Indonesian Journal of Progressive Pedagogy
Vol. 01, No. 02 (2025), p. 60-74
Available online at https://serambi.org/index.php/ijpp

DEVELOPMENT OF LUPAS MEDIA (LUDO IPAS) TO IMPROVE STUDENTS' CREATIVE THINKING SKILLS IN ELEMENTARY SCHOOLS

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DOI: https://doi.org/10.61987/ijpp.v1i2.1266

Abstract:
Creative thinking is an essential skill in 21st-century learning, yet many students still face difficulties in developing fluency, flexibility, elaboration, and originality. This study aims to develop a game-based learning medium called LUPAS (Ludo IPAS) to address these challenges in the topic of continents and countries. The research employed the ADDIE model, covering the stages of Analysis, Design, Development, Implementation, and Evaluation. Data collection through interviews and observations identified students' learning needs, which became the basis for designing the LUPAS media. Expert validation showed high feasibility, with scores of 93.3% from material experts and 90.6% from media experts, both categorized as "very valid." Implementation used a one-group pretest-posttest pre-experimental design with sixth-grade students. The N-Gain test revealed an average score of 0.6161 (medium category) and an N-Gain percentage of 62%, indicating moderate effectiveness in enhancing creative thinking skills. The study contributes to game-based learning innovation by demonstrating that LUPAS is both feasible and effective in fostering higher-order thinking.

ARTICLE HISTORY
Received: 25 May 2024
Revised: 18 July 2025
Accepted: 20 August 2025

KEYWORDS
LUPAS Media, Game-Based Learning, Creative Thinking, Elementary Education

INTRODUCTION

Education is one of the main pillars in preparing quality human resources capable of facing global challenges. In the 21st century, the demands of society are no longer limited to the ability to read, write, and count, but extend to the mastery of higher-order thinking skills, including creativity, critical reasoning, and problem-solving (Deril Sukma & Dyah, 2020; Khotimah et al., 2021; Nuraini et al., 2023). These competencies are urgently needed because society is now experiencing rapid changes driven by technological advancement, globalization, and industrial revolutions that require adaptive and innovative individuals. However, evidence from the PISA survey in 2019 revealed that Indonesia was ranked 74th out of 79 countries, reflecting the low learning outcomes of Indonesian students, especially in scientific and analytical thinking (Novada et al., 2023; Yulia et al., 2025). This indicates that the education system in Indonesia still faces challenges in equipping students with creative thinking skills. Therefore, research on developing innovative learning models and media is important for society at large.

The problem of education quality in Indonesia is directly linked to the lack of mastery of higher-order thinking skills among students. Many learning processes in schools are still dominated by conventional approaches, with teachers focusing more on delivering material rather than facilitating students' active involvement in constructing

knowledge (Lai, 2024; Pereira et al., 2024). This condition has led to the low ability of students to analyze problems, generate ideas, and create solutions creatively. Data from the OECD in 2016 showed that only 0.8% of Indonesian students were able to reach the highest levels of thinking, while 20% remained at the lower levels (Amananti, 2024). This reflects the dominance of low-order thinking skills (LOTS), which are less relevant to 21st-century demands. The lack of innovative learning media and strategies becomes one of the contributing factors, as students are not given enough opportunities to explore and develop creative ideas in the learning process.

Observations and interviews with sixth-grade teachers at SDN Kedaung Barat II revealed that students' creative thinking skills in science subjects, especially in the theme of exploring the world, were still underdeveloped. Students experienced difficulty in generating multiple ideas (fluency), seeing problems from different perspectives (flexibility), elaborating on ideas in detail (elaboration), and producing original solutions (originality) (Supriadi et al., 2023; Yunia & Syahda, 2023). These four indicators of creative thinking skills were rarely achieved in classroom learning. In addition, teachers admitted that learning was still heavily dependent on textbooks, with minimal use of varied and engaging learning media (Pereira et al., 2024; Safitri & Zawawi, 2025). This condition caused students to feel less enthusiastic and less curious, resulting in passive participation in class. The limited access to interactive media further prevented students from building multidimensional ways of thinking. This reality in the field strengthens the urgency of creating innovative learning media that can effectively stimulate students' creative thinking skills in elementary schools.

Several previous studies have attempted to develop innovative learning media to support the improvement of students' thinking skills. Research by Zamroni et al. (2025), Khoiroh et al. (2024), and Abdullah (2024) emphasized that games are an effective means of training children's cognitive and motor skills, while also stimulating creativity. Meanwhile, Herlina (2024) and Umar (2024) revealed that Ludo games can stimulate decision-making, strategy, and problem-solving skills in children. These findings indicate that game-based learning media have significant potential in facilitating students' creative development. However, most of these studies only explored the use of games in a general context without integrating them into specific subject matter, such as IPAS. As a result, the contribution of learning media to students' mastery of science content and the development of creative thinking skills has not been maximally achieved.

Other studies, such as those conducted by Sain (2025), Aziz (2025), and Hina (2024), highlighted that Indonesia ranked low in the Global Creativity Index, at 115th out of 139 countries. They recommended the need for innovative approaches in schools to stimulate students' creative capacities. Despite these findings, existing research still lacks models of learning media that combine fun activities with scientific learning content. The research gap lies in the limited exploration of how traditional games like Ludo can be transformed into modern educational media tailored to curriculum needs. Therefore, this study aims to address that gap by developing LUPAS (Ludo IPAS), a game-based media specifically designed to improve creative thinking skills while integrating science and social science materials for elementary school students. This contribution is important to enrich the literature and provide teachers with practical and innovative alternatives in the classroom.

The novelty of this research lies in the development of LUPAS media, which adapts the popular Ludo game into a learning medium integrated with IPAS materials. Unlike

previous studies that only highlighted games as supplementary tools, this study designs LUPAS as a structured medium equipped with opportunity cards containing creative questions and uniquely designed pawns that reflect scientific and global contexts. The integration of educational content with game mechanics is expected to create a dynamic learning atmosphere that stimulates students' creativity while still being enjoyable. The state of the art of this research is the combination of traditional play with modern educational needs, where LUPAS is positioned as both a learning tool and a medium to enhance higher-order thinking skills, particularly creative thinking. This makes the research highly relevant to today's educational challenges.

The contribution of this research is twofold: theoretically, it enriches the discourse on game-based learning as an innovative approach to enhancing creative thinking; practically, it provides teachers with a concrete tool to implement in classrooms. The LUPAS media is expected to help students practice creative indicators such as fluency, flexibility, elaboration, and originality through engaging activities. In addition, the development of this medium contributes to achieving educational goals that are aligned with 21st-century competencies. Ultimately, this study addresses the urgent need to improve the quality of education in Indonesia, especially in stimulating higher-order thinking skills at the elementary school level. Therefore, this research not only responds to the problems found in the field but also offers new insights into how games can be transformed into effective learning media to meet global educational challenges.

RESEARCH METHOD

The research method used in this study is Research & Development/R&D. According to Olivoto & Lúcio (2020), research and development is one of the research methods used to develop or validate products used in the education and learning process. This research method will be used to create a particular product and test its effectiveness. As explained by Borg and Gall in Waruwu (2024), Research and development involve a series of steps ranging from needs analysis, design, development, and evaluation. The primary goal of R&D is to produce better, more efficient, and more effective products or processes that meet human needs.

In this study, researchers developed a product, namely a Ludo game media, using the ADDIE model (Adeoye et al., 2024; Spatioti et al., 2022). ADDIE (Analysis, Design, Development, Implementation, and Evaluation) is a more general learning model. The ADDIE model was created in the 1990s by Crompton et al. (2023). The ADDIE model contains five phases or stages that must be completed methodically and systematically. The analysis step is a needs analysis exercise to identify problems and potential solutions, as well as student competencies. The design step is carried out after the analysis stage, and its activities include creating a learning media design. The development stage is a continuation of the design stage, where the design output is transformed into a tangible form in the form of a product. Trials of previously produced items, such as learning media, are carried out during the implementation stage. The evaluation step is the point where researchers assess the entire process that has been carried out (Violadini & Mustika, 2021).

In this Research and Development (R&D) study, data collection was conducted using various techniques and instruments, including observation, interviews, questionnaires, tests, and documentation. The collected data were then analyzed both qualitatively and quantitatively. Qualitative data, derived from observations, interviews, and

input/comments from validators, were analyzed using qualitative methods. Meanwhile, quantitative data were obtained from questionnaires administered to subject matter experts, media experts, teachers, and students, and analyzed using a predetermined measurement scale to process the data. Research by Nabila et al. (2021) aims to provide meaning and make decisions. The following provisions are used:

Table 1. Likert Scale Scores.

Score	Criteria
5	Very good
4	Good
3	Pretty good
2	Not enough
1	Very less

To prove the validity of the LUPAS media, this media validation involved analyzing quantitative data from the questionnaire. The analysis was performed by calculating the average score for each question item using the following formula:

$$X = \frac{\sum \mathrm{x}}{\mathrm{N}}$$

Table 2. Likert Scale Validity Interval.

Category	Criteria
1.00 ≤ x < 2.00	Invalid
2.00 ≤ x < 3.00	Less valid
3.00 ≤ x < 4.00	Valid
4.00 ≤ x < 5.00	Very valid

After calculating the validity of the media obtained, a feasibility test calculation will be carried out using the formula and table below:

$$P = \frac{\sum \mathrm{X}}{\sum \mathrm{Xi}}\ x100\%$$

Table 3. Media suitability percentage categories.

no	criteria	Validity level
1	75.01%- 100%	Eligible (without revision)
2	50.01%- 75%	Fairly decent (needs revision)
3	25.01%- 50%	Not suitable (cannot be used)
4	0%- 25%	Totally inappropriate (prohibited from use)

The results of the pretest and posttest were tested using the N-gain test to determine whether students' creative thinking skills had improved due to the use of LUPAS media. The N-Gain formula is as follows:

$$N - Gain\ (G) \frac{skor\ post\ test - skor\ pre\ test}{skor\ maksimal - skor\ pre\ test}$$

The calculation results are then compared with the N-gain criteria as follows:

Table 4. N-gain Level Categories.

Interval	Criteria
g ≥ 0.70	Tall
0.3 < g < 0.7	Currently
g ≤ 0.3	Low

Table 4 shows the categories of learning outcome improvement levels based on the N-gain value. If the N-gain value (g) ⩾ 0.70, then the improvement in learning outcomes is categorized as high (tall), which means the learning media or intervention used can provide a significant increase in student understanding. If the N-gain value is in the range of 0.30 < g < 0.70, then the improvement is categorized as moderate (currently), which indicates a fairly good effect but not yet optimal. Meanwhile, if g ⩽ 0.30, the improvement is categorized as low (low), which indicates the learning intervention is less effective in improving student understanding. Thus, this N-gain category provides an overview of the effectiveness of the learning treatment on improving learning outcomes.

Table 5. N-gain percent criteria.

Percentage	Criteria
< 40	Ineffective
40-56	Less effective
56-75	Quite effective
>75	Very effective

Table 5 provides criteria for the percentage of effectiveness based on the N-gain value. If the percentage is <40%, then the learning is categorized as ineffective. A percentage between 40–56% is categorized as less effective, meaning that the learning has an impact, but is still minimal. A percentage of 56–75% is categorized as quite effective, indicating that the learning can improve student understanding to an adequate level. Meanwhile, a percentage >75% is categorized as very effective, meaning the learning has a very strong impact on improving learning outcomes. This criterion provides a more practical measure for assessing the extent of the influence of learning media or methods on student success.

RESULT AND DISCUSSION

Result

The LUPAS media development process in this study is based on the ADDIE development model, which has been described in Chapter III. Each stage in the ADDIE model is implemented systematically, and the results obtained from each stage are as follows.

Analysis

This research began with a comprehensive analysis phase, conducted through structured interviews with the sixth-grade homeroom teacher of SDN Kedaung Barat II, Mrs. Siti Puri Frasmawari, S.Pd.I., and direct classroom observation. The purpose of these interviews was to identify student characteristics, specific learning difficulties, obstacles in completing assignments, levels of creative thinking skills, the types of learning media

used, and students' responses to these media. In the interview, the teacher stated, “Most students struggle to think beyond what is in the textbook. When asked to give examples, they tend to repeat the same answers, showing little creativity or variation.” This approach aligns with research that emphasizes the importance of observation and interviews in identifying student needs and learning contexts.

The results of the problem analysis indicate that sixth-grade students of SDN Kedaung Barat II experience significant difficulties in creative thinking in the science learning material "traveling around the world". This is evident from the lack of fluent thinking skills (limited answers), flexibility (fixated on one perspective), elaboration (brief answers), and originality (repeating general answers). Based on interviews with class teachers, the main cause of this lack of creativity is the limited use of learning media that only focus on textbooks, thus limiting students' access to multidimensional information.

The needs analysis indicates that innovative learning media are essential to improve attention, motivation, creative thinking skills, and understanding of the science material on "traveling around the world." Therefore, the LUPAS learning media (Ludo IPAS) was developed as a solution to meet students' learning needs. Furthermore, the material analysis was carried out by identifying the Learning Outcomes (CP) for grade VI, which include students' abilities to identify the division of the six continents, the characteristics of the geographical conditions of various countries, recognize the characteristics and popular landscapes, and analyze countries that can utilize their geographical conditions.

Based on the analysis of learning objectives, LUPAS media is expected to facilitate students to: 1) understand the six continents and the characteristics of geographical conditions in various countries well; 2) recognize the characteristics of several countries and their popular landscapes well; and 3) analyze countries that can utilize their geographical conditions well. All stages of this analysis form a strong foundation in developing relevant and effective LUPAS media to improve students' creative thinking skills.

Design

The design stage of LUPAS media development is focused on designing products that suit the characteristics of sixth-grade students at SDN Kedaung Barat II. This media is designed to support science learning on world travel material, with coverage that includes: identification of various continents and countries, description of typical natural landscapes, cultural exploration, and analysis of the use of geographical conditions in each country.

LUPAS Media Product Creation

The first stage starts with creating a LUPAS board design using the Canva application. The first stage of developing LUPAS media begins with designing the game board using the Canva application. Canva is chosen because it provides various design features, attractive templates, and easy-to-use tools that allow researchers to create a board with engaging visuals. The LUPAS board design is tailored to integrate learning content with creative and fun elements, ensuring that students not only play but also

absorb educational values. This stage is crucial as the board becomes the main medium. That stimulates students' curiosity, creativity, and motivation to learn.

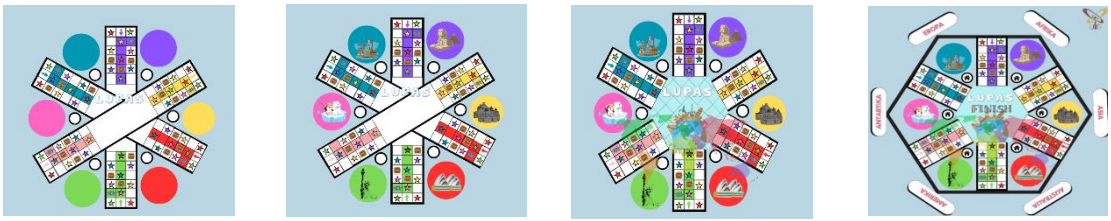

Figure 1. LUPAS Board Design

The next step in developing LUPAS media is creating question cards, which serve as the core element in stimulating students' creative thinking skills. These cards are divided into seven groups: Asia, Europe, Africa, Australia, America, Antarctica, and treasure cards, each representing unique content that connects learning with global contexts. With a size of 6 cm x 8 cm, a total of 98 cards were designed to provide a wide range of challenges and questions. The design process emphasizes clarity, creativity, and relevance to the learning objectives, ensuring that students can easily understand the instructions while being encouraged to think critically and creatively. The division into continents also introduces geographical diversity, making the game both educational and enjoyable.

Figure 2. Question Card Design

The third step in developing LUPAS media is designing the LUPAS box using Canva. This box functions not only as storage but also as a visual identity of the media, making it more attractive and meaningful for students. The design includes ornaments that depict various continents and countries, symbolizing the global themes integrated into the game. By incorporating these visual elements, the box design reinforces the educational value while maintaining an engaging appearance. Additionally, the box is carefully adjusted to match the dimensions of the LUPAS board, ensuring practicality and ease of use. This stage highlights the importance of aesthetic and functional aspects in educational media development, as an appealing design can increase students' curiosity, motivation, and enthusiasm for participating in learning activities.

Figure 3. LUPAS Box Design

The first through third stages of LUPAS media development demonstrated a combination of visual aspects, educational content, and practical functions. The LUPAS board design, using Canva, became the center of learning activities, not only showcasing playful media but also integrating educational elements with an attractive display to foster students' curiosity. Next, the creation of 98 question cards, covering seven continent categories, and treasure cards served as the core of the learning process, stimulating creative thinking skills. With a variety of questions designed, students were trained to generate fluent, flexible, detailed, and original ideas, while also introducing global insights relevant to real life.

The design of the LUPAS box, as the third stage, completed the entire media by combining storage functions and visual identity. The continent and country ornaments adorning the box reinforced the global theme while adding aesthetic appeal. Adjusting the size of the board made the media more practical and easier to use. Overall, these three stages emphasized that LUPAS is not just a game, but a systematically designed learning medium, considering appearance, content, and usability. This combination enables LUPAS to function effectively in fostering motivation, increasing participation, and developing creative thinking skills in elementary school students.

Development

Product validation

After going through the design stages, the researchers succeeded in creating LUPAS media with the established specifications. This process involved a series of systematic steps, starting from design conceptualization, material selection, and technical implementation. LUPAS media was designed to improve residual creative thinking skills in elementary schools. To ensure the feasibility and effectiveness of this media, the next step was to conduct a feasibility test through product validation. Product validation was carried out through two approaches, namely media expert validation and material expert validation. The results of these two validations will provide important information regarding the quality of LUPAS media and become the basis for further improvements. The following are the results of the material expert and media expert validity tests:

Table 6. Validity of Material Experts and Media Experts

no	Component	Validity II	eligibility
1	Subject Matter Expert	4.6 (very valid)	93.3% (eligible)
2	Media Expert	4.53 (very valid)	90.6% (eligible)
	Average	**4.56 (very valid)**	**91.8 (decent)**

The validation of the LUPAS learning media was carried out by material expert, Ms. Dirga Ayu Lestari, M.Pd., and media expert, Mr. Dr. H. Eko Wahyu Wibowo, M.Sc., both of whom are lecturers at PGMI. The validity test results showed very high feasibility. The material expert gave a score of 4.6 (93.3% feasibility), while the media expert gave a score of 4.53 (90.6% feasibility), both of which are in the "very valid" category. Overall, this media achieved an average validity of 4.56 with 91.8% feasibility, confirming that LUPAS is very suitable for use.

Product Revision

The LUPAS learning media product was revised comprehensively based on evaluations and input received from various parties. This process involved in-depth analysis of constructive criticism and suggestions from expert validators (materials and media), supervisors, limited student trials, and other relevant input. The primary objective of this revision was to refine the LUPAS learning media to make it more effective, engaging, and tailored to user needs. Some specific improvements implemented in the LUPAS media are as follows:

LUPAS Media Revision by material experts:

Revisions to the LUPAS learning media by subject matter and media experts were conducted to ensure the quality of the content and the clarity of the instructions for its use. Based on the feedback obtained, several components of the media needed to be adjusted to be more standardized and easier for students to understand. For example, in the questions section, there were still sentences that were not standard, so they were revised to use sentences with standard structures according to language rules. Furthermore, keywords on the instruction cards were initially unclear, so improvements were made by adding the term "instruction card" to make them more informative and focused. This revision process is important as a form of validation that ensures the LUPAS media is not only visually appealing but also appropriate in terms of substance and instructions, making it more effective in developing students' creative thinking skills.

Table 7 Medical revisions by material and media experts

no	Before revision	After Revision
1	Before the revision, some questions were still not standard.	After being revised into a standard sentence
2	Before the revision, the hint words were not visible.	After the revision of the word “instruction card”

Table 7 shows the results of the LUPAS media revision based on input from material and media experts, focusing on improving the quality of questions and the clarity of instructions. Before the revision, several questions still used non-standard wording, potentially causing confusion for students. After the revision, the question wording was changed to a standard form, making it clearer, easier to understand, and in accordance with language rules. Furthermore, keywords on the previous instruction card were less visible, so improvements were made by adding the term “instruction card” to provide clarity of function and direction to users. These changes confirm that the expert revision played a crucial role in improving the content validity, readability, and practicality of the media, allowing LUPAS to be used more effectively to support learning and train students' creative thinking skills.

LUPAS media revision by media experts

The revision of LUPAS media by experts was carried out to improve both safety and durability aspects of the product. Media experts provided constructive feedback, which was then implemented to enhance the quality of the learning media. The revisions focused on refining the physical design, particularly on the question cards and the game board. By addressing these details, the media became more practical, user-friendly, and suitable for use in elementary school learning environments.

Table 8 Media Revisions by Media Experts

no	Before	After
1	Before the revision, the card edges were still pointed and sharp.	After the revision, the card edges are not sharp and not pointed.
2	Before the revision, the board was not covered with cardboard.	After the revision, the board was covered with cardboard.

The revision of the LUPAS media conducted by media experts showed significant improvements in the safety and physical quality of the media. Before the revision, the cards still had sharp edges that could potentially harm students when used, so they were then smoothed to make them no longer sharp and safer to play with. Furthermore, the game board, which was previously not covered in cardboard, became sturdier and more durable after being coated, thus improving its quality and making it more suitable for use in the learning process. These changes demonstrate that revisions based on expert input play a significant role in creating learning media that is not only engaging, but also safe, comfortable, and meets the needs of elementary school students.

Implementation

The implementation phase, the fourth phase in the ADDIE model, involved a direct trial of the LUPAS media in sixth-grade students of SDN Kedaung Barat II after being declared feasible by the validator. The goal was to evaluate the media's effectiveness in improving students' creative thinking skills in the science subject. This process began with a pre-test to measure students' initial abilities, followed by group learning using the LUPAS media to encourage collaboration, and concluded with a post-test to measure improvement. Observations during the implementation showed students' enthusiasm and active participation in answering questions, as well as a competitive spirit, indicating that the LUPAS media functioned well in a real-life learning context.

Evaluation

To assess the effectiveness of the LUPAS media in improving the creative thinking skills of 6th-grade students at SDN Kedaung Barat, an N-Gain test was used. Before implementing the media, students were given a pretest to measure their initial abilities. Next, the LUPAS media was applied in the classroom learning process. After the overall delivery of the material, a posttest was given to evaluate the improvement in students' creative thinking skills. This trial was conducted on 25 6th-grade students at SDN Kedaung Barat, and the results (listed in Tables 9 and 10) show an average increase in these abilities.

Table 9 N-gain Criteria Table

Student	*Pre-test*	*Post-test*	n gain	percentage of gain
25	30.92	73.92	0.6161	62%

Based on Table 9, students' pre-test score of 30.92 increased to 73.92 in the post-test. The calculation results show an N-gain of 0.6161, representing a percentage of 62%. This places the students' improvement in ability in the moderate and fairly effective category, suggesting that the learning media used can be said to be able to improve

students' creative thinking skills.

Table 10 N-gain scores with SPSS

Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
ngain	25	.33	.76	.6161	.09022
Valid N (listwise)	25				

Based on the N-Gain analysis, the LUPAS media showed a moderate increase in students' creative thinking skills. The average N-Gain score of 0.6161 is in the "Moderate" category, while the average N-Gain percentage of 62% is categorized as "Quite Effective". These findings indicate a significant increase in students' creative thinking skills after using the LUPAS media, compared to the conditions before use.

Overall, the results of this study confirm that the use of LUPAS media is quite effective in improving students' creative thinking skills. The findings show that although the improvement achieved is in the moderate category, the contribution of this media cannot be underestimated. LUPAS provides a stimulating and engaging learning environment that encourages students to generate ideas, view problems from different perspectives, and elaborate on concepts in more detail. The interactive nature of the game also makes students more motivated to participate actively during learning, which indirectly supports the development of originality in their thinking. This evidence strengthens the argument that LUPAS media is not only a tool for delivering content but also a medium to shape essential 21st-century skills. Therefore, it is strongly recommended that LUPAS be used as a learning innovation, particularly in elementary schools, to foster students' creativity and readiness for future challenges.

Discussion

The discussion of the results of this study confirms that the use of LUPAS (Ludo IPAS) media has proven quite effective in improving the creative thinking skills of sixth-grade students at SDN Kedaung Barat II. This finding aligns with previous research showing that game-based learning media can increase students' motivation, engagement, and creative thinking abilities (Munawwaroh, 2024; Purwani, 2023; Putri, 2023). This consistency strengthens the argument that game-based learning can be an alternative strategy to enrich students' learning experiences. However, when compared to the research by Bali (2024), Jali (2025), and Fawaid et al. (2025), the results of this study indicate a moderate level of effectiveness (N-Gain 0.6161 or 62%), while several other studies report higher improvements. This suggests that certain factors, such as the duration of media use and the diversity of student characteristics, influence outcomes.

Theoretically, this study expands understanding of the application of constructivist theory in learning, where students are encouraged to actively construct knowledge through meaningful play experiences. LUPAS not only presents science content about continents and countries, but also trains students' creative thinking skills, such as fluency, flexibility, elaboration, and originality. This aligns with Vygotsky's theory on the importance of social interaction and scaffolding in developing students' cognitive abilities (Nisa' & R, 2024; Rizkiyah, 2024). Therefore, these findings provide a theoretical

contribution that game-based media can be integrated within a constructivist framework to strengthen learning oriented toward 21st-century skills.

From a practical perspective, this research has important implications for elementary school teachers. The implementation of LUPAS shows that learning media designed by combining visual, cognitive, and interactive aspects can increase students' learning motivation and creative thinking skills (Behnamnia et al., 2020; Sun et al., 2022). Teachers can use LUPAS as an alternative medium in thematic learning, particularly for science material about continents and countries. Furthermore, the results of this study emphasize the importance of teacher involvement in selecting and developing media appropriate to students' needs, making learning more contextual, enjoyable, and meaningful (Hollo et al., 2021; Widiasari, 2024). Therefore, this research emphasizes that creativity in learning comes not only from students but also from teachers as designers of learning experiences.

Furthermore, the moderate difference in effectiveness indicates the need for further development in the design and implementation of LUPAS. This could include extending the duration of use, adding a variety of challenges to the question cards, and adjusting the difficulty level to suit diverse student abilities (Ifelebuegu, 2023; Lan et al., 2021). External factors such as limited learning time and students' readiness to accept new media also pose challenges that require attention. Therefore, this research opens up opportunities for further studies that can explore strategies for using LUPAS more intensively and sustainably, so that results can reach a high category in improving creative thinking skills.

Overall, the results of this study confirm that LUPAS is an innovative learning medium that not only supports the achievement of cognitive goals but also develops students' soft skills, such as creativity, collaboration, and communication skills. This is relevant to the demands of the Independent Curriculum, which emphasizes student-centered learning and strengthening 21st-century competencies. Therefore, the theoretical implication of this research is to strengthen the position of game-based media in creative education studies, while the practical implication is a recommendation for teachers to adopt and adapt LUPAS as part of classroom learning innovations.

CONCLUSION

The most important finding of this research is that the development of LUPAS (Ludo IPAS) media has proven to be quite effective in improving students' creative thinking skills, particularly in aspects of fluency, flexibility, elaboration, and originality. This media not only addresses the lack of engaging and interactive learning tools but also provides meaningful learning experiences through game-based design. The interactive nature of LUPAS encourages students to think critically and creatively while also fostering motivation and participation in classroom activities. The lesson gained from this study is that when learning media are designed to be both educational and enjoyable, students' higher-order thinking skills can be significantly nurtured.

In terms of contribution, this research strengthens the scientific evidence that educational games can be effectively integrated into elementary school learning to support 21st-century skills. LUPAS contributes to the field of educational innovation by combining visual appeal, subject relevance, and interactivity within the ADDIE framework. However, this study is not without limitations, such as the relatively short duration of implementation and the limited research scope involving only one school.

Future research is recommended to expand the trial into broader contexts, apply longer implementation periods, and explore variations in question design, so that the effectiveness of LUPAS can be optimized and its potential further validated across different learning settings.

ACKNOWLEDGMENT

We sincerely thank all individuals and institutions who supported this research. Our deepest gratitude goes to the supervisors for their valuable guidance and input throughout the process. Special appreciation is extended to the students who participated and shared their insights, as well as the university administrations for granting access and resources. We also thank the research assistants and data analysts for their contributions, along with colleagues and mentors for their constructive feedback. Finally, we acknowledge the support of the academic community and funding institutions that made this study possible.

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