letters, whereas only seven children demonstrated adequate literacy readiness, although some of them still lacked fluency. In addition, many children encountered difficulties expressing ideas clearly and accurately during classroom activities. These findings suggest that existing learning resources have not fully accommodated children's developmental needs and learning characteristics. At the same time, parents expect their children to acquire foundational literacy competencies, particularly letter recognition and reading readiness, before progressing to higher educational levels. These conditions indicate the need for more engaging and developmentally appropriate literacy interventions capable of supporting children's early reading development while maintaining the principles of play-based learning.

Given the developmental characteristics of young children, educational interventions should capitalize on play as a primary learning mechanism. During early childhood, learning and play are inseparable, and educational media can serve as powerful tools for enriching children's learning experiences through meaningful and enjoyable activities. Well-designed learning media can engage children in interactive tasks such as picture matching, letter arrangement, exploration activities, and problem-solving experiences that encourage active participation and meaningful learning (Purnamasari et al., 2021).

The development of the present study was inspired by the children's reading book *Abacaga: Cara Praktis Belajar Membaca untuk Anak Usia 4–6 Tahun* developed by Jazuli et al. (2019). The book employs a “Stepping Stone” approach that introduces reading skills through a systematic and sequential process. Reading materials are organized according to children's abilities to recognize and understand words visually

and phonetically. Recognizing the educational potential of this approach, the researchers sought to transform the original Abacaga concept into a more engaging and interactive literacy medium known as Abacaga Adventure. This innovation incorporates vowel recognition, picture-word associations, phonological awareness activities, and sequential reading tasks within an adventure-based learning environment specifically designed for young children.

Despite the growing body of research on literacy media, most previous studies have focused primarily on improving isolated literacy components such as letter recognition, word identification, or pronunciation accuracy. Existing interventions generally provide limited opportunities for interactive exploration, adventure-based engagement, and the integration of visual, phonological, and play-based learning experiences within a single instructional medium. Moreover, previous studies have predominantly evaluated existing literacy resources rather than developing innovative educational media specifically designed to address the literacy challenges experienced by children aged four to five years. Consequently, there remains a need for learning media that can simultaneously promote engagement, active participation, and systematic literacy development in accordance with children's developmental characteristics.

The novelty of this study lies in the development of Abacaga Adventure, an interactive educational medium that transforms the conventional Abacaga reading concept into a play-based literacy adventure. Unlike previous literacy media that primarily emphasize letter recognition and word reading, Abacaga Adventure integrates interactive exploration, visual learning experiences, phonological awareness activities, picture-letter matching tasks, and sequential literacy instruction within a single learning platform. By combining literacy learning with adventure-based activities and developmental play principles, this medium is expected to increase children's motivation, engagement, and participation while simultaneously strengthening their early reading skills.

Therefore, this study aims to develop and evaluate the validity, practicality, and effectiveness of Abacaga Adventure as an interactive learning medium for improving the early reading skills of children in Group A at Al Furqan Islamic Kindergarten, Makassar. Through the development of this innovative educational medium, the study seeks to provide an effective literacy intervention that supports language development, enhances learning engagement, and strengthens children's readiness for subsequent literacy learning experiences..

METHODS

Research Design

This study employed a Research and Development (R&D) approach to develop and evaluate an interactive learning medium entitled *Abacaga Adventure*. Research and Development is a systematic method used to create new educational products or improve existing ones while simultaneously evaluating their effectiveness in educational settings (Muqdamien et al., 2021). According to Sugiyono (2019), R&D

encompasses a sequence of activities involving research, design, development, validation, and implementation to ensure that a product meets user needs and functions effectively in practice (Arif Rachman et al., 2024). In this study, the development process followed the 4-D model proposed by Thiagarajan, which consists of the stages of Define, Design, Develop, and Disseminate (Sihombing, 2024). The model was selected because of its systematic structure and suitability for educational media development. The final product developed was *Abacaga Adventure*, an interactive literacy medium adapted from the *Abacaga* reading book and redesigned into a more attractive, practical, and child-friendly interactive calendar format for early childhood learners.

Research Setting and Participants

The study was conducted at Al Furqan Islamic Kindergarten in Makassar, Indonesia, during the 2025–2026 academic year. Participants consisted of children enrolled in Group A and teachers involved in literacy instruction. The participants were selected using purposive sampling, a technique in which subjects are chosen according to predetermined criteria relevant to the objectives of the study (Adhimah, 2020). The children participated in the implementation and evaluation of the developed media, while teachers provided information regarding literacy learning practices, participated in interviews, and assessed the practicality of the developed product. The selection of participants was based on the need to evaluate the effectiveness of the media in supporting letter recognition and early reading development among children aged four to five years.

Development Procedure

The development of *Abacaga Adventure* followed the four stages of the 4-D model, namely Define, Design, Develop, and Disseminate. During the define stage, a needs assessment was conducted through classroom observations and interviews with teachers to identify challenges associated with early reading instruction and letter recognition. The findings indicated that children required more stimulating and interactive learning resources capable of supporting literacy development through engaging activities. Concept analysis was subsequently conducted to identify the essential literacy competencies that would be integrated into the media and to ensure alignment between learning objectives and children's developmental characteristics.

The design stage focused on preparing the initial prototype of the learning medium. Based on the results of the needs analysis, assessment indicators, learning content, media format, and instructional strategies were determined. Particular attention was given to creating a learning medium that combined literacy instruction with visual appeal, interactivity, and play-based learning principles. The prototype was designed to facilitate children's engagement in letter recognition, phonological awareness, vocabulary development, and beginning reading activities.

The develop stage involved the production, validation, and revision of the prototype. The media was designed as a durable interactive perpetual calendar constructed from laminated materials and organized into progressive literacy stages, beginning with letter recognition and continuing through syllables, words, and simple sentences. The instructional sequence was adapted from the “Stepping Stone” approach introduced in the *Abacaga* reading book by Jazuli et al. (2019). Bright colors, attractive illustrations, and interactive components were incorporated to increase children's motivation and participation. Following product development, expert validation was conducted by media and content specialists. Suggestions and recommendations provided by the validators were used to revise and improve the media prior to classroom implementation.

The disseminate stage involved the implementation of the validated media in literacy learning activities at Al Furqan Islamic Kindergarten. Teachers were first introduced to the procedures for using the media before applying it in classroom instruction. The learning activities were conducted in small groups to maximize children's participation and interaction with the media. During implementation, observations were carried out to monitor children's engagement and literacy development. The final product was subsequently packaged with usage guidelines and prepared for broader educational utilization. Formative evaluation was conducted throughout the development process, while summative evaluation was undertaken after implementation to assess the overall effectiveness of the developed media.

Data Collection

Data were collected through questionnaires, interviews, and classroom observations. Questionnaires were administered to media experts, content experts, and teachers. The expert validation questionnaires were used to evaluate the quality and appropriateness of the developed media, whereas teacher response questionnaires were employed to assess practicality, usability, and satisfaction. Semi-structured interviews were conducted with teachers to obtain information regarding existing literacy instruction practices, children's learning difficulties, available educational facilities, and perceptions regarding the use of interactive learning media. Classroom observations were undertaken to document learning conditions, children's participation, teacher–student interactions, and the implementation of the developed media. Observation data were recorded using structured observation sheets designed to capture indicators of early reading development and learning engagement.

Research Instruments

Three instruments were utilized in this study. The first was a media validation sheet completed by media and content experts to evaluate aspects such as content relevance, language appropriateness, visual presentation, and instructional design. The second instrument was a teacher response questionnaire used to assess teachers' perceptions of the practicality, usefulness, effectiveness, and future applicability of the

developed media. The third instrument consisted of practicality and effectiveness assessment sheets used to evaluate children's progress in letter recognition and early reading skills throughout the implementation process. These instruments enabled the researchers to gather comprehensive information regarding the quality, usability, and educational impact of *Abacaga Adventure*.

Data Analysis

Both qualitative and quantitative data analysis techniques were employed in this study. Qualitative data obtained from interviews, observations, and expert recommendations were analyzed descriptively to identify strengths, weaknesses, and areas requiring improvement in the developed media. The analysis focused on understanding participants' experiences, perceptions, and responses to the implementation of the media.

Quantitative data were analyzed to determine the validity, practicality, and effectiveness of *Abacaga Adventure*. Content validity was established through expert judgment, whereby specialists evaluated the extent to which the media and instruments represented the intended educational constructs (Wirani, 2018). Practicality was measured using teacher response questionnaires, while effectiveness was evaluated based on children's early reading performance during literacy activities. These analyses were conducted to ensure that the developed media met acceptable standards of validity, practicality, and effectiveness for improving early reading skills among young children.

RESULTS AND DISCUSSION

Results

Needs Analysis of Abacaga Adventure Development

A needs analysis was conducted to identify teachers' perceptions regarding the necessity of developing an interactive medium to support early reading skills among children aged 4–5 years at Al Furqan Islamic Kindergarten, Makassar. Four teachers participated as respondents. The findings revealed that existing literacy instruction was still largely conventional and did not fully accommodate children's developmental characteristics. Teachers emphasized the need for a more attractive, interactive, and reusable learning medium capable of supporting letter recognition and early reading development.

Table 1. Teachers' Needs Analysis for the Development of *Abacaga Adventure*

| Teacher | Actual Score | Percentage |
|----------------|---------------------|-------------------|
| G1 | 51 | 91% |
| G2 | 52 | 92% |
| G3 | 48 | 85% |
| G4 | 49 | 87% |
| Average | 50.00 | 89.28% |

The average score of 89.28% indicates a very high level of need for the development of *Abacaga Adventure*. Teachers strongly agreed that an interactive literacy medium was required to improve children's engagement and support the development of early reading skills. These findings served as the foundation for the development of the proposed learning medium.

Development of the Abacaga Adventure Interactive Media

The development process followed the Define, Design, Develop, and Disseminate stages of the 4-D model. During the define stage, classroom observations identified several challenges in early reading instruction, particularly children's difficulties in recognizing letters and reading simple syllables. Furthermore, literacy learning activities relied heavily on conventional teaching materials, which limited children's active participation.

Based on these findings, the *Abacaga Adventure* interactive medium was designed as an A5-sized standing calendar incorporating colorful illustrations, attractive typography, and sequential literacy activities. The content was organized progressively, beginning with letter recognition and continuing through syllables, words, and simple sentences. The learning activities were developed according to the "Stepping Stone" approach adapted from the *Abacaga* reading book.



Figure 1. Cover of the Abacaga Adventure Interactive Media

The cover was designed using bright colors, child-friendly illustrations, and visual elements intended to attract children's attention and increase their motivation to participate in literacy activities.



Figure 2. Literacy Media Before Development

Prior to the development of *Abacaga Adventure*, literacy instruction primarily utilized conventional media such as worksheets, flashcards, and simple reading books. Observations indicated that these materials provided limited opportunities for interaction and exploration.



Figure 3. Abacaga Adventure Interactive Media After Development

The final product consisted of a structured literacy medium integrating letter recognition, syllable formation, word reading, and simple sentence reading activities. The medium was specifically designed to support active participation and independent.

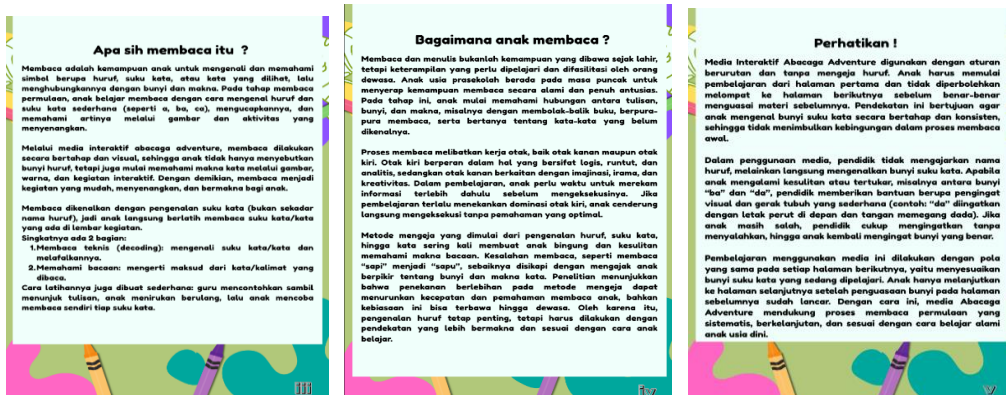


Figure 4. User Guide of Abacaga Adventure

A user guide was developed to assist teachers in implementing the media effectively. The guide contains instructions, learning objectives, examples of classroom activities, and recommendations for literacy practice both at school and at home.

Validity of the Developed Media

The validity of *Abacaga Adventure* was evaluated by two experts in early childhood education and instructional media development. The validation process assessed the needs analysis instrument, the interactive media itself, the user guide, and the teacher response questionnaire. Expert suggestions were incorporated into the revision process before implementation.

Table 2. Validation Results of the Developed Product

| Component Evaluated | Percentage | Category |
|--------------------------------|-------------------|-------------------|
| Needs Analysis Instrument | 84.5% | Very Valid |
| Interactive Media | 80.0% | Very Valid |
| User Guide | 81.5% | Very Valid |
| Teacher Response Questionnaire | 83.0% | Very Valid |
| Average | 82.25% | Very Valid |

As presented in Table 2, the overall validation score reached 82.25%, indicating that the developed product met the criteria of a highly valid educational medium. The experts agreed that the content, visual design, language use, instructional structure, and usability of the media were appropriate for early childhood learners. These results confirmed that the product was suitable for classroom implementation.

Practicality of the Developed Media

The practicality of *Abacaga Adventure* was assessed through teacher response questionnaires administered after implementation. Teachers evaluated the media in terms of ease of use, usefulness, presentation quality, and applicability in classroom learning activities.

Table 3. Practicality of Abacaga Adventure Based on Teacher Responses

| Teacher | Score | Percentage |
|----------------|--------------|-------------------|
| G1 | 52 | 86% |
| G2 | 52 | 86% |
| G3 | 53 | 88% |
| G4 | 50 | 83% |
| Average | 51.75 | 85.75% |

The average practicality score of 85.75% indicates that the media was highly practical for classroom implementation. Teachers reported that the medium was easy to use, visually appealing, and beneficial for supporting literacy instruction. The user guide also facilitated implementation by providing clear instructions and examples of learning

activities. These findings suggest that *Abacaga Adventure* can be integrated effectively into early childhood literacy programs.

Effectiveness of the Developed Media

The effectiveness of *Abacaga Adventure* was evaluated during classroom implementation. The assessment focused on three indicators: ease of use, usefulness, and presentation quality. Teachers observed children's participation, engagement, and literacy development throughout the implementation process.

Table 4. Effectiveness of Abacaga Adventure Implementation

| Indicator | Percentage | Category |
|------------------|-------------------|-----------------|
| Ease of Use | 86% | Very Effective |
| Usefulness | 91% | Very Effective |
| Presentation | 82% | Very Effective |
| Average | 86.33% | Very Effective |

The findings demonstrate that *Abacaga Adventure* was highly effective in supporting early reading instruction. The usefulness indicator obtained the highest score (91%), indicating that the medium significantly facilitated children's literacy development. Teachers reported improvements in children's ability to recognize letters, read syllables, identify simple words, and participate actively in literacy activities. The attractive visual presentation and structured learning sequence also contributed to increased motivation and engagement during learning sessions.

Overall, the results indicate that *Abacaga Adventure* fulfilled the criteria of validity, practicality, and effectiveness. The developed medium successfully addressed the literacy challenges identified during the needs analysis stage and provided an engaging learning experience for young children. Therefore, *Abacaga Adventure* can be considered a feasible and effective interactive medium for improving early reading skills among children aged 4–5 years.

Discussion

Teachers' Needs for the Development of Abacaga Adventure Interactive Media

The findings of this study indicate a substantial need for the development of interactive learning media to support early reading instruction among children aged 4–5 years. The needs analysis revealed that literacy instruction at Al Furqan Islamic Kindergarten was still predominantly conducted using conventional approaches and lacked sufficient variation in learning resources. As a result, children showed limited interest and engagement during reading activities, which consequently affected the quality of learning experiences. These findings confirm that existing instructional practices have not fully accommodated the developmental characteristics and learning preferences of young children.

Many teachers reported difficulties in teaching beginning reading because available instructional media were limited and often failed to encourage active

participation. Traditional instructional approaches tended to position children as passive recipients of information rather than active participants in the learning process. Consequently, children experienced difficulties in recognizing letters, associating sounds with symbols, and maintaining attention during literacy activities. Such conditions emphasize the necessity of providing learning experiences that are more interactive, meaningful, and developmentally appropriate.

The development of Abacaga Adventure emerged as a response to these identified needs. The media was specifically designed to support beginning reading through attractive visual elements, interactive activities, and structured literacy experiences. By integrating colorful illustrations, systematic reading stages, and opportunities for active participation, the media is expected to increase children's motivation and engagement while assisting teachers in delivering literacy instruction more effectively. The findings support the argument that educational media should be aligned with learners' developmental characteristics and instructional needs to maximize learning outcomes.

These findings are consistent with previous theoretical perspectives emphasizing the importance of interactive educational media in supporting early literacy development. Novitasari et al. (2020) argued that educational media can stimulate children's curiosity, emotions, and concentration during learning activities. Similarly, Kustandi highlighted that instructional media enhance learning motivation and facilitate conceptual understanding, particularly when integrated into meaningful educational experiences (Darmawan & Darmawan, 2020). Therefore, the development of Abacaga Adventure addresses not only instructional needs but also the motivational and developmental needs of young learners.

Development Process of the Abacaga Adventure Interactive Media

The development of Abacaga Adventure followed a systematic process designed to ensure alignment with children's developmental characteristics and literacy needs. The initial stage involved a comprehensive needs analysis to identify children's early reading competencies, classroom learning conditions, and teachers' expectations regarding instructional media. The results indicated the necessity of a learning medium that could facilitate gradual literacy development while maintaining children's interest and participation throughout the learning process.

Based on these findings, the media was designed using a structured literacy sequence that introduced reading skills progressively, beginning with letter recognition, followed by syllables, words, and simple sentences. This developmental progression is particularly important because young children acquire literacy skills gradually and require repeated exposure to increasingly complex reading tasks. The visual design incorporated colorful illustrations, attractive layouts, and child-friendly content to maximize engagement and support comprehension. The integration of visual and textual elements was intended to create a learning environment that was both educational and enjoyable.

An additional strength of the developed media is the inclusion of a user guide designed specifically for teachers. The guide provides instructional procedures, learning strategies, and examples of classroom activities that facilitate effective implementation. Through this support system, teachers are able to integrate the media into literacy instruction more systematically while maintaining flexibility according to children's individual learning needs. Consequently, Abacaga Adventure functions not only as a learning medium but also as a pedagogical tool that assists teachers in organizing meaningful literacy experiences.

The development process reflects contemporary approaches to early childhood education that emphasize active learning, play-based instruction, and child-centered pedagogy. The media encourages children to engage directly with literacy content through exploration, repetition, and interactive activities, thereby supporting both literacy acquisition and broader cognitive development. As a result, Abacaga Adventure provides a learning experience that is developmentally appropriate, engaging, and consistent with the principles of early childhood education.

Validity, Practicality, and Effectiveness of Abacaga Adventure Interactive Media

The results of expert validation demonstrated that Abacaga Adventure possesses a high level of validity, with an overall validation score of 82.25%, categorized as “very valid.” The experts agreed that the media appropriately addressed the objectives of beginning reading instruction and was consistent with the developmental characteristics of early childhood learners. Positive evaluations were obtained across several dimensions, including content relevance, visual presentation, language use, instructional organization, and usability. These findings indicate that the media satisfies the quality standards required for educational implementation and can be considered a suitable learning resource for beginning reading instruction.

The practicality evaluation further confirmed the usability of the developed media. Teacher responses yielded an average practicality score of 85.75%, indicating that the media was highly practical for classroom use. Teachers reported that the medium was easy to implement, visually appealing, and capable of facilitating literacy instruction effectively. The spiral standing-calendar format allowed children to manipulate the media independently, thereby encouraging active engagement and exploration. Furthermore, the accompanying user guide enabled teachers to apply the media consistently and efficiently within literacy learning activities. These findings suggest that Abacaga Adventure successfully bridges the gap between instructional objectives and practical classroom implementation.

The effectiveness results demonstrated that the use of Abacaga Adventure contributed positively to children's beginning reading development. Improvements were observed in children's ability to recognize letters, identify letter sounds, read syllables, and read simple words. Teachers also reported increased participation, motivation, and enthusiasm during literacy activities. The effectiveness score placed the media within the “very effective” category, indicating that the developed product successfully

supported the intended learning outcomes. These findings suggest that interactive literacy media can significantly enhance children's reading readiness when designed according to their developmental needs and learning preferences.

The effectiveness of Abacaga Adventure can be explained through constructivist learning theory, particularly Vygotsky's concept of the Zone of Proximal Development (ZPD). According to this perspective, children construct knowledge through social interaction and guided participation. The interactive features incorporated into the media enabled children to engage actively with literacy content while receiving support from teachers and peers. This process facilitated meaningful learning experiences and promoted deeper understanding of literacy concepts. Moreover, the opportunity to explore letters, syllables, and words independently contributed to the development of self-confidence and learning autonomy among young learners.

These findings also support previous studies emphasizing the importance of interactive media in early childhood education. Kustandi argued that interactive educational media can increase learning effectiveness by attracting children's attention and facilitating comprehension (Darmawan & Darmawan, 2020). Similarly, the present findings demonstrate that children responded positively to learning activities that incorporated visual stimulation, interactive engagement, and structured literacy progression. The combination of these elements created a learning environment that was enjoyable, meaningful, and conducive to literacy development.

Overall, the findings indicate that Abacaga Adventure successfully fulfilled the criteria of validity, practicality, and effectiveness as an interactive literacy medium. The media addressed the instructional needs identified during the preliminary analysis, provided teachers with a practical teaching resource, and contributed positively to children's beginning reading skills. Consequently, Abacaga Adventure can be considered a promising innovation for supporting early literacy development and may serve as an alternative instructional medium for early childhood education settings.

CONCLUSION

This study concludes that the development of Abacaga Adventure provides an innovative and developmentally appropriate approach to supporting early reading acquisition among young children. By integrating interactive, visual, and sequential literacy activities within a child-centered learning environment, the media creates meaningful learning experiences that encourage active participation, engagement, and independent exploration. The findings reinforce the importance of designing literacy interventions that align with children's developmental characteristics and learning needs while supporting teachers in delivering more engaging and structured instruction. Furthermore, the study highlights the potential of interactive educational media to strengthen early literacy learning both in school and at home, contributing to more effective, enjoyable, and sustainable literacy experiences for young learners.

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