

DEVELOPMENT OF ANIMAL-THEMED SNAKES AND LADDERS GAME MEDIA BASED ON THE ADDIE MODEL FOR EARLY CHILDREN AT KEMALA BHAYANGKARI KINDERGARTEN, WAIKABUBAK

Aprilia Rusmala*¹, Achmad Noor Fatirul², Hartono³
^{1,2,3}, Universitas PGRI Adi Buana Surabaya

*Correspondence Author: rusmalaapriliah@gmail.com

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ABSTRACT

This study aims to develop a snakes and ladders game learning media with an animal theme using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model for early childhood at Kemala Bhayangkari Kindergarten in Waikabubak. The background of this study is the limited learning media that are interesting, interactive, and appropriate to the learning characteristics of early childhood. The study uses a qualitative descriptive approach with data obtained through validation sheets, questionnaires, and feedback from design experts, media experts, material experts, colleagues, and students. Data analysis was carried out descriptively to assess the feasibility and practicality of the product. The validation results showed that the design experts gave a score of 95%, media experts 96%, material experts 73%, and colleagues 90%, all of which are in the very feasible category. User trials also showed a high level of practicality with a score of 94% in small groups, 86% in medium groups, and 88% in large groups. These findings indicate that the snakes and ladders game media is easy to use, interesting, and supports children's understanding of the learning material. This learning medium has been proven to increase children's enthusiasm, motivation, and engagement during the learning process. Overall, the research results confirm that the ADDIE-based Snakes and Ladders game is a suitable alternative for effective and enjoyable learning media in early childhood education.

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INTRODUCTION

Education is an obligation that must be provided to all members of society without exception. Education begins at an early age and continues through higher education, tailored to the desires and needs of each individual, with the primary goal of building a strong foundation for early childhood. Education continues throughout life, beginning at birth to support children's optimal development as they progress through subsequent levels of education. Early childhood, defined as those between the ages of 0 and 6, is a

golden period for instilling the foundations of physical, cognitive, social, and emotional development that will significantly impact future educational success (Loretha et al., 2023; Solang et al., 2024).

Research by Bessières et al. (2020) shows that early childhood, from 0 to 6 years old, is a crucial period of development and requires appropriate learning so that the learning experiences gained can be remembered and applied as children grow into adults. Various studies confirm that education and stimulation provided during this period play a significant role in shaping children's future cognitive, social, and emotional abilities, as well as supporting the development of long-term memory, which can impact academic achievement and life skills in adulthood.

Learning success can be achieved through strong synergy between students, teachers, and learning resources. This synergy involves active collaboration between all parties in carrying out their respective roles to achieve predetermined learning objectives. Research confirms that the integrated roles of students and teachers, as well as the utilization of various learning resources and environmental support, are crucial in improving student learning outcomes. Good collaboration and communication between all components of education not only strengthen the foundation of education but also create a conducive learning environment and support optimal academic achievement (Gbollie & Gong, 2018; Tae et al., 2019).

Individual development requires education as a primary foundation. Through the educational process, each individual can develop and progress through each stage of development within their environment, whether at home, at school, or in the community (Bustomi et al., 2024). Educational interactions within these three environments play a crucial role in shaping an individual's character, social skills, and moral values. The family provides the foundation for development through communication and character education, schools reinforce academic and social aspects through formal learning, and society introduces norms, diversity, and the importance of cooperation and empathy. Thus, education enables individuals to adapt, grow, and contribute optimally in their various life environments (Ciuchi, 2021).

Education is a process aimed at helping students adapt to their surroundings. When changes occur or independent learning is required, students become accustomed to adapting. The learning process can be carried out using a single teaching material so that students can focus more on absorbing information effectively (Nurjaman et al., 2021). Teaching materials themselves are a collection of learning materials strategically arranged to emphasize the competencies students must master during the educational process. To

achieve learning objectives, teaching materials typically contain messages, information, and illustrations in the form of facts, concepts, principles, and processes related to knowledge, values, attitudes, actions, and skills in a particular discipline (Wahyuni et al., 2024).

Teaching retention is a skill that teachers need to develop to be more active in managing the learning resources presented to students to maximize learning objectives. However, in practice, many teachers are still less active in managing learning resources due to suboptimal preparation of teaching materials or the materials used being less productive and not fully meeting learning needs (Wahyuningsih et al., 2021). Research by Alajar et al. (2023) shows that the main challenges faced by teachers in developing learning resources include limited technical skills, material organization strategies, and a lack of skills in managing teaching materials, especially in digital form.

Teachers serve as the primary source of information, providing knowledge to students during classroom activities, thus helping them achieve success. The teacher's role extends beyond delivering material, serving as a facilitator, motivator, and guide, creating a conducive learning environment and encouraging active student engagement (Wang, 2024). The primary goal of learning is to guide students' moral and social development so they grow into successful individuals with character and adaptability to their social environment (Suhifatullah et al., 2021).

In the context of early childhood learning, the use of games has been proven effective in increasing motivation, engagement, and understanding of basic concepts. The learning-through-play approach allows children to learn naturally, actively, and enjoyably, and is aligned with their developmental characteristics (Alotaibi, 2024). Various studies have shown that educational games can improve children's cognitive, social, fine motor, and even language skills, as well as foster a positive attitude toward the learning process (Leon et al., 2025).

Snakes and Ladders is a traditional game still widely used in education due to its simplicity, fun, and ease of understanding for children. In learning practice, this game can be modified to incorporate educational elements according to curriculum needs, such as introducing number concepts, knowledge about animals, clean and healthy living behaviors, and social and character values (Basri et al., 2023). By integrating thematic content into the Snakes and Ladders game, children not only play but also learn actively and interactively, thus making the material more meaningful and increasing their motivation (Susetyawati et al., 2024). Developing relevant and innovative Snakes and

Ladders media is crucial to creating an effective, enjoyable learning experience that is in line with children's developmental characteristics (Yudanagara et al., 2024).

The use of games in early childhood learning not only increases children's engagement and motivation to learn but also provides teachers with the opportunity to implement differentiated learning tailored to individual needs. Children at an early age have diverse learning styles, such as visual, auditory, and kinesthetic, so it is important for teachers to choose media that accommodates these differences. Educational games, such as animal-themed snakes and ladders, can combine elements of color, images, physical activity, and verbal discussion, allowing each child to learn according to their learning preferences (Supit et al., 2023). Thus, games become an inclusive and adaptive learning tool, supporting the optimal development of various student characteristics (Himma & Nugroho, 2023).

In addition to increasing child engagement, the use of games also provides opportunities for teachers to implement differentiated learning. Early childhood has diverse learning styles, such as visual, auditory, and kinesthetic. Educational games, such as animal-themed games, can accommodate these differences through a combination of color, images, sounds, physical activity, and verbal discussion during play. Both digital and board-based games can be tailored to children's learning needs and preferences, so that each student can optimally benefit from interactive and enjoyable learning. Thus, educational games are an inclusive and adaptive tool for the diverse characteristics and needs of early childhood (Behnamnia et al., 2023).

The ADDIE model was chosen for this media development because it is considered capable of producing systematic, tested, and relevant learning products tailored to field needs. This model provides clear development stages, from needs analysis and media design to product development and implementation, and evaluation. Each stage involves validation by subject matter, media, and design experts, as well as trials with students to ensure the media's effectiveness and suitability for learning objectives. Using the ADDIE model ensures that the resulting media is not only visually appealing but also on-target, curriculum-aligned, and meets early childhood development competency standards. Therefore, media developed using the ADDIE model has a high level of validity and quality and is suitable for use in the learning process (Siregar et al., 2021).

Besides being relevant to children's needs, developing educational game media also provides a solution to the limitations of learning media still commonly found in many kindergartens. Observations in several schools indicate that teachers need media that is easy to use, affordable, and able to provide optimal learning stimulation for children.

Developing educational games based on the ADDIE model has been proven to produce effective, engaging, and easily accessible media, thereby significantly increasing student motivation and understanding (Artoti et al., 2025). Game media developed through the ADDIE stages are also considered valid and feasible for use, and can be adapted to various learning themes, providing an innovative alternative that can be used repeatedly in thematic activities in the classroom (Nuraini & Mubarak, 2025).

The development of snakes and ladders game media based on the ADDIE model is needed to produce valid, practical, and appropriate media for learning needs at Kemala Bhayangkari Waikabubak Kindergarten. The novelty of this research lies in the development of an animal-themed snakes and ladders game specifically designed for PAUD using the ADDIE model, equipped with a thorough validation process from design experts, material experts, media experts, and user tests on three different groups. This study aims to determine the stages of developing snakes and ladders game media using the ADDIE model.

RESEARCH METHODS

This research is a development research (Research and Development) using the ADDIE model, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation. In this study, the stages implemented in full include Analysis, Design, and Development, while the advanced Implementation and Evaluation stages will be carried out in subsequent studies through classroom action research. In the Analysis stage, researchers identified learning needs at Kemala Bhayangkari Waikabubak Kindergarten, including the characteristics of early childhood, the need for animal themes, and teachers' obstacles in providing interesting learning media. The Design stage includes developing the concept of the snakes and ladders game, designing visual displays, game rules, selecting materials appropriate to the child's developmental stage, and preparing validation instruments. Next, the Development stage is carried out by producing game media according to the design that has been made and conducting validation by design experts, media experts, material experts, and peer assessment to ensure aspects of the feasibility of appearance, content, and ease of use.

The research subjects consisted of design experts, material experts, media experts, peers, and students divided into small, medium, and large groups. The selection of students was done purposively based on teacher recommendations to represent the diverse abilities of children. The research instrument consisted of an expert validation questionnaire and a student practicality questionnaire that included aspects of

appearance, material suitability, message clarity, ease of use, and media appeal, using a 4-point Likert scale (1 = not feasible to 4 = very feasible). The data were analyzed descriptively qualitatively by calculating the feasibility percentage using the formula: Percentage = (score obtained/maximum score) × 100%. The percentage results were interpreted into categories of 81–100% (very feasible), 61–80% (feasible), 41–60% (quite feasible), and ≤40% (not feasible). The results of the analysis were used as a basis for revisions to improve the animal-themed snakes and ladders learning media that were developed.

RESULTS AND DISCUSSION

Table 1. Percentage of research

Research Indicators	%	Average (%)	Category
Design Expert			
Media aspects of the snakes and ladders game in learning Convenience	96	95	Very valid
	93		
Media Expert			
Suitability of the content of the snakes and ladders game media	96	96	Very valid
The purpose of the snakes and ladders game media	95		
Subject Matter Expert			
Snakes and Ladders game media design	80%	73%	Very valid
The purpose of the snakes and ladders game media	60%		
Peers			
Q1	100	90	Very valid
Q2	90		
Q3	100		
Q4	80		
Q5	80		

Validation conducted by four parties, namely design experts, media experts, material experts, and colleagues, showed that the snakes and ladders game media with the ADDIE model on the animal theme at Kemala Bhayangkari Kindergarten in Waikabubak obtained very good results. The design expert gave a feasibility percentage of 95%, the media expert 96%, the material expert 73%, and colleagues 90%, all of which are included in the very feasible or very good category. These results indicate that the snakes and ladders game media developed is effective, interesting, and easy to use as a learning aid for students. However, it is recommended to make several revisions so that the media is more perfect and more appropriate to the needs and characteristics of kindergarten students (Table 1).

Table 2. Percentage of group trials

Research Indicators	%	Average (%)	Category
Small Group			
Ease of access	98	94	Very worthy
Clarity of the message conveyed	90		
Medium Group			
Ease of access	85	86	Very worthy
Clarity of the message conveyed	87		
Large Group			
Ease of access	88	88	Very worthy
Clarity of the message conveyed	87		

Based on the results of user trials involving three groups, namely small, medium, and large groups, the snakes and ladders game media with the ADDIE model on the animal theme at Kemala Bhayangkari Kindergarten in Waikabubak showed a very good level of feasibility. The small group trial obtained a feasibility percentage of 94%, the medium group 86%, and the large group 88%, all of which are in the very feasible/excellent category. These results indicate that the snakes and ladders game media developed is effective, interesting, and easy to use by students in learning the animal theme. However, it is recommended to make revisions so that the media becomes more perfect and more appropriate to the needs and characteristics of students (Table 2).



Figure 1. Before and after revision 1

The results of the study indicate that the ADDIE model-based snakes and ladders game media is feasible and practical for use in early childhood learning at Kemala Bhayangkari Kindergarten, Waikabubak. Validation by design experts and media experts obtained very high scores (95% and 96%), indicating that the visual appearance,

message clarity, and effectiveness of media presentation are in accordance with the learning characteristics of early childhood (Rahmawati et al., 2025). This high score is in line with the view that visually appealing learning media can increase children's attention and motivation in the learning process (Paisi-Lazarescu, 2018).

However, the validation score from content experts (73%) was lower than other aspects. Critical analysis showed that this score was influenced by two factors: first, the presentation of material in the game was still considered insufficiently in-depth by content experts; second, some content did not fully reflect the developmental milestones of early childhood as recommended in the PAUD curriculum. This is in line with the findings of Saputra et al. (2024) that content suitability is a crucial aspect in developing media for early childhood and is often a major challenge in the validation process. Therefore, further revisions need to emphasize improving the depth of the material and integrating more explicit learning objectives.

The results of trials on three user groups (small group 94%, medium group 86%, large group 88%) confirmed that this media is easy to use, interesting, and able to maintain children's engagement consistently. These findings strengthen the evidence that educational games can increase children's participation and motivation through active interaction and game-based learning experiences, as stated by Nadeem et al. (2023). In a pedagogical context, children's active involvement through games helps them build concepts independently, improve social skills through interaction, and support cognitive development according to the constructivist approach (Rahmawati et al., 2025).

The use of the ADDIE model has also been shown to help produce more systematic and structured media. The stages of analysis and development allow for the creation of media that is relevant to the needs of both children and teachers. This aligns with Agustina et al. (2024), who asserted that game-based media developed through a systematic model can improve the quality of learning.

Furthermore, choosing an animal theme has been shown to have strong pedagogical benefits. Themes that are close to children's daily lives can enhance conceptual understanding through contextual learning (Iskandar et al., 2024; Violy, 2025). Through playing snakes and ladders with an animal theme, children not only gain cognitive experience but also practice language skills, simple arithmetic, and collaboration skills, as also supported by Rahmita et al. (2023).

Overall, the findings of this study indicate that the Snakes and Ladders game can serve as a fun, relevant, and beneficial learning tool for early childhood development.

The high quality of the design and media, combined with the integration of materials that need to be refined, provide important insights for the future development of similar media. With revisions to the content, this media has greater potential to be used as a learning tool that meets the demands of early childhood education.

The validation and user trial results show that the development of this snakes and ladders game media has addressed the problems found in the needs analysis stage, namely the lack of attractive, interactive, and appropriate learning media according to the characteristics of early childhood at Kemala Bhayangkari Waikabubak Kindergarten. The high validation scores from design experts and media experts show that this media is able to meet teachers' expectations for simple yet effective media to help deliver thematic material. Thus, this media is proven to be relevant to real conditions in schools, especially in increasing learning variations and overcoming the limitations of media previously used by teachers.

The results of this study align with Vygotsky's theory of the Zone of Proximal Development (ZPD), which asserts that children can learn more optimally when they receive appropriate assistance or stimulation through enjoyable social and contextual activities. In this context, educational games such as animal-themed snakes and ladders act as scaffolding, providing support to children in the early stages of learning and gradually reducing it as their independence increases (Mustakimah, 2023). These games not only facilitate social interaction between children and their peers but also provide meaningful, concrete experiences, thus helping children achieve higher competencies (Xi & Lantolf, 2021). The visualization of animal images, rules, and peer involvement in the game provide additional support for children to learn through meaningful and enjoyable activities. This is reinforced by Margolis (2020), who emphasized that the application of ZPD and scaffolding in learning can encourage conceptual restructuring and holistic development of children's thinking through collaborative activities and social dialogue.

This research reinforces the findings of several previous studies showing that board-based educational games, such as Snakes and Ladders, are effective in increasing motivation and conceptual understanding in early childhood. For example, research by Syawaluddin et al. (2020) demonstrated that Snakes and Ladders learning media can significantly improve students' interest and learning outcomes in social studies at the elementary school level. Although the age and subject contexts differ, the pattern of increased motivation and learning outcomes was also found in research by Permatasari & Marzuki (2022), which showed that the use of Snakes and Ladders media in

mathematics learning can improve students' conceptual understanding and learning motivation. These findings are consistent with research by Amirunni'am et al. (2025), which reported that Snakes and Ladders media can create a fun learning atmosphere and increase motivation in physical education. Therefore, the results of this study provide an additional contribution that animal-themed Snakes and Ladders game modifications are also effective in early childhood education contexts.

CONCLUSIONS AND SUGGESTIONS

This research successfully developed a snakes and ladders game learning media based on the ADDIE model with an animal theme for early childhood at Kemala Bhayangkari Waikabubak Kindergarten. The validation results showed that this media was very suitable for use, with a design expert score of 95%, media expert 96%, material expert 73%, and peer 90%. The practicality test on users also gave very good results, namely 94% in small groups, 86% in medium groups, and 88% in large groups. These findings confirm that this snakes and ladders game media is easy to use, interesting, and able to increase children's motivation and involvement in the learning process. Thus, this media can be an effective and fun alternative in supporting thematic learning for early childhood. Further research is recommended to continue the Implementation and Evaluation stages of the ADDIE model so that the effectiveness of the media can be tested on a wider scale and in real learning situations. Further research is recommended to continue the Implementation and Evaluation stages of the ADDIE model so that the effectiveness of the media can be tested on a wider scale and in real learning situations. Furthermore, content improvements are needed, given that the expert validation score (73%) was lower than in other aspects. Teachers and media developers are also encouraged to adapt game content to other curriculum themes to allow for more flexible use across various early childhood learning topics. Developing digital or interactive versions can also be considered to increase accessibility and increase children's learning interest.

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