Ceria: Jurnal Program Studi Pendidikan Anak Usia Dini
Volume 14, Number 3, 2025 pages 747-761
P-ISSN: 2301-9905 E-ISSN: 2775-409X
Open Access: https://jurnal.umt.ac.id/index.php/ceria/index

Development of Animal-Shaped Dakon Seeds Media to Enhance Early Childhood Cognitive Skills

Kanada Komariyah [1], Ananda Amelia[2], Meriyati[3], Agus Jatmiko[4]
[1,2,3,4] Universitas Islam Negeri Raden Intan Lampung
e-mail: *[1]komariyahzen77@gmail.com , [2]anandaamelia567@gmail.com, [3]meriyati@radenintan.ac.id, [4]agusjatmiko@radenintan.ac.id

ARTICLE INFO

Article history:
Received: July 25, 2025
Accepted: September 25, 2025
Available online on: Septermber 30, 2025

Keywords:
Early childhood; cognitive development; traditional games; dakon seeds; ADDIE model

ABSTRACT

This study aims to: (1) develop animal-shaped dakon seeds media that is feasible for use in cognitive learning; (2) determine the feasibility of the media based on expert validation and user responses; and (3) measure the effectiveness of the media in improving early childhood cognitive abilities. This research is expected to provide an alternative creative learning medium and serve as a solution to enhance early childhood cognition through educational play activities. The study employed the Research and Development (R&D) method with the ADDIE model, consisting of five stages: analysis, design, development, implementation, and evaluation. The validity test was conducted by material experts, media experts, and early childhood education teachers, followed by small- and large-group trials at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1. The validation results indicated that the media was feasible, with percentage scores ranging from 88% to 96%. Meanwhile, trial results showed that 92.9% of children at TK Aisyiyah Bustanul Athfal 1 and 83.3% of children at PAUD Harapan Bunda

demonstrated improvement. Thus, it can be concluded that animal-shaped dakon seeds media is suitable for use as a learning aid and proven effective in enhancing early childhood cognitive development, while also making the learning process more enjoyable, interactive, and meaningful.

Introduction

Cognitive development is one of the essential aspects during early childhood growth. At this stage, children begin to demonstrate the ability to think, understand concepts, and recognize shapes, colors, and numbers through various stimulations provided in their learning environment (Hidayana et al., 2024). Therefore, learning methods are required that can stimulate children's thinking skills in an active and enjoyable manner. However, in practice, learning activities are often limited to monotonous activities such as drawing or stacking blocks, which provide less variety of cognitive challenges. For this reason, innovative learning media are needed that are not only attractive but also capable of fostering children's thinking skills, for instance through traditional-based educational games (Izza & Khobir, 2021), one of which is animal-shaped dakon seeds. This medium does not only introduce basic concepts of counting and grouping but also trains cooperation, strategy, and social skills in a fun and meaningful way.

Previous studies have shown that the traditional dakon game is effective in developing various aspects of early childhood cognitive abilities. Sulalah and Nisak (2016) investigated the use of dakon games

made from natural materials and reported that this intervention contributed to the improvement of children's cognitive development, including observation and classification skills. Sari, Yetti, and Hapidin (2020) developed dakon media to improve children's numeracy skills; their development and testing found an improvement in counting abilities after children used the dakon media. Hanifiah, Marijono, and Imsiyah (2018), in their study at PAUD Tunas Permata, Banyuwangi, also demonstrated that the application of traditional dakon games can enhance children's cognitive skills through structured play. Furthermore, Wahid and Samta (2022) emphasized that the dakon game not only improves numeracy but also contributes to strengthening mathematical intelligence in early childhood. Meanwhile, Chusna and Ningrum (2019) focused on the development of a geometry-based variation of dakon—*Dakon Geometry Media*—which was proven to assist children aged 4–5 years in recognizing and differentiating geometric shapes.

Based on the above background, this study aims to develop an engaging learning medium, namely animal-shaped dakon seeds. The researchers modified the traditional dakon seeds, which were commonly made from shells, marbles, or stones, into more interesting shapes of animals such as chickens, ducks, grasshoppers, bears, sheep, elephants, hamsters, frogs, cats, beetles, hedgehogs, guinea pigs, monkeys, cows, ants, and snails. This modification is expected to attract children's interest in learning while playing and prevent boredom. The

seeds were made using *Heat Shrink Paper* illustrated with animal figures, which were then heated to shrink and harden, making them durable for use. The purpose of this development is to preserve traditional games in the modern era by transforming dakon seeds into attractive forms, thereby making learning through play more enjoyable and meaningful.

Methods

This research employed the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation) (Hidayat & Muhamad, 2021). The first stage was analysis, which consisted of performance analysis and needs analysis. Performance analysis was conducted to identify problems in the use of conventional teaching materials that were less supportive of early childhood cognitive development. Needs analysis was carried out through observations and interviews with teachers at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1, in order to explore the need for contextual and engaging learning media, particularly those related to skills such as grouping, observing, counting, adding, understanding shapes and colors, and building social interactions.

The second stage was design, which included preparing concepts, teaching materials, and designing the animal-shaped dakon media. In this stage, the researchers developed lesson scripts and designed appealing dakon forms for children, replacing traditional seeds with animal-shaped illustrations.

The third stage was development, which involved creating the

animal-shaped dakon media based on the prepared designs. The product was then validated by media experts and material experts. The validation results served as the basis for revisions to ensure the product met early childhood learning standards.

The fourth stage was implementation, which consisted of limited trials at TK Aisyiyah Bustanul Athfal 1. The trials were conducted in two phases: a small group of 6 children and a larger group of 14 children. According to Safitri and Aziz (2022), this stage aims to assess the validity, reliability, and effectiveness of the animal-shaped dakon media in improving cognitive abilities.

The final stage was evaluation, which was conducted by revising the media based on teacher feedback and observations during implementation. This evaluation ensured that the developed media truly supported the comprehensive development of early childhood cognitive skills (Siahaan, 2025).

Result and Discussions

Based on the questionnaires distributed to several experts, teachers, and students at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1, the animal-shaped dakon seed media obtained scores categorized as very valid and feasible to be used in the learning process, particularly in introducing land animals to young children.

The validity of the Animal-Shaped Dakon Seeds Media, based on assessments from material experts and media experts, indicated that the media was appropriate for use in cognitive learning. Teachers'

responses as respondents also showed strong interest in the Animal-Shaped Dakon Seeds Media. Small- and large-scale trials conducted with groups of students at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1 demonstrated that this media was able to capture children's attention and improve their cognitive abilities.

Validation by Material Experts

No	Aspect Assessed	Item Examined	Alternative Rating			
			1	2	3	4
			STS	TS	S	SS
1	Material	1. Dakon games serve as a medium to develop early childhood cognitive abilities.			✓	
		2. The material is presented in a simple and clear manner.			✓	
		3. Suitability with early childhood cognitive development.				✓
		4. The material is easy to understand.			✓	
2.	Presentation	5. The presentation of the media is made attractive.			✓	
		6. Suitability of the			✓	

		images with the material.				
		7. The images are clear and easy to differentiate.			✓	
		8. The size of the images is appropriate for children.			✓	
3.	Language	9. The animal shapes on the dakon seeds are attractive and familiar to children.			✓	
		10. The language used is easy to understand.			✓	

The instrument provided to material experts consisted of 10 indicators to be assessed. Each indicator received scores between 3 and 4, resulting in an average score of 3.1, which falls into the "good" category. This assessment covered three aspects: content, presentation, and language use in the Animal-Shaped Dakon Seeds Media, which aimed to enhance early childhood cognitive development. According to the evaluation guidelines, these results served as the basis to determine whether the media required revision. After the first validation, material experts provided positive feedback, such as the media's suitability for children's developmental stages and the clarity of instructional guidance. Therefore, the learning media was declared feasible without

the need for revision.

Validation by Media Experts

No	Aspect Assessed	Item Examined	Alternative Rating			
			1	2	3	4
			STS	TS	S	SS
1.	Physical	1. The design of the media is attractive and appropriate for the child's age (color appearance on the dakon seeds).			✓	
		2. Media durability.				✓
		3. Suitability of media size.			✓	
2.	Usage	4. The media is practical, easy to store and use.			✓	
		5. The media is not easily damaged when used by children.			✓	
		6. Ease of use of the media.				✓
3.	Appearance	7. Integration of colors and images on the dakon seeds.			✓	

		8. The images are clear and can be differentiated.			✓	
		9. The media is designed attractively to stimulate children's curiosity.			✓	

The assessment instrument given to media experts consisted of 9 indicators, each scoring between 3 and 4. The average score obtained was 3.2, categorized as "very good." In addition to the scoring, media experts also provided positive comments about the Animal-Shaped Dakon Seeds Media, considering it creative, attractive, easy to use for young children, and in line with developmental characteristics. Based on these assessments and feedback, the media was declared feasible for trials without requiring revision.

Small-Group Trial

No.	Name	Achievement Indicators						Notes
		1	2	3	4	5	6	
1.	AL	BSB	BSH	BSB	BSB	BSH	BSH	BSB
2.	ALE	MB	BSH	MB	MB	BSH	MB	MB
3.	AM	BSB	BSH	BSB	BSB	BSH	BSH	BSB
4.	CI	MB	BSH	BSH	MB	BSH	MB	BSH
5.	PO	BSH	BSH	BSH	MB	BSH	BSH	BSH
6.	YU	BSB	BSH	BSB	BSH	BSH	BSH	BSH

Based on the data obtained from observations at PAUD Harapan Bunda, the results were categorized using percentages for each level of developmental achievement. Of the 6 children involved, 1 child (16.7%) was in the "Beginning to Develop" (MB) category, 3 children (50%) were in the "Developing as Expected" (BSH) category, and 2 children (33.3%) reached the "Very Well Developed" (BSB) category. No children were found in the "Not Yet Developed" (BB) category.

Large-Group Trial

No.	Name	Achievement Indicators						Notes
		1.	2.	3.	4.	5.	6.	
1.	AB	BSB	BSH	BSB	BSB	BSH	BSH	BSB
2.	ABY	BSB	BSH	BSH	BSB	BSH	BSH	BSH
3.	AF	BSH	BSH	BSH	BSH	BSH	BSH	BSH
4.	AN	BSB	BSH	BSB	BSB	BSH	BSH	BSB
5.	AR	BSH	BSH	BSB	BSH	BSH	MB	BSH
6.	AT	BSH	BSH	BSB	BSH	BSH	BSH	BSH
7.	AU	BSB	BSH	BSB	BSH	BSH	BSH	BSH
8.	AZR	BSH	BSH	BSH	BSH	BSH	BSH	BSH
9.	FA	BSH	BSH	BSH	MB	BSH	BSH	BSH
10.	FAT	MB	BSH	BSH	MB	BSH	BSH	BSH
11.	HA	MB	BSH	BSH	BSH	BSH	BSH	BSH
12.	KA	BSB	BSH	BSB	BSB	BSH	BSH	BSB
13.	KAI	MB	MB	MB	MB	BSH	BSH	MB

14.	TA	BSH	BSH	BSB	BSB	BSH	BSH	BSH

At TK Aisyiyah Bustanul Athfal 1, a total of 14 children participated. The results showed that 1 child (7.1%) was in the MB category, 9 children (71.4%) were in the BSH category, and 4 children (21.4%) reached the BSB category. No children fell into the BB category.

Discussion

The findings of this study show that the Animal-Shaped Dakon Seeds Media is effective in improving the cognitive abilities of young children. Children at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1 demonstrated improvement in their developmental achievements after using this media in learning activities. These results confirm that creatively modified traditional games can be an innovative alternative to support meaningful and enjoyable learning processes.

This study is consistent with the findings of Sulalah and Nisak (2016), who demonstrated that traditional dakon games made from natural materials improved children's cognitive aspects, particularly in observation and classification. Similarly, Sari, Yetti, and Hapidin (2020) reported that the development of dakon media successfully improved children's numeracy skills. Hanifiah, Marijono, and Imsiyah (2018) also emphasized that traditional dakon games can enhance children's cognitive development at PAUD Tunas Permata, Banyuwangi. Wahid and Samta (2022) highlighted that dakon not only improved children's numeracy skills but also contributed to strengthening their mathematical intelligence. Meanwhile, Chusna and Ningrum (2019)

developed geometry-based dakon media, which proved effective in helping children aged 4–5 years recognize and differentiate geometric shapes.

Figure 1. Creation of Dakon Seeds

Compared with these previous studies, the contribution of the present research lies in its **innovation of media design**. Instead of using traditional dakon seeds such as shells or stones, this study introduced animal-shaped seeds made from *Heat Shrink Paper*. This design not only increased children's interest and motivation but also incorporated elements of early science learning through the introduction of various animal figures. Hence, the media integrates cognitive development in counting, classification, strategy, as well as the introduction of basic science concepts.

Furthermore, learning with the Animal-Shaped Dakon Seeds

Media also facilitated children's social involvement. Group-based play activities trained them to interact, cooperate, and solve problems collaboratively. This supports constructivist learning theories, which emphasize the role of social interaction in early childhood cognitive development.

Overall, the findings of this study strengthen empirical evidence that traditional games, when modified to suit contemporary contexts, remain relevant and effective in early childhood education. The main contribution of this research is the introduction of an innovative, attractive, contextual, and multifunctional variation of dakon media that not only preserves cultural traditions but also enhances the quality of early childhood learning.

Conclusion

This study confirms that the Animal-Shaped Dakon Seeds Media is effective in enhancing early childhood cognitive development. Trials conducted at PAUD Harapan Bunda and TK Aisyiyah Bustanul Athfal 1 revealed that children experienced measurable improvements in their developmental achievements after engaging with this medium in the learning process. These findings demonstrate that creatively modified traditional games can provide enjoyable, interactive, and meaningful learning experiences for children.

The Animal-Shaped Dakon Seeds Media not only supports the development of counting, grouping, and strategic thinking skills but also introduces basic science concepts through the recognition of animal

figures. Moreover, since the media is implemented through group play, it also fosters children's social skills by encouraging cooperation and communication.

Compared with previous studies that also utilized dakon as a learning medium, this research contributes a novel innovation in the form of seed designs that are more attractive and contextual. Therefore, the Animal-Shaped Dakon Seeds Media can be considered an alternative learning medium that not only supports the improvement of children's cognitive abilities but also preserves traditional games within the framework of modern early childhood education.

References

Chusna, L. A., & Ningrum, M. A. (2019). Pengembangan media dakon geometri untuk meningkatkan kemampuan mengenal bentuk geometri anak usia 4–5 tahun. *Jurnal PAUD Teratai, 8*(2), 1–6.

Hanifiah, E., Marijono, M., & Imsiyah, N. (2018). Pengembangan kemampuan kognitif melalui permainan tradisional dakon di PAUD Tunas Permata Perumahan Permata Giri Kabupaten Banyuwangi. *Learning Community: Jurnal …, 1*(2), 18–20.

Hidayana, D., Izzah, I., & Kiromi, I. H. (2024). Peningkatan Kemampuan Anak dalam Mengenal Warna dengan Menggunakan Media Balok pada Anak Usia Dini. *Journal of Education Research*, *5*(2), 1097-1104. https://doi.org/10.37985/jer.v5i2.1002

Hidayat, F., & Muhamad, N. (2021). Model Addie (Analysis, Design, Development, Implementation and Evaluation) Dalam Pembelajaran Pendidikan Agama Islam Addie (Analysis, Design, Development, Implementation and Evaluation) Model in Islamic Education Learning. *J. Inov. Pendidik. Agama Islam*, *1*(1), 28-37. https://doi.org/10.15575/jipai.v1i1.11042

Izza, N., & Khobir, A. (2023). Media Pembelajaran Dakon Square Untuk Meningkatkan Kemampuan Mengenal Konsep Angka Anak Usia

Dini. *Asghar: Journal of Children Studies*, *3*(1), 35-41. https://doi.org/10.28918/asghar.v3i1.974

Safitri, M., & Aziz, M. (2022). ADDIE, SEBUAH MODEL UNTUK PENGEMBANGAN MULTIMEDIA LEARNING. *Jurnal Pendidikan Dasar*, *3*(2), 51-59. Retrieved from https://ebook.umpwr.ac.id/jpd/article/view/2237

Sari, N. M., Yetti, E., & Hapidin, H. (2020). Pengembangan media permainan dakon untuk meningkatkan kemampuan berhitung anak. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *4*(2), 831–840. https://doi.org/10.31004/obsesi.v4i2.428

Siahaan, L. H. (2025). *R&D DALAM PENDIDIKAN: Implementasi Model ADDIE Dan 4D Pada Pendidikan Bahasa Inggris Dan PG PAUD*. Penerbit: KBM Indonesia.

Sulalah, A. A., & Nisak, A. (2016). Meningkatkan aspek perkembangan kognitif anak melalui permainan tradisional dakon berbahan alam. *[Nama Jurnal tidak tersedia]*, (September), 1–6.

Wahid, A., & Samta, S. R. (2022). Permainan tradisional dakon sebagai media pembelajaran untuk meningkatkan kecerdasan matematika anak usia dini. *Sentra Cendekia*, *3*(2), 61–68. https://doi.org/10.31331/sencenivet.v3i2.2148