Development Of The Word Snake And Ladder Media In Improving Early Reading Skills For Preschool Children In Group B

Deti Cahyati [1], Yolanda Pahrul [2], Maulida Nur[3], Mutoharoh Mutoharoh[4], Galuh Mulyawan[5]

deticahyati5@gmail.com [1], yolanda.pahrul@binabangsa.ac.id [2], ,maulidanur@binabangsa.ac.id[3], mutoharohmutoharoh435@gmail.com [4], Galuh.muliawan@gamil.com [5]

Early Childhood Education, Bina Bangsa University, Serang City, Banten, Indonesia

Abstract

Early reading skills are crucial for young children, although in practice, many children still have difficulty identifying letters and words. This study developed the *Ular Tangga Kata (URGATA)* media through the Research and Development (R&D) method using the ADDIE model. The validation test results showed that this media is suitable for use, with a score of 80% from media experts and 77.1% from subject matter experts, as well as receiving excellent appreciation (92%) from education practitioners. Empirically, the use of URGATA has been proven effective in improving children's reading skills, as seen from the increase in the average score from 44 to 84 with an N-Gain value of 0.7 (moderate category). Therefore, URGATA is an effective learning media solution to stimulate early reading skills.

Keywords: Early Reading, early childhood, snake and ladder word media

INTRODUCTION

Early childhood education is very significant because ideally it should start as early as possible, even from the moment a child is born. Early childhood, known as the golden age, is a crucial phase for supporting the development of various aspects, such as cognitive and language skills. The goal is to equip children to be ready for the transition to various levels of education, whether through formal channels or other learning paths (Aulina & Sausan, 2024). Therefore, early childhood

education is an essential foundation and a form of planned intervention to optimize children's development in preparation for higher education in the future.

Education in the era of globalization is faced with the demand to improve skills in line with the 21st century. To face the challenges of the 21st century, reading skills are very important for children. Literacy skills, critical thinking, and problem-solving skills are rooted in reading activities. Through its receptive nature, reading becomes a means for a person to acquire new data and experiences. This not only adds to theoretical knowledge but also effectively broadens a person's perspective and insight into the world (Nikmah et al., 2021).

The activity of reading itself is complex, involving the process of recognizing letters and words, connecting sounds with meanings, and drawing conclusions about the purpose of reading (Antariani et al., 2021). From this explanation, it is clear that reading is a very important basic skill. The inability to read at an early age risks causing significant learning obstacles when children enter elementary school. This makes learning to read in childhood an urgent preparation, not only for the sake of their continued education, but also to equip them with competencies relevant to the needs of the 21st century.

According to Darwadi in Nironi & Jumiatin (2023), reading is the skill of recognizing, understanding, and pronouncing written words correctly. Because early reading is the first step in the reading learning process, the goal is to introduce the alphabet to children as a prerequisite for mastering reading skills at the next level. In line with Pertiwi's (2016) view, the main objective of teaching reading at the early level is to strengthen children's ability to convert written text (letters, syllables, and sentences) into vocal articulation. In line with the Child Development Achievement Level Standards (STPPA) in Permendikbud Number 137 of 2014, the literacy aspects of children aged 5-6 years emphasize four main points, namely: the ability to name letters, recognize the initial sounds of objects, identify images with similar initial sounds, and understand the relationship between sounds and letter forms.

Etymologically, the term "media" comes from the Latin word medium, which refers to an intermediary or conveyor. In the instructional realm, learning media is positioned as a strategic instrument that facilitates the distribution of information and educational materials from educators to students in order to optimize the learning process. According to Nurhasana (2021), learning media plays a strategic role in achieving educational targets. According to Gagne in Sapriyah (2019), media is an element of the learning environment designed to stimulate students in mastering new knowledge and competencies. In line with this, Fadillah (2020) emphasizes that the media contribute to optimizing the efficiency of material delivery by teachers and facilitate the internalization of concepts

in students. Comprehensively, learning media can be defined as educational instruments that function to bridge the transfer of information systematically. In addition to acting as a cognitive intermediary, media is also crucial in triggering motivation and building a dynamic and interactive learning atmosphere. The implementation of relevant media has been proven to be able to transform learning to be more organized and interesting, which ultimately contributes significantly to the intellectual growth of students.

According to Widayati in Pahrul (2022), Educational Play Tools (APE) are defined as play instruments oriented towards stimulating various dimensions of child development. In line with this, Firdaus & Ghonim (2023) View APE as a medium that integrates the concepts of learning and playing, thereby creating a more recreational educational experience. Furthermore, according to Natsir in Sardjana et al. (2025), ETP encompasses all forms of equipment used by children in play to optimize their potential and capabilities. A synthesis of these various theories shows that ETP is an instructional medium designed to realize learning that is both enjoyable and substantive. Apart from serving as a means of entertainment, APE is an effective catalyst in stimulating children's holistic development, including cognitive, social, emotional, spiritual, and motor aspects, while still prioritizing the active role of educators in the implementation process.

The reality in the field shows that there are still early childhood children who face challenges in mastering early reading skills. According to observations, some children have difficulty identifying and distinguishing letters. This has an impact on their ability to spell words completely and arrange letters into syllables. In addition, it was found that children are more likely to forget words they have learned previously, indicating a problem with early vocabulary retention. This situation shows that creative and engaging learning interventions are needed to address problems in the development of reading skills in early childhood.

There are several main reasons why children's reading skills are still lacking. First, a lack of focus and concentration during the learning process is a significant challenge. This is exacerbated by teaching approaches that are considered uncreative and insufficiently interesting to stimulate children's enthusiasm and active participation. In addition, teachers also face difficulties in effectively implementing game-based learning methods, as well as the use of learning media in schools that is not varied enough. As a result, children quickly become bored and lose interest in learning activities that should be interactive and fun. The synergy of these various factors has resulted in the creation of a learning ecosystem that is not conducive to optimizing the stimulation of basic literacy skills in early childhood.

Previous studies have proven the effectiveness of educational games, particularly snakes and ladders, in supporting early literacy in children. Hayati & Sit Masganti (2024) used snakes and

ladders to introduce the alphabet, Aulina & Sausan (2024) developed the Reading Snakes and Ladders Carpet (Kartaca) to practice recognizing vowels, while Nironi & Jumiatin (2023) utilized snakes and ladders to introduce vocabulary according to learning themes. Although the results are positive, these studies are still limited to the introduction of letters or basic vocabulary, and do not comprehensively emphasize early reading skills, which include the stages of letter recognition, syllable formation, and whole word formation. This discrepancy underlies the urgency of developing innovative learning media that offer greater variety and flexibility for children's learning needs.

Based on these conditions, this study initiated the development of the Word Snake and Ladder (URGATA) media as an innovative educational game tool to stimulate basic literacy in early childhood. URGATA integrates the characteristics of traditional games with a systematic learning design that allows children to gradually master reading skills in a recreational atmosphere. The significance of this research focuses on providing learning instruments that meet the standards of feasibility, practicality, and effectiveness for strengthening early literacy. The focus of this research includes: (1) the URGATA design and development process, (2) media validity testing, and (3) analysis of its effectiveness in improving children's reading skills. The implementation of this media is projected to assist educators in managing dynamic learning, triggering student motivation to learn, and contributing to improving the quality of early childhood education.

METHODOLOGY

Type of Research

This study applies the Research and Development (R&D) method, which aims to produce educational products while empirically testing their effectiveness and feasibility. Referring to Borg and Gall in Br. Sembiring et al (2024), R&D is understood as a systematic procedure in designing and validating instructional products. In line with this, it is emphasized that R&D is a methodological approach to creating and testing the validity of products, while Sugiyono (2019) focuses on the dual functions of R&D, namely product validation and development to make it more efficient, practical, and effective. This method is operationalized using a Mixed Methods approach, which synergizes descriptive qualitative analysis with quantitative analysis to accurately measure product validity and effectiveness. The development framework adopted is the ADDIE model, which includes five essential phases: Analysis, Design, Development, Implementation, and Evaluation.

Time and Place of Research

The research was conducted at KB Ummatan Wasathon, located in Kp. Keronjen RT/RW 004/004, Kasemen District, Serang City, Banten Province. This research was conducted from April 2025 to July 2025.

Research Objectives

This research involved several parties, namely: (1) expert validators consisting of subject matter experts, practitioners, or early childhood education lecturers with expertise in early childhood literacy. And media experts, namely practitioners or lecturers who understand the design and development of learning media; (2) One homeroom teacher who was interviewed before the media development process and participated in evaluating the level of satisfaction with the URGATA media after it was implemented; and (3) Group B students at KB Ummatan Wasathon, consisting of 10 children who acted as the main users in testing the learning media.

Data Collection Techniques and Instrument Development

To obtain accurate data, researchers applied five main data collection techniques. First, observations were conducted at KB Ummatan Wasathon to monitor children's reading learning activities. Second, interviews were conducted with classroom teachers to understand the context of needs in the field. Third, media feasibility assessments were collected through questionnaires filled out by expert validators and practitioners. Fourth, media effectiveness was measured by comparing pre-test and post-test results. Finally, researchers used documentation techniques to collect physical evidence supporting the validity of the research data as a whole.

Data Analysis Techniques

This study utilized qualitative and quantitative data analysis. The qualitative analysis process was carried out by narratively describing the results of interviews, observations, expert validation, and documentation through the stages of reduction, presentation, and conclusion drawing using triangulation. Quantitative analysis processed the validator questionnaire scores using a Likert scale to assess the suitability level of the URGATA media.

Table 1. Likert scale scores

No	Description	Score
	Very Good	5
2	Bad	4
3	Fair	3
4	Not enough	2
5	Very insufficient	1

Table 2. Likert Scale Interval

No	Interval	Score
1	$1.0 \geq x < 2.00$	Not Valid
2	$2.00 \geq x < 3.00$	Less Valid
3	$3.00 \geq x < 4.00$	Valid

Assessing the validity of a medium created by researchers requires additional measurement and calculation steps. After the questionnaire is given to the validator, the scores obtained are analyzed using the formula below.

$$P = \frac{\sum x}{\sum xi} \times 100$$

Explanation:

P   : Percentage

$\sum x$: Total score obtained on the questionnaire

$\sum xi$: Ideal Score

The results of the data calculation in percentage format are then converted into assessment criteria to measure the validity and feasibility of the learning media being developed.

Table 3. Table of Feasibility Level Criteria

No	Percentage	Category
1	81%-100%	Highly Recommended
2	61%-80%	Suitable
3	41%-60%	Fairly Acceptable
4	21%-40%	Less Adequate
5	1%-20%	Unsuitable

The effectiveness of the media was measured using the N-gain formula, by analyzing the difference between pre-test and post-test scores.

$$\text{N-gain} = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

Explanation:

N-gain = Total increase in student ability

Pre-test = Pre-test results

Post-test   = Post-test score

Ideal Score   = Maximum Score (100)

Table 4. Criteria for Improving Learning Outcomes

Value	Category
$g < 0.3$	Low
$0.3 \geq g < 0.7$	Moderate
$g > 0.7$	High

Table 5. Interpretation of N-gain Effectiveness

Value	Category
< 40	Not effective
40% - 55%	Less effective
56% - 75	Fairly effective
> 76	Effective

RESULTS

Development Process

The output of this development research is the URGATA (Snake and Ladder Words) media. To ensure the quality of the media in improving early reading skills, the process was carried out comprehensively through the ADDIE cycle, which includes the stages of needs analysis, concept design, product development, implementation testing, and final assessment or evaluation.

Analysis stage

This stage aims to tailor the media to children's needs. Observations and interviews revealed children's difficulties in recognizing letters, distinguishing sounds, and reading simple words ( ), with low motivation and limited media. The researchers concluded that innovation was necessary, leading to the development of the Ular Tangga Kata (URGATA) media in accordance with the Basic Competencies and STPPA for children aged 5–6 years.

Design stage

In the design stage, this study produced the Word Snake and Ladder (URGATA) learning media aimed at supporting early reading skills in young children. The URGATA media is in the form of a 2×2 meter banner with 100 numbered boxes, snake and ladder icons, and stars containing removable words. The dice are made of flannel filled with Dacron to ensure safety. Effectiveness was tested through pretest–posttest and validation by media experts, subject matter experts, and teachers.

Development stages

During the development stage, the Ular Tangga Kata (URGATA) media was refined from its initial design to make it more visually appealing, educational, and suitable for early childhood development. After that, a validation process was carried out by media experts who assessed the technical aspects of appearance and usability, as well as by subject matter experts who evaluated the suitability of the content with basic competencies and the suitability of the material for early reading learning.

Implementation stage

A limited trial was conducted on 10 children in Group B of the Ummatan Wasathon Kindergarten with a pretest, learning using URGATA, and a posttest to assess the improvement in early reading skills.

Evaluation stage

The evaluation included validity (expert assessment), practicality (teacher observation and feedback), and effectiveness (pretest–posttest results).

Observation and interviews

Observations and interviews were conducted before the media development stage as a basis for analyzing student needs. The results of these observations and interviews are presented below.

Table 6. Observation Results

No	Aspects Observed	Observation Results Before URGATA Media
1	Teacher teaching strategies	Using letter cards and writing on the blackboard
2	Learning media	Limited media (letter cards, blackboard)
3	Student response and enthusiasm	Students get bored easily and lack enthusiasm
4	Student involvement	Not all children are actively involved; some are busy playing on their own.
5	Ability to recognize letters/syllables	The majority of children are not yet fluent in recognizing letters or syllables.
6	Attention and concentration	Short attention span (less than 5 minutes)

Based on observations conducted at KB Ummatan Wasathon, before the use of the Word Snake and Ladder (URGATA) media, reading was still taught conventionally using classical methods and simple media such as letter cards and blackboards. This caused children to quickly become bored, less enthusiastic, and easily lose focus. After the URGATA media was implemented, there was a significant change in the teachers' strategies and student engagement. Teachers became more creative in delivering material through a play-based approach, while students became more active, focused, and enthusiastic about learning.

Interview results

To deepen their understanding of the issues at hand, the researchers conducted interviews with the teachers concerned. Interviews were conducted with **Mrs. Risma**, a teacher in group B at **KB Ummatan Wasathon** in 2025. The following is a transcript of the interview:

How has the reading learning activity been carried out in Group B so far? *Answer: The reading process begins with an introduction to the alphabet, followed by vowels. After that, students are taught to combine syllables and then read whole words.*

What approach or method is used in teaching early reading? *Answer: The method used is the phonics method for learning letters. In addition, letter cards and writing on the blackboard are also used.*

How do students participate in early reading activities in class? *Answer: Students are more enthusiastic when the lessons are interspersed with songs. Songs help them memorize letters and words more easily and increase their enthusiasm for learning.*

What are the obstacles or difficulties encountered when teaching reading to students? *Answer: The main difficulty is that students quickly lose focus. Usually, they can only focus for 5 minutes, after which they start playing. Children's level of focus is also influenced by stimulation from home and environmental conditions.*

How can these challenges be overcome in the classroom? *Answer: Usually, icebreaking activities such as singing songs are used to attract students' attention. Once their attention has been regained, reading activities continue.*

What learning media are used to support reading? *Answer: The media used include letter cards, writing on the blackboard, and also cell phones if needed. The media used are simple due to limitations in creativity and resources.*

Are the media used interesting and appropriate for the characteristics of early childhood? *Answer: Children are more interested in new media. Teachers sometimes find it difficult to find interesting media because students get bored quickly if the media is the same all the time.*

Do these media help students better understand the introductory reading material? *Answer: The media are very helpful, especially for students who do not receive enough stimulation at home. With the media, they are helped to recognize letters and initial words.*

What are the learning outcomes of students after several reading lessons? *Answer: Learning outcomes vary. Some students are quick to grasp the material, but some still experience difficulties, especially if they come to school in unfavorable conditions, such as not having eaten breakfast or having just woken up.*

Is there any noticeable improvement in students' reading skills? *Answer: There is improvement, but it is uneven. Only some students show improvement because their involvement and stimulation at home vary. Some learn quickly but also forget quickly. Therefore, the role of parents is very important because learning time at school is limited.*

The interviews revealed that children's motivation to learn to read is still low, and enjoyable and interactive learning media are very limited. Teachers also said that the biggest challenge in learning activities is keeping children actively engaged in learning letters and words. This input from teachers reinforces the findings of previous observations and is an important basis for determining the direction of media development in line with the characteristics of early childhood.

Expert validation

The validation stage aims to ensure the functionality of the media through expert assessment. The results of the validity test from the media and material aspects are presented as follows:

Table 7. Summary of Expert Media and Content Validation Results

No	Validator	Aspects Assessed	Score Obtained	Maximum Score	Percentage (%)
1	Media Expert	Physical/Appearance and Benefits	40	50	80
2	Subject Matter Expert	Content Suitability and Relevance	27	35	77.1
		Average			**78.55**

The validation results show that the URGATA media obtained a score of 80% from media experts and 77.1% from material experts, with a cumulative average of 78.55%. This score places URGATA in the "Suitable" category for stimulating the early reading skills of children in group B. However, the researchers continued to make improvements based on the validators' input so that the final product would be more effective and adaptive to the characteristics of the children.

Table 8. Revision Results from Validators

Validator	Before Revision	After Revision
Media Expert	Suggestions and input: The material used should be provided with a non-slip base to prevent children from falling/slipping	Improvements: Banners are attached with anti-slip tape at the top and bottom of the Snakes and Ladders board (URGATA).
Materials Expert	Suggestions and feedback:	Improvements:

| Correct the spelling of letters according to the KBBI (Indonesian Language Dictionary). | The spelling has been adjusted according to KBBI, such as the word "Pencil" being changed to "pencil". |
| Improve the font for better clarity, especially the distinction between lowercase and uppercase letters, to prevent confusion among children. | The font has been changed to *Calibri* with clearer capital letters that are easier for children to read. |

The product was implemented through a limited trial involving 10 students from group B at KB Ummatan Wasathon. The effectiveness of the URGATA media was measured using a pre-test and post-test instrument, with details of the learning outcomes shown in the following table.

Table 9. Pre-test and Post-test Results

No	Student Name	Pre-test	Post-test
1	Respondent 1	60	100
2	Respondent 2	30	80
3	Respondent 3	50	90
4	Respondent 4	60	100
5	Respondent 5	50	100
6	Respondent 6	40	90
7	Respondent 7	30	60
8	Respondent 8	50	80
9	Respondent 9	40	80
10	Respondent 10	30	60
	Total	440	840
	Average	44	84
	N-gain Score		**0.7**

Reading ability was evaluated using a test instrument consisting of 10 questions with a score range of 0–100. The pre-test was used to map initial competence, while the post-test measured progress after the URGATA media intervention. The significance of the increase was calculated using the N-Gain formula. The results showed an increase in the average score from 44 points to 84 points. The N-Gain score of 0.7 categorizes the effectiveness of the media as "Moderate." This proves

that the implementation of URGATA significantly improves early reading achievement compared to the initial conditions.

In addition to being tested on students, the URGATA media was also evaluated by homeroom teachers to determine the level of user satisfaction. The assessment was conducted through a questionnaire designed to assess the effectiveness, attractiveness, and benefits of the media in reading learning. The results of the questionnaire from the teachers' responses are presented as follows.

Table 10. Recapitulation of Teacher Evaluation Questionnaire Results on URGATA Media

No	Assessment Aspect	Score	Maximum Score	Percentage (%)
1	Ease of Use and Media Appeal	46	50	92

The results of the teacher response survey on the media obtained a score of 92%. A percentage of 92% falls into the "very feasible" category.

Final product

The final product of *the Word Snake and Ladder (URGATA)* media shows improvements from the initial design based on expert validation and limited testing. This media is designed as an educational game measuring 2×2 meters, made of waterproof banners with 100 numbered boxes, decorated with snake and ladder icons, and 25 star icons as reading activity points.

Each star icon contains words that can be replaced according to the learning theme, printed on art carton paper and inserted into a durable plastic mica container. The visual design uses bright colors and attractive characters according to the interests of early childhood. The game dice are made of safe-to-play Dacron and flannel. URGATA is played in groups, encouraging social interaction and collaborative learning.

Image1 . URGATA Board Design

Figure 2. URGATA Media Word Cards

Figure 3. URGATA Media Game Dice

DISCUSSION

Procedure for Developing the URGATA Word Snake and Ladder Game

The development of URGATA media is based on curriculum synchronization and early literacy needs analysis. Findings at KB Ummatan Wasathon reveal that the dependence on conventional methods and the lack of media variety result in low attention spans among children. Therefore, game-based learning innovations are essential to improve student focus and activity. This is in line with the argument of Anggaraini et al (2024) that limitations in creative media can hinder various aspects of child development. Conversely, the use of innovative media can create an interactive learning environment that effectively encourages active student engagement.

URGATA media was developed as a tool for teachers to stimulate early literacy skills through a recreational play approach. The integration of game elements in this media aims to create an interactive and dynamic learning atmosphere, in line with Nurtaniawati's (2017) thinking regarding the urgency of cognitive stimulation in children in the concrete preoperational phase. In addition to its functional aspects, the use of bright colors and visual illustrations in URGATA is designed to optimize learning enthusiasm. This is reinforced by (Sugiarti et al., 2025), who asserts that media with attractive aesthetics can trigger motivation and increase the effectiveness of knowledge transfer.

Feasibility of the Word Snake and Ladder Game (URGATA)

After the development stage, the URGATA media underwent a validation procedure by media experts and subject matter experts. This process aimed to justify the product's feasibility and map out aspects that needed improvement before implementation. From the validation results, media experts suggested adding an anti-slip mat to the banner-based game board to make it safer for children to use. This suggestion is important because learning media for early childhood must consider safety and comfort factors. This view is in line with Koesmadi & Kusuma (2023), who emphasize that ideal learning media must be safe, flexible, support child development, encourage active participation, be constructive, and durable for repeated use.

From the subject matter expert's perspective, there was input that the vocabulary on the game cards should be adjusted to the correct spelling according to the KBBI (Big Indonesian Dictionary), and the use of letters should be made clearer to distinguish between upper and lower case letters. This adjustment is important so that children can recognize the shape of letters correctly and get used to using standard words. This finding is reinforced by the view of Markus et al (2017) that the introduction of vocabulary that complies with language standards can expand children's diction and linguistic abilities. In addition, Sri Rahayu et al (2024) emphasize that consistency in letter typography is crucial to prevent cognitive confusion in children when reading. Empirically, URGATA media has been tested through validation with a score of 80% from media experts and

77.1% from material experts, placing it in the "Suitable" category. These results are in line with the study by Cahyanti et al (2023), which confirms that giant snake and ladder media is highly effective as an alternative learning instrument at the early childhood education level.

Effectiveness of the Word Snake and Ladder Media (URGATA)

Data analysis confirms a significant improvement in children's basic literacy skills after the implementation of the URGATA media. The increase in the average score from 44 (pre-test) to 84 (post-test) resulted in an N-Gain value of 0.7 in the "Moderate" category. These findings reinforce the effectiveness of URGATA in stimulating early reading skills, in line with Lestari's (2024) research, which obtained an N-Gain score of 0.64 in the development of the Smart Reading Snakes and Ladders media, which also showed a significant increase in reading skills.

Furthermore, URGATA transformed into a catalyst for changes in learning behavior; children who were initially passive now showed enthusiasm and active participation. This proves the argument of Isnada & Al Muhajir (2023) regarding the low effectiveness of conventional methods. The enjoyable competitive atmosphere in URGATA successfully triggered high motivation, which, according to Rahman (2021) is a key factor in learning success. Gradually, children showed real progress in letter identification and word formation, confirming this media as an attractive and effective educational tool.

CONCLUSION

This development study concludes that the URGATA media, which was developed using the ADDIE framework (analysis, design, development, implementation, and evaluation), meets the criteria for high-quality learning media. The validity of the product is proven by a feasibility score of 80% from media experts and 77.1% from subject matter experts, as well as positive responses from 92% of teachers. Empirically, this media is effective in improving early reading competence in young children, as indicated by an N-Gain score of 0.7 (moderate category). Therefore, URGATA is declared a suitable and effective instrument for implementation in literacy learning at the early childhood education level.

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