Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

LANGUAGE-BASED GAMES AS A MEANS OF DEVELOPING VOCABULARY IN EARLY CHILDHOOD

Alfina Aminatul Sholikah*, Khusnul Khotimah, Lailatus Sangadah

Departement of Islamic Early Childhood Education, STIT Muhammadiyah Kediri, Kediri, Indonesia

***Correspondence Email:** *alfinaaminatulsholikah@gmail.com*

Article Info:
Received: *03-05-2026*
Revised: *29-05-2026*
Accepted: *25-06-2026*
Online: *30-06-2026*

Keywords:
Android-based learning, digital learning media, educational technology

ABSTRACT

The rapid advancement of digital technology in the Society 5.0 era has encouraged the integration of digital media into early childhood learning. However, vocabulary instruction in many early childhood classrooms remains teacher-centered and relies heavily on printed worksheets, limiting children's active participation in language learning. This study aimed to develop the KOTAPIN (Kosakata Pintar**)** game model as an Android-based educational game to stimulate vocabulary development in children aged 4–5 years. The study employed a Research and Development (R&D) approach using a modified ADDIE model consisting of the Analysis, Design, and Development stages. Data were collected through observation, interviews, documentation, and expert validation, then analyzed using descriptive qualitative and quantitative techniques. The developed product integrates the theme 'Rumahku' with visual illustrations, audio narration, animations, and interactive vocabulary games. Expert validation indicated an overall feasibility score of 90.62%, categorized as highly feasible, demonstrating that the game met the criteria for content, media design, language, and usability. The findings indicate that the KOTAPIN game has the potential to serve as an interactive digital learning medium for stimulating early childhood vocabulary development. Further research is recommended to continue the Implementation and Evaluation stages to examine the practicality and effectiveness of the game in classroom learning.

JECMD
The Journal of Early Childhood Motoric Development

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

INTRODUCTION

Early childhood education focuses on providing comprehensive stimulation through cognitive, affective, and motor development (Sanjaya & Adhe, 2022). The emergence of the Society 5.0 era offers a solution to the challenges of the Fourth Industrial Revolution, an era in which rapid technological advancement raises concerns that it may diminish the role of humans, and this has spurred the creation of more innovative learning processes through the use of digital applications (Maghfiroh et al., 2026). This digital app enables a more modern learning process by converting activities typically performed in the field into a digital format within a sophisticated app (Al Ardha et al., 2024). The use of digital technology in the learning process also aims to make it easier for teachers to provide high-quality education to children (Adhe & Shofiyah, 2022).Through this, fine motor coordination skills particularly hand movements will also be developed (Darmo, 2026).

Fine motor skill development is one of the key aspects that needs to be stimulated from an early age because it relates to a child's ability to control the movements of small muscles, particularly hand and finger coordination (Babo et al., 2025; Ramadhani et al., 2022). These skills form the foundation for various learning activities, such as writing, drawing, cutting, arranging objects, and using digital devices properly. Therefore, the use of digital applications designed to align with children's developmental characteristics not only provides engaging learning experiences but also helps develop hand-eye coordination through activities such as touching, swiping, selecting, and arranging objects on the screen. Thus, the use of digital technology in learning has the potential to support fine motor skill development while enhancing children's engagement in the learning process (Ambarwati, 2024; Hilmiah & Salehudin, 2024).

The potential offered by digitization in the early childhood learning process has a limitation that poses a challenge for teachers (Saerang et al., 2023; Tempur, 2024). A common limitation among young children is their ability to form and express sentences or use vocabulary for everyday communication. The use of teacher-centered teaching methods is one of the causes of this limitation (Rozali et al., 2022; Setiati & Rugaiyah, 2023). This non-engagement learning activity is caused by the teacher's lack of attention to students in the learning process (Al Ardha et al., 2025).The use of learning media such as worksheets also contributes to children's lack of exploratory learning, because their learning process relies on the instructions provided in those worksheets (Anggita, 2026).

To address these limitations, a medium is needed as a learning tool based on the principle that children's primary activity is learning through play (Simatupang et al., 2023). Learning media refers to tools or methods that help teachers convey information during the learning process, specifically to train and develop the vocabulary of young children (Maisyaroh et al., 2024). In addition, the learning media developed must also be able to support children's ability to combine words into sentences. In this way, limitations related to vocabulary and communication in young children can be addressed.

Therefore, this study aims to develop and introduce an Android-based learning tool for early childhood education. The development of this learning tool is based on the needs and solutions to the problems identified in the third paragraph or earlier. The developed learning

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

media will also undergo validity testing to ensure its suitability for introduction to early childhood education teachers. Through this, early childhood education teachers and practitioners will have the capability to maximize young children's potential in communication and, indirectly, to train their fine motor skills, particularly in the fingers of a child's hands.

METHODS

This study employs a Research and Development (R&D) approach with the aim of developing a game model to enhance the vocabulary of young children. The development model used is the ADDIE model, developed by Robert M. Branch (Permana, 2022). However, the implementation of this research was tailored to its objectives and scope, so it consisted of only three main phases Analysis, Design, and Development.

The analysis phase is conducted to identify problems, analyze needs, and develop solutions to current issues (Judijanto et al., 2024). The data at this stage were obtained through observation and interviews.

The design phase focuses on designing the game model, including creating flowcharts to illustrate the steps in the game's flow in a simple, detailed, organized, and clear manner. It also involves creating a storyboard to develop a more comprehensive narrative for the game.

Next, the development phase aims to translate the design into a game product. The product is then validated by subject matter experts and media experts; the results of this validation are used as the basis for revisions, resulting in a game model that is suitable for use.

This study did not conduct comprehensive implementation and evaluation phases because the research objectives focused on the product development and validation process, rather than on testing the effectiveness of the game model's application in the field. The development phase was limited because this study focused on producing a valid product suitable for use as a prototype of the game model. Therefore, comprehensive implementation and evaluation phases are planned as part of follow-up research aimed at testing the practicality and effectiveness of the game model in improving the vocabulary of young children.

Participants and Sampling

The participants in this study consisted of one teacher from Group A, 15 children aged 4–5 years at Darul Ulum Kindergarten in Surabaya, and two expert validators. The teacher and students were involved in the analysis phase to identify learning conditions, student characteristics, and the need to develop a game model to stimulate vocabulary skills in early childhood. Meanwhile, the expert validators were involved in the development stage to assess the validity of the product that had been developed.

Participants were selected using purposive sampling, which involves selecting a sample based on specific criteria that align with the research objectives (Himam & Anam, 2026). Participants were selected using purposive sampling, which involves selecting a sample based on specific criteria that align with the research objectives.

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

The validation of the developed learning media was conducted by two competent validators, with the aim of validating both the media and the content (Media Expert Validation and Content Expert Validation). The validators assessed the appropriateness and content of the material, as well as the design, presentation, language, and suitability of the game model as a medium for stimulating vocabulary in early childhood. The validation results and recommendations provided were used as the basis for revising the product to produce a game model suitable for use.

Procedures / Data Collection

During the analysis phase, data were collected through observation and interviews. Observations were conducted on the language learning process in Group A at Darul Ulum Kindergarten in Surabaya, involving 15 children aged 4–5 years. The observations aimed to identify the learning conditions, the children's vocabulary skills, the teaching materials used by the teachers, and the challenges faced in stimulating vocabulary development. The observations were conducted over two sessions using a structured observation sheet. Next, semi-structured interviews were conducted with the classroom teacher to obtain information regarding learning needs, student characteristics, vocabulary material that needed to be developed, and the teacher's expectations for the game model to be designed.

During the design phase, data obtained from observations, interviews, and literature reviews were used as the basis for developing the KOTAPIN (Kosakata Pintar) educational media design. The design process included formulating learning objectives, selecting the "Rumahku" theme, developing vocabulary content, designing the game flow and user interface, establishing game rules, and creating validation instruments.

During the development phase, the design was implemented as a preliminary version of an Android-based educational game. Next, the product was validated by a validator with expertise in early childhood education and the development of educational media. The validator assessed the product using a media validation checklist that covered aspects of appearance and design, language, presentation techniques, and usability. The content validation checklist, meanwhile, assessed the appropriateness and content of the educational material. The validation process is conducted in a single round of assessment. All feedback and suggestions from the validator are documented and used as the basis for revisions, resulting in a final product suitable for use.

Data Analysis

This study did not employ a specific data analysis method, as its initial objective was merely to develop and introduce the learning media. The research data collected consisted of the learning media that had been created and the validation results from two designated experts. The validation results were then categorized into feasibility categories to determine the model's level of validity. A product was deemed feasible if it received a "feasible" or "highly feasible" rating, while feedback and suggestions from the validators were analyzed qualitatively to inform product revisions (Salsabila & Aslam, 2022).

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

RESULTS

The research findings include an analysis of the requirements for developing a game model, the product design process, and the results of the development and validation of a game model designed to stimulate vocabulary skills in early childhood.

Analysis

The analysis phase was conducted to identify the need to develop a vocabulary-building game through observations and interviews at Darul Ulum Kindergarten in Surabaya. The results of the observations showed that vocabulary development instruction is still dominated by conventional methods, such as storytelling, question-and-answer sessions, and the use of picture cards. Although these methods have aided the learning process, the materials used have not provided children with opportunities to actively interact through play-based activities.

Observations of 15 children in Group A, aged 4–5 years, showed that some children still had difficulty mastering active-productive vocabulary. A total of six children were unable to repeat the sequence of words they had just heard; in fact, four of them did not understand the information conveyed by their peers during the "pesan berantai" game. In addition, some children still had difficulty stringing together simple words and retelling experiences or stories they had heard. These findings indicate that vocabulary development still needs to be enhanced through more interactive learning media.

Interviews with teachers revealed that language learning requires media that is engaging, easy to use, and capable of increasing children's engagement during the learning process. Teachers also noted that the use of digital game-based media remains very limited, making it necessary to develop innovative learning media tailored to the characteristics of young children. Based on the results of this needs analysis, a vocabulary game model was developed as an alternative learning tool to stimulate vocabulary skills in early childhood.

Design

The design phase began with the development of instructional materials focused on active-productive vocabulary acquisition, based on an analysis of the target audience's needs and the field context. Next, vocabulary materials centered on the theme "Rumahku" were developed, covering the introduction of object names and the formation of simple words in accordance with the language development characteristics of 4–5 year old children.

The game model design was then translated into a storyboard that included the navigation structure, user interface, game flow, learning media, mini-games, and evaluation quizzes. The game was designed so that children could learn through three main activities: the learning menu, a word-building game based on pictures, and a quiz game to introduce new vocabulary. Each activity is accompanied by illustrations, animations, narration, and immediate feedback to reinforce the children's answers.

In addition to designing the product, this stage also involves developing a validation instrument in the form of a questionnaire. The questionnaire was designed as a checklist using a Likert scale and served as a guideline for validating the learning media with media experts and subject matter experts.

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Development

The development phase resulted in a prototype of an Android-based vocabulary game (Figure 1). This learning tool was validated by experts with expertise in early childhood education and the development of learning media. The validation process was conducted to assess the suitability of the tool and the materials that had been created.

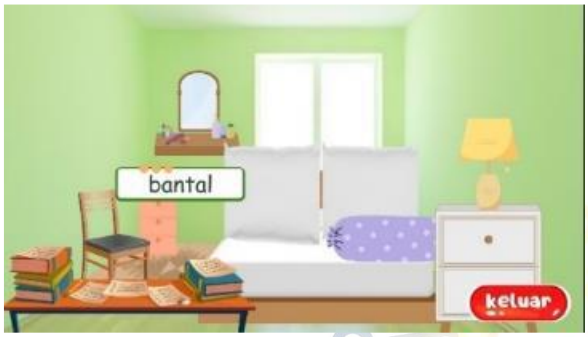
Visual	Description
	The cover page, title screen, or KOTAPIN game interface features the title "KOTAPIN" (Kosakata Pintar) Children's Educational Game, as well as a "Mulai" button to go to the main page and an "Keluar" button to exit the KOTAPIN game app.
	The main menu page has three menu options: the "Belajar" menu, the "Bermain" menu, and the "Kuis" menu".

JECMD
The Journal of Early Childhood Motoric Development

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Visual	Description
  	The "Belajar" menu section has three submenus/themes: the menu ruang tamu, kamar tidur, and kamar mandi.
 	Each submenu "ruang tamu," "kamar tidur," and "kamar mandi" contains a description of the function of that submenu as well as introductory material about the objects found within it. This introductory material consists of animated images; when tapped, text appears along with a voiceover by the developer to assist children who cannot yet read or who are accustomed to learning through audiovisual means.

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Visual	Description
   	

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Visual	Description
	Next, under the "Bermain" section of the main menu, there is a word-building game. In this game, players arrange random words into coherent sentences. In the "Bermain" menu, there is an animated image that serves as a guide for arranging the words. The random words are arranged into the provided boxes to form correct sentences. To make it easier for children who cannot yet read, the developer has included voiceovers for each word; when a word is tapped, the corresponding sound plays.
	Next, in the main menu, there is a "Kuis" section, which contains two questions per theme, for a total of six questions. These questions ask children to identify the object or room shown by selecting the correct answer option. To help children who cannot yet read, the correct answer options are accompanied by voiceovers recorded by the developers.

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Visual	Description
   	

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

Visual	Description
	

Figure 1. Learning Media KOTAPIN

The validation results showed that the developed learning media received a "highly suitable" rating, with a suitability percentage of 90.62% for both aspects, media and content (Table 1 and Table 2). The validators also provided several suggestions for improvement, including refining the voice narration, enhancing the game's visual presentation, and modifying the game activities to better suit the abilities of 4–5-year-old children. All of this feedback was incorporated through a revision process, resulting in a final product that is better aligned with the learning objectives.

Overall, the results of the development process indicate that the vocabulary game model meets the criteria for feasibility as a tool to stimulate vocabulary skills in early childhood and is ready for use in further research that tests the product's practicality and effectiveness.

Tabel 1. Media Expert Validation Score Results

No	Aspects	Validation Items	Total Score	Highest Score	Usability
1	Design	1,2,3,4,5	19	32	90.62%
2	Usage	6,7,8	10		
Total Score			29		

Tabel 2. Subject Matter Expert Validation Score Result

No	Aspects	Validation Items	Total Score	Highest Score	Usability
1	Relevance	1,2,3,4	14	32	90.62%
2	Content	5,6,7,8	15		
Total Score			29		

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

DISCUSSION

The KOTAPIN (Kosakata Pintar) app is designed to establish a language-learning game model as a scientific response to digital disruption in the era of industry 5.0. By definition, early childhood education necessitates all-encompassing stimulation that strikes a balance between children's cognitive, affective, and physical-motor domains (Dacholfany & Hasanah, 2021). However, practical observations in the field frequently point to gaps, especially when it comes to young children's limited capacity to create, comprehend, and actively and effectively employ vocabulary for daily conversation. Conventional learning is considered less interesting because of the monotonous learning process using paper- based (Adhe et al., 2024). Due to the mechanical and repetitive nature of learning activities, it has been demonstrated that this kind of traditional learning paradigm restricts children's potential for independent exploration (Saparuddin & Nisa, 2024). In fact, children are active, adventurous individuals who love to explore new things; therefore, they need activities that are both fun and designed to hone their cognitive and fine motor skills (Jessica & Adhe, 2020).

Children's cognitive development may be hampered by this circumstance, especially their capacity for critical thought, observation, hypothesis formation, and experimentation with different solutions through practical experiences (N. Nuraisyah, 2026). This study effectively accomplished its goal of creating and introducing a digital learning media prototype intended to improve early children vocabulary and sentence-construction abilities in order to close this gap. by strategically modifying the ADDIE development model with an emphasis on the three main phases (Analysis, Design, and Development). A digital language game model that is both theoretically and practically valid for usage by educators was successfully developed by this study.

The KOTAPIN game prototype created for this project has an interactive multimedia architecture based on Android that is kid-friendly. This program, which is based on the concepts of contextual learning, employs the theme "Rumahku" to map children's cognitive schemas through familiarization with their immediate environment, which includes the living room, bedroom, and bathroom sub-themes. Three primary operational features comprise KOTAPIN's functional integration of animated visual elements, text, and auditory stimuli in the form of voice recordings (dubbing): a learning menu that stimulates early receptive language by visualizing everyday objects, a play menu that uses animated picture prompts to assist children in reconstructing random word boxes into coherent sentences, and a quiz menu that provides six interactive assessment questions with a direct feedback system to act as cognitive reinforcement.

The expert validation results indicate that the KOTAPIN product is highly feasible for use. Both media and subject matter experts awarded a score of 29 out of 32 (90.62%), classifying the KOTAPIN game model as “Highly Feasible” These findings confirm that the development process, limited to the Development phase, was conducted systematically and met the methodological standards required for digital learning resource standardization.

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

The study's conclusions about the KOTAPIN app's compatibility level which is classified as "highly suitable" are highly pertinent and in line with a number of other investigations into the creation of digital media for early childhood education. These findings are consistent with a study carried out by Ardila (2022), who created a mobile app-based educational game with an 88.7% design feasibility rating and a 90% content feasibility rating to assist children aged 4 to 5 in learning letters. The close proximity of these validity percentages shows scientific coherence in the conclusion that learning materials that are highly adaptable to preschool-aged children's needs can be produced through the systematic usage of application development software. Additionally, these results validate the research's premise Mardhotillah & Rakimahwati, (2022) about how well Android-based interactive games promote young children's language development. While earlier studies have mostly concentrated on macro-level language features like early reading abilities or static alphabet recognition (Keni, 2025; Riski, 2021), By concentrating its features on recreating children's syntax through a game menu that requires assembling random words, the KOTAPIN game model presents a novel method. According to the results, KOTAPIN's multimedia capabilities which integrate text, animation, and audio have been successful in overcoming the tedium of conventional print-based learning Hoerudin & Kartika (2023) It asserts that decreasing children's misinterpretation of new words in the classroom requires visual variation.

An examination of KOTAPIN's characteristics from the standpoint of early childhood development shows a strong, multifaceted connection between children's physical-motor development and language stimulation. Because the things being examined are a part of their regular spatial surroundings, the "Rumahku" theme acts as a contextual anchor to aid youngsters in assimilating new semantic knowledge. Each question and answer option has voice-overs (dubbing) supplied by the developer, which serves as an audiovisual aid to improve children's memory recall and enable those who are not yet proficient readers to fully participate in the game's difficulties (A. Nuraisyah, 2025). This digital game model indirectly develops children's fine motor and sensory skills, which is an important factor related to the subject of early childhood development. Children must make precise manipulation motions when using this Android app, especially in the word-building game mode. These actions include tapping objects, hitting navigation keys, and placing word boxes on the digital screen. A child's ability to coordinate their finger and eye motions is a natural part of these interactive physical activities (Istifadah et al., 2024; Sari & Agustriana, 2024). This tactical integration is what distinguishes KOTAPIN from traditional media; through active engagement with 5.0-era digital technology, the app simultaneously improves children's fine motor skills and stimulates their linguistic intelligence in terms of active and productive vocabulary.

JECMD
The Journal of Early Childhood Motoric Development

Journal of Early Childhood Motor Development Vol. 1, No. 1, Tahun 2026, pp. xx-xx
ISSN: xxxx-xxxx (Print), xxxx-xxxx (Online)
https://journals.smartmotionedu.id/index.php/jecmd

This research and development initiative has important theoretical and practical implications for the field of early childhood education as a result of all these accomplishments. Theoretically, by applying the ADDIE model to the stages of product development and validation, this study adds to the body of knowledge on the successful use of game-based learning techniques. Practically speaking, the KOTAPIN game model, which has been tested and found to be "Highly Feasible," provides specific suggestions for early childhood education instructors and institutions to innovate by switching from boring print media (paper-based learning media) to interactive digital teaching resources. Additionally, education practitioners can be methodologically assured that the development of digital learning media products can be measured accurately, objectively, and scientifically in future field investigations thanks to the standardization of the validation instruments employed in this study.

CONCLUSION

This study successfully developed the KOTAPIN (Kosakata Pintar) game model as a learning medium to stimulate the vocabulary skills of 4–5-year-old children through the application of a modified ADDIE development model namely Analysis, Design, and Development. The results of the needs analysis indicated that vocabulary learning in the classroom still requires more interactive media that are tailored to the learning characteristics of early childhood. Based on these findings, an Android-based game model was developed that integrates vocabulary material themed “Rumahku” visual illustrations, audio, animations, and play activities designed to support the vocabulary acquisition process in a fun way.

The validation results show that the KOTAPIN game model was rated as “highly suitable,” with a suitability percentage of 90.62%, thereby meeting the criteria for content appropriateness, media presentation, language, and ease of use. These findings indicate that the KOTAPIN game model has the potential to be used as an alternative learning medium to stimulate vocabulary development in early childhood.

The implications of this study suggest that the KOTAPIN game model has the potential to serve as an alternative digital learning medium that can help teachers create vocabulary lessons that are more interactive, enjoyable, and tailored to the learning characteristics of young children. In addition to producing a validated product, this study also contributes to the development of educational game models that can serve as a reference for the development of language learning media in Early Childhood Education.

This study is still limited to the product development stage and has not yet tested the practicality or effectiveness of using the game model in learning activities. Therefore, future research is recommended to proceed to the Implementation and Evaluation stages to assess the practicality, user acceptance, and effectiveness of the KOTAPIN game model on the vocabulary development of young children.

ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to Sekolah Tinggi Ilmu Tarbiyah Muhammadiyah Kediri for providing academic support throughout this research. The authors also extend their appreciation to the principal, teachers, and children of Darul Ulum Kindergarten in Surabaya for their cooperation and participation during the research process. Special thanks are addressed to the expert validator for valuable suggestions and constructive feedback that contributed to improving the quality of the KOTAPIN (Kosakata Pintar) game model. Finally, the authors sincerely appreciate all individuals who provided support and assistance throughout the completion of this study.

FUNDING STATEMENT

The authors declare that this research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this article.

REFERENCES

Adhe, K. R., Al Ardha, M. A., Yang, C. B., Bikalawan, S. S., Putro, A. B., Violin, S., & Herista, W. (2024). *The implementation of augmented reality to develop early childhood students' gross motoric skill: a systematic review La aplicación de la realidad aumentada para desarrollar la motricidad gruesa de los alumnos de educación infantil: Una revisión sistemáti*. *2041*, 1091–1100.

Adhe, K. R., & Shofiyah, N. C. (2022). Pelatihan penggunaan dan pemanfaatan paudpedia untuk pengembangan literasi digital guru. *Transformasi Dan Inovasi : Jurnal Pengabdian Masyarakat*, *2*, 80–86.

Al Ardha, M. A., Kristiyandaru, A., & Nur, H. (2025). Improving Physical Education Learning Experience through Teaching Game for Understanding Approach : A Systematic Review. *Physical Education Theory and Methodology*, *7989*, 1268–1278. https://doi.org/10.17309/tmfv.2025.5.26

Al Ardha, M. A., Nurhasan, N., Nur, L., Chaeroni, A., Bikalawan, S. S., & Yang, C. B. (2024). *Analysis of Android-Based Applications in Physical Education and Sports: Systematic Review Análisis de Aplicaciones Basadas en Android en Educación Física y Deportes: Revisión Sistemática*. *2041*, 390–398.

Ambarwati, H. (2024). Analisis Media Pembelajaran Dalam Meningkatkan Perkembangan Motorik Halus Anak Usia Dini. *DZURRIYAT: Jurnal Pendidikan Islam Anak Usia Dini*, *2*(2), 28–45.

Anggita, S. P. (2026). *PENGEMBANGAN BAHAN AJAR LEMBAR KERJA PESERTA DIDIK (LKPD) BERBASIS MEDIA INTERAKTIF PADA MATA PELAJARAN SENI BUDAYA DAN PRAKARYA UNTUK MENINGKATKAN HASIL BELAJAR PESERTA DIDIK*. UIN RADEN INTAN LAMPUNG.

ARDILA, L. (2022). *Pengembangan Game Edukasi Berbasis Mobile Aplikasi Inventor Untuk Meningkatkan Kemampuan Mengenal Huruf Anak Usia 4-6 Tahun Di TK Aisyiyah Simabur*.

Babo, M. S., Wea, S. F., Uko, M. M., & Fono, Y. M. (2025). PERAN GURU DALAM MENGEMBANGKAN ASPEK MOTORIK HALUS ANAK USIA DINI. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, *12*(01), 20–31.

Dacholfany, M. I., & Hasanah, U. (2021). *Pendidikan anak usia dini menurut konsep islam*. Amzah.

Darmo, S. Y. (2026). Penggunaan Permainan Digital Dalam Deteksi Dini Kemampuan Motorik Halus Pada Anak Usia Dini. *Eduscotech*, *7*(1).

Hilmiah, H., & Salehudin, M. (2024). Peran TIK pada pembelajaran abad 21 dalam keterampilan kritis, kreatif dan kolaboratif anak usia dini. *Journal of Instructional and Development Researches*, *4*(6), 609–618.

Himam, M. K., & Anam, S. (2026). TEKNIK PEMILIHAN INFORMAN DALAM PENELITIAN KUALITATIF: STRATEGI DAN IMPLEMENTASI. *Jurnal Pendidikan Sosial Dan Humaniora*, *5*(2), 1688–1696.

Hoerudin, C. W., & Kartika, I. (2023). Penerapan Media Vocabulary Card Dalam Meningkatkan Penguasaan Kosa Kata Bahasa Indonesia Anak Usia 4-5 Tahun. *Plamboyan Edu*, *1*(2), 208–219.

Istifadah, S. P., Pd, M., Sholichah, N. I., Mukarromah, L., Kusna, S. L., & Fitriyanti, N. (2024). *Perkembangan Fisik Motorik Anak Usia Dini*. EDU PUBLISHER.

Jessica, S., & Adhe, K. R. (2020). PENGEMBANGAN MODUL PEMBELAJARAN BOTANICA-PROJECT UNTUK Oleh : Sarah Jessica , Kartika Rinakit Adhe Jurusan Pendidikan Guru Pendiddikan Anak Usia Dini Fakultas Ilmu Pendidikan Universitas Negeri Surabaya PENDAHULUAN Usia pra sekolah merupakan usia yang mem. *EDUKIDS: Jurnal Pertumbuhan, Perkembangan, Dan Pendidikan Anak Usia Dini*, *17*(229), 84–95.

Judijanto, L., Muhammadiah, M. ud, Utami, R. N., Suhirman, L., Laka, L., Boari, Y., Lembang, S. T., Wattimena, F. Y., Astriawati, N., & Laksono, R. D. (2024). *Metodologi Research and Development: Teori dan Penerapan Metodologi RnD*. PT. Sonpedia Publishing Indonesia.

KENI, A. (2025). *PENGARUH METODE PEMBELAJARAN MONTESSORI BERBANTUAN MEDIA LARGE MOVABLE ALPHABET TERHADAP KETERAMPILAN MEMBACA PERMULAAN KELAS 1 MATA PELAJARAN BAHASA INDONESIA DI SD NEGERI 1 BANDARSARI KECAMATAN PADANG RATU KABUPATEN LAMPUNG TENGAH*. UIN RADEN INTAN LAMPUNG.

Maghfiroh, Z. D., Adhe, K. R., Patria, W., Kristanto, A., Istiq, N., & Syahidul, M. (2026). Literasi Digital Guru PAUD dalam Mengembangkan Inovasi Pembelajaran. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *10*(1), 514–526. https://doi.org/10.31004/obsesi.v10i1.7779

Maisyaroh, D. V., Adhe, K. R., Khotimah, N., & Simatupang, N. D. (2024). Pengaruh Augmented Reality terhadap Kemampuan Mengenal Huruf Anak Usia Dini. *Global: Jurnal Ilmiah Multidisiplin*, *1*(2), 29–36.

Mardhotillah, H., & Rakimahwati, R. (2022). Pengembangan game interaktif berbasis Android untuk meningkatkan kemampuan membaca anak usia dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *6*(2), 779–792.

Nuraisyah, A. (2025). *PENGARUH PENGGUNAAN BUKU CERITA BERBASIS AUGMENTEND REALITY (AR) TERHADAP KONSENTRASI DAN DAYA INGAT ANAK USIA 5-7 TAHUN DI TK ABA 01 SEMARANG*. Universitas Ivet.

Nuraisyah, N. (2026). Implementasi Pembelajaran Berbasis Alam dalam Mengembangkan Rasa Ingin Tahu Anak Usia Dini. *J-PIAUD: Jurnal Pendidikan Islam Anak Usia Dini*,

2(1).

Permana, N. S. (2022). Mendesain Hybrid Learning Dengan Model Pengembangan Addie Untuk Pelajaran Pendidikan Agama. *JPAK: Jurnal Pendidikan Agama Katolik*, *22*(1), 105–115.

Ramadhani, A. S., Azizah, W., Selpiyani, Y., & Khadijah, K. (2022). Bentuk-bentuk Stimulasi Pada Anak Dalam Perkembangan Motorik Anak Usia Dini di RA. *Jurnal Pendidikan Dan Konseling*, *4*(3), 2360–2370.

Riski, A. P. (2021). *IMPLEMENTASI PENGGUNAAN MAKRO MEDIA FLASH DALAM MENGEMBANGKAN KEMAMPUAN LITERASI (MEMBACA) ANAK USIA DINI DI TK RHADATUL ANELI BANDAR LAMPUNG*. UIN Raden Intan Lampung.

Rozali, A., Irianto, D. M., & Yuniarti, Y. (2022). Kajian problematika teacher centered learning dalam pembelajaran siswa studi kasus: SDN Dukuh, Sukabumi. *COLLASE (Creative of Learning Students Elementary Education)*, *5*(1), 77–85.

Saerang, H. M., Lembong, J. M., Sumual, S. D. M., & Tuerah, R. M. S. (2023). Strategi pengembangan profesionalisme guru di era digital: Tantangan dan peluang. *El-Idare: Journal of Islamic Education Management*, *9*(1), 65–75.

Salsabila, F., & Aslam, A. (2022). Pengembangan media pembelajaran berbasis web google sites pada pembelajaran IPA Sekolah Dasar. *Jurnal Basicedu*, *6*(4), 6088–6096.

Sanjaya, D. R., & Adhe, K. R. (2022). Pengembangan Aplikasi Kolase Pintar Untuk Menstimulasi Kemampuan Motorik Halus Pada Anak Usia 5–6 Tahun. *Jurnal Pendidikan Indonesia*, *1*(1), 1–17. https://journal.penerbitjurnal.com/index.php/educational/article/view/2

Saparuddin, S. A., & Nisa, K. (2024). *Strategi dan Metode Pembelajaran Cerdas: Menuju Pendidik Profesional Yang Disenangi*. Cendekia Publisher.

Sari, D. L., & Agustriana, N. (2024). Menggenggam masa depan: Panduan komprehensif pengembangan kemampuan motorik halus anak usia dini. *EDUPEDIA Publisher*, 1–54.

Setiati, R., & Rugaiyah, R. (2023). Implementasi supervisi klinis terhadap kualitas pembelajaran yang berpusat pada murid. *JIIP-Jurnal Ilmiah Ilmu Pendidikan*, *6*(9), 7205–7209.

Simatupang, N. D., Widayati, S., Adhe, K. R., & Dini, A. U. (2023). PELATIHAN BERCERITA DENGAN BIG BOOK DAN LAGU UNTUK. *Community Development Journal*, *4*(6), 13184–13190.

Tempur, S. (2024). Tantangan dan Peluang Digitalisasi Pembelajaran di Konteks Sekolah Pedesaan. *Journal of Education and Contemporary Linguistics*, *1*(1), 45–56.

JECMD
The Journal of Early Childhood Motoric Development