

## **Development of the Board Game "Petualangan Si Kelinci Kecil" as a Tool for Early Childhood Literacy Stimulation in Raudhatul Athfal Istiqlal Jakarta**

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### **ABSTRACT**

This study develops and evaluates "The Adventure of the Little Rabbit," an interactive board game designed to enhance early childhood literacy. Using the ADDIE model within a Research and Development (R&D) approach, the game was tested with 30 children and 2 teachers at RA Istiqlal Jakarta. Expert validation confirmed its educational value, clarity, and design suitability, with feasibility scores ranging from 75.5% to 81%. A pre-test and post-test showed significant improvements in letter recognition, phonemic awareness, word formation, and writing skills. Observations and teacher feedback highlighted high engagement and motivation among children. The results indicate that the board game is an effective and engaging tool for literacy development. Future research should explore its long-term impact and broader applications.

**Keywords:** Board Game, Early Literacy, Interactive Learning, Educational Games

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## **INTRODUCTION**

Reading and writing literacy is a fundamental skill that plays a crucial role in a child's cognitive and social development. It serves as the foundation for future education and enables effective participation in social and cultural life. The development of literacy skills in early childhood significantly influences a child's ability to comprehend and process information while also enhancing their ability to communicate effectively. Reading and writing are complex activities that require structured learning, especially for young children who are just beginning to recognize letters and words. According to J.W. Lerner (as cited in Ahmad, 2011:164), children in the early stages of schooling who have not yet mastered reading skills will face various difficulties in understanding subjects at higher levels. Therefore, it is crucial for children to acquire reading skills early to facilitate their learning process.

Based on the Indonesian Ministry of National Education Regulation (Permendiknas) No. 58 of 2009 concerning early childhood education standards, six literacy learning achievements must be attained by children aged 5-6 years: (1) recognizing and naming familiar letter symbols; (2) identifying the initial letter sound of objects around them; (3) naming groups of images with the same initial letter sound; (4) understanding the relationship between letter sounds and shapes; (5) reading their own name; and (6) writing their own name. However, the current literacy learning methods used in preschools and early childhood education settings often lack engagement. Traditional teaching approaches, which are monotonous and non-interactive, frequently cause children to lose interest and motivation in learning to read and write. This lack of engagement can hinder their literacy development and slow down their overall learning progress.

Research suggests that children learn best when they are actively engaged and enjoy the learning process. Conventional teaching methods that rely heavily on rote memorization and repetitive exercises have been found to be less effective in motivating children to read and write. Instead, interactive and playful approaches can significantly boost children's enthusiasm for literacy learning and help them grasp reading and writing concepts more effectively (Tangkudung, 2024). To address these challenges, it is essential to adopt more innovative and engaging learning strategies. One promising approach is the use of educational games as a learning medium. Educational games not only make learning more enjoyable but also encourage children's active participation in the learning process. Moreover, games provide meaningful contexts for children to apply their literacy skills, making learning more effective and enjoyable.

"The Adventure of the Little Rabbit" board game is designed to create a fun and interactive learning experience for early childhood learners. Using captivating characters and an engaging storyline, this game encourages children to develop reading and writing skills through activities that capture their interest. The game incorporates literacy challenges and activities in a playful format, fostering motivation and reinforcing literacy skills in an enjoyable way. This board game integrates letter recognition and word formation activities into an adventure-based learning experience. Through gameplay, children not only improve their reading and writing abilities but also develop critical thinking, creativity, and teamwork skills. The game's collaborative nature further enhances children's social and cognitive development, making learning a holistic experience.

The use of board games as a learning tool has grown significantly in recent decades, particularly in early childhood education. Board games offer an interactive and enjoyable approach that supports the development of various cognitive, social, and motor skills. Recent studies have shown that game-based learning, including board games, positively impacts learning motivation, conceptual understanding, and children's problem-solving abilities (Ramani & Siegler, 2008; Hanus & Fox, 2015).

According to Ramani and Siegler (2008), number-based board games can enhance children's numeracy skills by encouraging them to think critically, collaborate, and understand abstract concepts such as numbers and sequences. Their study demonstrated

that well-designed games serve not only as entertainment but also as effective educational tools.

Moreover, research has highlighted the effectiveness of board games in literacy learning. Zosh et al. (2013) found that literacy-based board games significantly enhance children's reading abilities in an engaging and interactive way. Their study showed that play-based activities incorporating letters, words, and storytelling encourage children to participate more actively in literacy learning compared to traditional methods. Similarly, Gillies and Boyle (2010) found that board games improve social interaction and collaboration among children, which in turn supports literacy and communication skills. Board games encourage cooperative learning, enhance speaking and listening abilities, and help children develop better comprehension of educational content. In designing educational board games, it is essential to consider content and structure appropriate for children's developmental stages. Howard-Jones and Jay (2016) emphasized that games incorporating challenging cognitive elements can enhance higher-order thinking skills, including critical thinking and problem-solving. They also highlighted the importance of adult involvement, such as teachers or parents guiding children during gameplay, to maximize the educational benefits of board games. Research has consistently demonstrated that board games can be an effective strategy for enhancing literacy skills in early childhood. Supported by game-based learning theories and empirical findings, the development of "The Adventure of the Little Rabbit" board game aims to contribute positively to early childhood literacy instruction.

This study builds upon prior research in early childhood literacy and educational games. For example, Ariyati (2025) found that using visual aids in literacy learning significantly enhances children's reading skills, while Kurnia (2017) reported a 2.5% improvement in literacy proficiency with the use of image-based learning media. Hadini (2017) and Ardiana (2021) further confirmed that literacy learning tools such as letter cards, word cards, and puzzles effectively enhance children's reading abilities. Additionally, Setyowati & Imamah (2023) found that word and picture cards significantly improved early literacy outcomes, with increased numbers of children reaching the "Very Well Developed" category and fewer remaining in the "Not Yet Developed" or "Starting to Develop" categories. By integrating findings from previous research, this study aims to develop an engaging and interactive board game that fosters literacy development in early childhood learners. This study focuses on the development stage of "The Adventure of the Little Rabbit" board game using a systematic Research and Development (R&D) approach with the ADDIE model. The findings from this study contribute to the understanding of how educational games can be designed for early childhood literacy and provide preliminary insights for future research on their potential application in literacy instruction.

## **Theoretical Framework**

### **Early Childhood Education**

Early childhood education is a comprehensive developmental process for children from birth to six years old, encompassing both physical and non-physical aspects. This

process provides appropriate stimulation to support physical growth, motor development, intelligence, emotional well-being, and social skills to ensure optimal development (Maharwati, 2019; Ramadoni et al., 2016; Rohaeni, 2014). Early childhood education aims to facilitate children's development according to their growth stages, allowing them to recognize themselves, interact with their surroundings, and organize their environment as they experience cognitive and physical development (Astuti et al., 2020; Dewi et al., 2019; Yuniarni et al., 2020).

According to developmental theories, early childhood is considered the "golden period" due to rapid brain development and responsiveness to various stimuli (Santrock, 2021). Therefore, education and nurturing at this stage should be well-designed to optimize children's growth and development (Berk, 2020). Play serves as a fundamental component of learning during this stage, as it helps children develop motor skills, language abilities, creativity, and problem-solving skills (Frost et al., 2018). Thus, early childhood education should incorporate interactive, engaging, and developmentally appropriate methods to foster positive learning experiences (NAEYC, 2020).

### **Literacy Development in Early Childhood**

Early childhood literacy encompasses reading and writing skills and a broader understanding of language use for communication, self-expression, and comprehension of the world. According to Sulzby and Teale (1991), early literacy involves recognizing letters, phonemes, and words, as well as the ability to understand stories and express ideas through pictures or writing.

Reading is a process of converting symbols or written text into meaningful sounds. It involves both physical and cognitive aspects, requiring the reader to actively interpret symbols as a form of communication (Dalman, 2014). Anderson defines reading as a process of deriving meaning from text, which includes recognizing letters, words, phrases, and discourse while connecting them to sounds and meanings (Basyiroh, 2017).

Reading is a process of transforming symbols or written text into meaningful sounds. Therefore, reading activities involve both physical and mental aspects, where the reader actively and critically interprets written symbols as a form of communication to understand the text and acquire necessary information (Dalman, 2014:6). Anderson (2017:124) defines reading as the process of understanding meaning from a text. In reading, an individual attempts to recognize and interpret letters, words, phrases, sentences, and discourse, then connects them to their sounds and meanings. Furthermore, reading can be interpreted as an effort to associate the meaning of words with written or printed verbal symbols.

Reading is an activity that involves both auditory and visual skills to comprehend the meaning of symbols in the form of letters or words. The reading process consists of decoding (technical reading) and comprehension. Technical reading refers to the ability to recognize the relationship between letters and their sounds, including pronouncing vowels, consonants, diphthongs, and consonant clusters.

According to Suhartono (2005), in the Indonesian language, vowels consist of a, i, u, e, o, while not all consonants are introduced to early childhood learners. Some consonants, such as f, q, v, and z, originate from foreign languages and are not always taught in the early stages. More commonly introduced consonants include bilabial (p, b, m), dental (t, d, s, n, r, l), palatal (c, j, y), velar (k, g), and glottal (h). Additionally, diphthongs such as ai, au, oi, and consonant clusters like kh, ng, ny, and sy are introduced gradually.

Writing, as a complementary skill to reading, requires coordination between cognitive and motor functions. Early writing skills involve activities such as recognizing letters, forming words, and practicing handwriting. According to Vygotsky (1978), literacy development is influenced by social interactions, where children learn through play and engagement with adults and peers. This holistic approach integrates various literacy components—reading, writing, speaking, and listening—into children's daily activities.

Noam Chomsky (1965) introduced the concept of the Language Acquisition Device (LAD), which suggests that children are born with an innate ability to acquire language. His theory argues that exposure to a rich linguistic environment activates this natural ability, enabling children to understand and generate language. In the context of literacy development, Chomsky's theory supports the idea that structured and meaningful exposure to reading and writing activities—such as those integrated into educational board games—can facilitate children's literacy skills. The application of Chomsky's theory in literacy education implies that learning activities should provide ample opportunities for children to engage with language in an interactive and natural way.

### **Game-Based Learning**

Game-based learning has been widely recognized as an effective method to support cognitive, social, and emotional development in early childhood. One of the main benefits of game-based learning is its ability to make the learning process more enjoyable and engaging for children. Through play, children can learn without feeling burdened, which in turn increases their motivation to continue learning (Prensky, 2001). Games also encourage children's active participation in the learning process, inviting them to experiment, solve problems, and think critically. Another positive impact of game-based learning is the enhancement of social skills. Games often involve interaction with peers or adults, helping children develop communication, collaboration, and empathy skills. Through games, children learn about rules, turns, and how to work together to achieve common goals (Vygotsky, 1978). Additionally, games can improve memory, attention, and problem-solving skills, all of which are essential for future academic success.

Previous studies have shown that game-based learning can yield significant results in various aspects of child development. Research by Hirsh-Pasek et al. (2009) found that children engaged in structured play activities demonstrated significant improvements in literacy and math skills compared to those who only received direct instruction. Moreover, research by Fisher et al. (2013) indicated that games involving physical manipulation, such as puzzles or building blocks, can enhance children's spatial and cognitive abilities. Another study by Pellegrini and Gustafson (2005) found that children who frequently engage in

social play, such as role-playing games and rule-based games, exhibit better social and emotional skills than those who play less frequently. Research by Bodrova and Leong (2007) also showed that imaginative play, such as role-playing, can enhance early childhood language and literacy skills. In the context of literacy, the use of educational games such as letter and word games has been proven effective in helping children recognize letters and words and improve their reading skills. Research by Roskos and Christie (2000) demonstrated that well-designed games could integrate literacy elements in an engaging and interactive way, helping children build a strong literacy foundation from an early age. A study by Hanline, Milton, and Phelps (2010) also found that incorporating games into literacy instruction can increase children's engagement and accelerate their reading and writing progress.

Overall, game-based learning offers an effective and enjoyable approach to early childhood education. Its benefits include increased learning motivation, enhanced social skills, and improved cognitive abilities. Previous studies support the use of games as a powerful educational tool, showing that this method can yield significant outcomes in various aspects of child development. Board games have been shown to be effective in enhancing various educational aspects and cognitive functions, including academic knowledge, memory, and executive skills. Additionally, board games can increase learning motivation, promote social interaction, and even reduce certain symptoms of disorders such as ADHD. These games offer a more engaging learning method compared to traditional approaches due to their interactive and enjoyable nature. However, research on the effectiveness of board games remains limited, particularly in assessing their long-term impact. Further studies are needed to obtain stronger evidence regarding their benefits in various educational and therapeutic contexts (The Effectiveness of Intervention with Board Games, 2022).

### **The ADDIE Model in Learning Design**

In this study, the chosen instructional design model is the ADDIE model, which consists of five main stages: Analyze, Design, Develop, Implement, and Evaluate. The ADDIE model was selected because it provides a comprehensive and systematic approach to instructional product development, allowing for adjustments and revisions at each stage based on user feedback (Branch, 2009). Thus, the developed board game is expected to serve as an effective medium for teaching literacy to early childhood learners.



**Figure 1.** ADDIE Research Model

The research subjects consist of early childhood learners, specifically children aged 4-6 years, within the study area. Participants are selected based on inclusion criteria, such as having an appropriate language comprehension level to follow game instructions and not having developmental disorders that could affect participation in the study.

The research procedure begins with the Analysis phase, where the researcher identifies the literacy needs of early childhood learners and designs the game based on the analysis findings. The Design phase involves detailed game planning, including content, rules, and game components. The Development phase involves creating a game prototype based on the planned design. The Implementation phase tests the game prototype with a small group of children to gather feedback and refine the prototype. The evaluation phase is essential in ensuring that the game meets educational standards, engages young learners, and aligns with literacy development goals, instructional clarity, and visual appeal.

The research instruments used in this study include expert validation from three different fields: content experts, language experts, and design experts. Content validation ensures that the board game aligns with early literacy development principles. Experts in early childhood education and literacy assess whether the game content is appropriate, engaging, and educationally sound.

Language validation focuses on evaluating the clarity, appropriateness, and readability of instructions and text used in the board game. This ensures that children can easily understand and follow the gameplay.

Design validation assesses the visual appeal, usability, and ergonomic aspects of the board game. Experts analyze the layout, color scheme, illustrations, and overall user experience to ensure it is attractive and accessible for young learners.

The validation process involves structured checklists, expert feedback, and iterative revisions to enhance the game's quality. By integrating insights from these expert validations, the study aims to develop a board game that is pedagogically effective, linguistically accessible, and visually engaging.

## **METHOD**

This study aims to develop and evaluate the feasibility of "The Adventure of the Little Rabbit" board game as a literacy learning tool for early childhood education. The game is designed to enhance children's interest in reading and writing through an interactive, engaging, and educational approach. By incorporating elements of play-based learning, the game seeks to create a fun and effective learning experience, helping children develop fundamental literacy skills in an enjoyable manner.

The research was conducted at Raudhatul Athfal (RA) Istiqlal Jakarta over a six-month period, from October 2024 to March 2025. This school was selected based on its accessibility, diverse student population, and openness to innovative learning methods. The institution's commitment to early childhood education and willingness to integrate interactive learning tools made it an ideal setting for the development and testing of the board game.

The participants in this study included children aged 4 to 6 years who were enrolled at RA Istiqlal Jakarta. The selected children were those who possessed basic literacy skills or were in the early stages of learning to read and write. Additionally, teachers participated in the study by providing feedback on the development and implementation of the board game. Their insights were valuable in assessing the game's effectiveness, ensuring that it met the needs and capabilities of young learners.

This study employed the Research and Development (R&D) methodology using the ADDIE model (Analyze, Design, Develop, Implement, Evaluate). The ADDIE model was chosen because of its systematic and adaptable structure, which allows for iterative testing and refinement. By following this model, the study ensured that the board game was developed in a way that effectively met the learning needs of young children. Each stage of the ADDIE model played a critical role in designing, testing, and refining the game to enhance its educational value and engagement level.

The development of the board game followed several key phases, beginning with an analysis of children's literacy needs and progressing through game design, prototype development, small-scale testing, and evaluation. Each phase was structured to optimize the game's educational impact, ensuring that it effectively supported early literacy development in a fun and interactive way.

## **FINDING AND DISCUSSION**

### **FINDING**

#### **Model Development**

#### **Needs Analysis Results**

The needs analysis was conducted through interviews with teachers and school administrators at RA Istiqlal Jakarta. The findings revealed that literacy learning for early childhood was already being implemented but faced several challenges regarding methods and media used.

The needs analysis revealed that literacy learning at RA Istiqlal Jakarta employs a play-based approach with a center-based learning model. However, there is a need for

greater variation in media for stimulating early reading and writing. The teaching materials primarily consist of books, letter cards, notebooks, and drawing books, indicating the necessity for more diverse and engaging literacy games. Teachers face challenges in finding non-digital learning media that effectively engage children in literacy activities. Additionally, while parents play a crucial role in supporting their children's literacy development at home, not all are equipped with effective methods for guiding them in reading and writing.

From these findings, it was concluded that a more interactive and engaging learning medium was required. To address this need, the board game was developed as a fun and engaging tool "The Adventure of the Little Rabbit" to help children learn literacy skills.

### **Initial Model Development**

The initial board game model was designed with several key characteristics to support early childhood literacy development. It featured a game board with an alphabet path from A to Z, allowing children to familiarize themselves with letter sequences in a structured and engaging way. To further enhance literacy skills, the game incorporated challenge cards containing phonetic exercises, word reading, and writing tasks, providing a variety of learning experiences for young players.

Additionally, the game introduced "The Little Rabbit" as the main character, creating a fun and immersive storytelling element that kept children engaged. The game was also designed with simple rules that encouraged small group play, promoting collaborative learning, social interaction, and teamwork among young learners. By combining structured literacy tasks with an interactive and playful approach, the board game aimed to make early literacy learning more enjoyable and effective.

### **Model Revisions**

After developing the first model, validation was conducted by content experts, language experts, and design experts. Content experts, particularly early childhood education practitioners, confirmed that the game aligned with literacy development goals. However, they recommended incorporating more varied challenges to enhance engagement and provide children with a more stimulating learning experience. Language experts suggested simplifying the instructions and challenge cards to ensure they were appropriate for children's language development stages. By using simpler sentences, the game could be more accessible and easier for young learners to understand.

Meanwhile, design experts advised enlarging the text on the challenge cards to improve readability and using higher contrast colors on the game board to make the visual elements more distinct. These recommendations aimed to ensure that the game was both educational and visually appealing to young children. Based on these expert evaluations, the board game was revised by adjusting the game rules, refining the visual design, and simplifying the language used in the challenge cards to create a more effective and engaging learning tool.

## Final Model Development

After incorporating expert feedback, the final version of "The Adventure of the Little Rabbit" board game was developed with several key improvements. The game board featured a systematic path based on the alphabet, designed to help children recognize and understand letter sequences in an engaging way. Additionally, the game introduced three main categories of challenge cards, which included phonetic exercises, word reading activities, and word writing tasks. These challenges aimed to enhance children's literacy skills while keeping the gameplay interactive and enjoyable.

To further improve the user experience, the visual design was refined by incorporating higher contrast colors and more engaging illustrations, making the game more visually appealing and accessible for young learners. The game instructions were also simplified, ensuring that both children and facilitators, such as teachers or parents, could easily understand and follow the gameplay. These revisions helped create a more effective and enjoyable literacy learning tool for early childhood education.

## Model Feasibility Assessment

The board game was designed to enhance early childhood literacy (ages 4-6) through an interactive and enjoyable approach. To ensure its feasibility as a learning tool, the model underwent validation by three expert groups: content experts, language experts, and design experts.

The validation process aimed to identify strengths and weaknesses and provide recommendations for improvement, ensuring the game's optimal effectiveness in literacy education. The results served as the basis for refining the model before field testing. The feasibility percentage was calculated using the following formula:

$$\text{Feasibility Percentage} = \left( \frac{\text{obtained score}}{\text{maxsimum score}} \right) \times 100\%$$

## Content Expert Validation

This validation assessed the game's alignment with literacy education goals, gameplay quality, educational value, engagement, and interactivity.

Statement	Score
The game aligns with early childhood literacy development goals.	4
The content is appropriate for children's developmental stages.	4
The game board is colorful and visually appealing.	4
The game rules are clear and easy to understand.	3
The game materials are safe and comfortable for children.	4
The game helps children recognize letters, sounds, and simple words.	4
The game encourages active participation.	4
The game fosters social interaction and teamwork.	4
Children feel connected to the story of The Little Rabbit.	4

The characters in the game attract children's interest.	4
The game provides interactive challenges that encourage participation.	4
<b>Total Score</b>	<b>43</b>
<b>Feasibility Percentage</b>	<b>78%</b>

**Table 1.** The Content Expert Validation Result

With a feasibility score of 78%, the board game meets general feasibility standards. However, minor refinements were recommended, such as simplifying the game rules, improving visual design clarity, diversifying challenges, and providing durability enhancements.

#### Language Expert Validation

This validation evaluated vocabulary suitability, instruction clarity, phonemic support, readability, and language consistency.

Statement	Score
The vocabulary is appropriate for children aged 4-6.	4
Sentences are simple, effective, and easily understood.	4
Instructions are clear and unambiguous.	3
Vocabulary supports phonics and phonemic awareness.	4
Text size on the game board and cards is readable.	3
Spelling conforms to standard early childhood literacy norms.	4
Language consistency across components is maintained.	4
The game helps expand children's vocabulary in an engaging way.	4
Words used are relevant to children's daily experiences.	4
<b>Total Score</b>	<b>34</b>
<b>Feasibility Percentage</b>	<b>75.5%</b>

**Table 2.** Language Expert Validation Result

With 75.5% feasibility, the board game is suitable for use, but refinements were recommended in instruction clarity, text readability, and spelling consistency.

#### Design Expert Validation

This validation assessed visual appeal, readability, consistency, child safety, and material durability.

Statement	Score
The color scheme is engaging and age-appropriate.	4
The main character and illustrations are appealing.	5
Text is sufficiently large for readability.	4
Color contrast supports readability.	3
Illustrations enhance gameplay comprehension.	5
Design consistency is maintained.	5

Game layout is well-structured.	4
<b>Total Score</b>	<b>57</b>
<b>Feasibility Percentage</b>	<b>81%</b>

**Table 3.** Design Expert Validation Result

With 81% feasibility, the design was rated highly suitable, with suggestions to enlarge text on challenge cards and maintain visual consistency.

### Limited Implementation Results

To assess the initial feasibility and effectiveness of the "The Adventure of the Little Rabbit" board game, a limited trial implementation was conducted with 30 children and 2 teachers at RA Istiqlal Jakarta. This phase aimed to observe children's engagement, assess learning outcomes, and gather teacher feedback on the game's usability and educational impact.

The pre-test and post-test assessed four key literacy skills. First, Letter Recognition measured children's ability to identify letters from A to Z. Second, Phonemic Awareness evaluated their ability to match letters with their corresponding sounds. Third, Word Formation tested their skill in constructing simple words using letter cards. Finally, Writing Skills examined their ability to write words correctly with proper letter formation.

To determine whether the improvement in pre-test and post-test scores is statistically significant, a Paired Sample T-Test was conducted. This test is used to compare two sets of related data, in this case, the literacy skills before (pre-test) and after (post-test) using the board game "The Adventure of the Little Rabbit."

Literacy Skill	Pre-Test Mean	Post-Test Mean	Standard Deviation (s)	t-Value	t-Critical (df=29, $\alpha=0.05$ )	Significance
<b>Letter Recognition</b>	6.3	9.1	1.8	<b>8.54</b>	<b>2.045</b>	<b>Significant</b>
<b>Phonemic Awareness</b>	5.7	8.5	2.1	<b>7.91</b>	<b>2.045</b>	<b>Significant</b>
<b>Word Formation</b>	4.1	7.5	2.4	<b>7.08</b>	<b>2.045</b>	<b>Significant</b>
<b>Writing Skills</b>	3.8	7.0	2.6	<b>6.92</b>	<b>2.045</b>	<b>Significant</b>

**Table 4.** Paired Sample T-Test Results for Literacy Skills

The results of the pre-test and post-test showed significant improvements in children's literacy skills after engaging with "The Adventure of the Little Rabbit" board game. Letter Recognition scores increased from 6.3 to 9.1, demonstrating that children became more familiar with the alphabet. This improvement suggests that the game effectively reinforced letter identification through interactive activities. Similarly, Phonemic

Awareness improved from 5.7 to 8.5, indicating that children developed a stronger ability to associate letters with their corresponding sounds.

Word Formation also showed remarkable progress, rising from 4.1 to 7.5. This suggests that children gained greater confidence in constructing words using the letter cards provided in the game. The most significant improvement was observed in Writing Skills, which increased from 3.8 to 7.0. This indicates that children developed better letter formation and word writing abilities, likely due to the structured writing challenges incorporated in the game. These results highlight the effectiveness of the board game in supporting early literacy development in a fun and engaging manner.

Based on the paired t-test results, the findings indicate that t-calculated is greater than t-critical, confirming a statistically significant difference between pre-test and post-test scores. This means that the board game "The Adventure of the Little Rabbit" is proven to significantly enhance early childhood literacy skills.

In addition to the pre-test and post-test results, teacher feedback and classroom observations were conducted to assess the effectiveness and engagement of "The Adventure of the Little Rabbit" board game. The feedback focused on the game's usability, children's engagement, and its impact on literacy development.

Evaluation Criteria	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>The game effectively engages children in literacy activities.</b>	0	0	0	1	1
<b>The game supports early reading and writing skills.</b>	0	0	0	1	1
<b>The challenge cards are appropriate for children's literacy development.</b>	0	0	1	1	0
<b>The game rules are easy for children to understand.</b>	0	0	1	1	0
<b>The game promotes collaboration and teamwork among children.</b>	0	0	0	1	1

**Table 5. Teacher's Feedback**

Indicator	Yes	No	Observations
<b>Children show enthusiasm while playing the game.</b>	27	3	Three children hesitated initially but joined later.
<b>Children actively participate in the game.</b>	25	5	Some children needed additional encouragement.
<b>Children follow the game rules independently.</b>	22	8	Some required guidance on turn-taking and instructions.
<b>Children recognize letters and their sounds.</b>	30	0	All children successfully identified letters.

<b>Children form simple words using letter cards.</b>	23	7	Some needed assistance in spelling.
<b>Children attempt to write words correctly.</b>	21	9	Some struggled with proper letter formation.
<b>Children remain engaged throughout the session.</b>	24	6	A few children were briefly distracted but refocused.

**Table 6. Children's Engagement and Learning Outcomes**

## DISCUSSION

The needs analysis conducted at RA Istiqlal Jakarta revealed that literacy learning for early childhood was already being implemented through a play-based approach with a center-based learning model. However, the findings indicated that there was a need for greater variation in media for stimulating early reading and writing. The available teaching materials primarily consisted of books, letter cards, notebooks, and drawing books, which, while useful, did not fully engage children in literacy activities. Teachers faced challenges in finding non-digital media that effectively supported literacy development, and many parents lacked effective strategies for guiding their children in reading and writing at home. To address these gaps, the board game "The Adventure of the Little Rabbit" was developed as an interactive and engaging tool to support children's literacy learning.

The initial model of the board game was designed based on these needs analysis findings. The game featured an alphabet-based game path, allowing children to familiarize themselves with letter sequences in an engaging way. It also included phonetic challenges, word reading tasks, and writing activities, providing multiple opportunities for literacy development. To further enhance engagement, a main character, "The Little Rabbit," was introduced, integrating storytelling elements to make the learning experience more immersive and enjoyable. The game followed simple rules to encourage collaborative play, allowing children to work together while developing their literacy skills. This combination of structured literacy activities and interactive gameplay was intended to make early literacy learning both effective and enjoyable.

To ensure the game's educational effectiveness, clarity, and usability, a validation process was conducted with content experts, language experts, and design experts. The content experts, consisting of early childhood education practitioners, confirmed that the board game aligned with literacy development goals but suggested adding more challenge variations to maintain children's interest. Language experts emphasized the importance of simplifying instructions and challenge cards, making the game more accessible to young learners. Design experts recommended enhancing the contrast of colors, enlarging text for better readability, and refining visual elements to improve the overall usability of the game. Based on these expert recommendations, the board game underwent several modifications, including adjustments to the game rules, improvements to the visual design, and simplifications in language, ensuring that it provided an effective and engaging learning experience for early childhood literacy development.

The feasibility of the board game was further assessed through expert validation. The content expert validation resulted in a 78% feasibility score, indicating that the game effectively supported literacy development but could benefit from refinements in game rules and challenge variations. The language expert validation yielded a 75.5% feasibility score, confirming that the vocabulary and instructions were appropriate, though some improvements in readability and consistency were recommended. The design expert validation received a score of 81%, highlighting the game's strong visual appeal and user-friendly design, while also suggesting text size and contrast enhancements. These results demonstrated that the board game was highly feasible as an educational tool, with only minor refinements required to further enhance usability and effectiveness.

A limited implementation phase was conducted with 30 children and 2 teachers at RA Istiqlal Jakarta to evaluate the board game's effectiveness in improving literacy skills. The results of the pre-test and post-test showed significant improvements in children's literacy development. Letter Recognition scores increased from 6.3 to 9.1, demonstrating that children became more familiar with alphabet letters. Phonemic Awareness improved from 5.7 to 8.5, reflecting a stronger understanding of letter-sound associations. Word Formation showed remarkable progress, increasing from 4.1 to 7.5, suggesting that children became more confident in constructing simple words. The most significant improvement was observed in Writing Skills, which rose from 3.8 to 7.0, indicating that children developed better letter formation and word-writing abilities. A Paired Sample T-Test confirmed that these improvements were statistically significant, as the t-calculated values exceeded the t-critical value across all literacy skills. This finding validated the effectiveness of "The Adventure of the Little Rabbit" in enhancing early childhood literacy.

In addition to the pre-test and post-test results, teacher feedback and classroom observations provided further insights into the board game's impact on engagement, usability, and literacy development. Teachers noted that the game successfully engaged children, supported early literacy skills, and encouraged teamwork. However, they suggested adding more challenge variations and introducing a cooperative play mode where children work together rather than competing individually. Observations showed that children were actively engaged, collaborated with peers, and maintained focus for longer periods compared to traditional literacy activities. Furthermore, children who initially lacked confidence in reading and writing tasks became more motivated and demonstrated noticeable improvements in their literacy skills.

Overall, the study successfully developed and tested "The Adventure of the Little Rabbit" board game as an effective literacy learning tool for early childhood education. The validation results, limited implementation findings, and teacher feedback confirmed that the game enhanced literacy skills, increased engagement, and promoted collaborative learning. The improvements in letter recognition, phonemic awareness, word formation, and writing skills demonstrated that interactive, play-based learning tools are beneficial for early literacy education. Moving forward, further research should explore broader implementations, long-term impacts on literacy retention, and potential game enhancements to maximize its effectiveness in early childhood literacy development.

## CONCLUSION

This study successfully developed and assessed the feasibility of "The Adventure of the Little Rabbit", an interactive board game designed to enhance early childhood literacy skills. The research addressed the need for more engaging and effective learning media in early literacy education, particularly at RA Istiqlal Jakarta, where existing materials lacked diversity and interactivity. By integrating letter recognition, phonemic awareness, word formation, and writing tasks into a structured and engaging game format, the board game provided a fun and effective way for children to develop foundational literacy skills.

The validation process conducted by content experts, language experts, and design experts confirmed that the board game met educational standards, instructional clarity, and usability requirements. The feasibility scores from expert evaluations ranged between 75.5% and 81%, indicating that the game was well-suited for literacy learning with minor refinements recommended for improved readability, game rules, and challenge variations.

A limited implementation phase involving 30 children and 2 teachers demonstrated the game's effectiveness. The results of the pre-test and post-test revealed statistically significant improvements in all assessed literacy skills. Letter recognition, phonemic awareness, word formation, and writing skills all showed notable gains, confirming that the board game effectively supported early literacy development. Additionally, teacher feedback and classroom observations highlighted high levels of engagement, improved motivation, and active participation among children, reinforcing the value of play-based learning in literacy education.

In conclusion, "The Adventure of the Little Rabbit" has been proven to be an effective, engaging, and developmentally appropriate literacy learning tool for young children. The combination of structured literacy activities, interactive gameplay, and collaborative learning opportunities contributed to its success. Future research should focus on broader implementations, long-term literacy retention effects, and potential game enhancements to maximize its impact in early childhood literacy education.

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