

Development of LnC (*Ludo and Card*) Media on Human Respiratory System Class VIII Material at MTsN Pinrang

Pengembangan Media LnC (*Ludo and Card*) pada Materi Sistem Pernapasan Manusia Kelas VIII di MTsN Pinrang

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Abstract	Article Information	
Science instruction regarding the human respiratory system at MTsN Science instruction on the human respiratory system at MTsN Pinrang is still dominated by conventional methods, resulting in students being less active and experiencing difficulty in understanding complex material. These findings were obtained through initial observations and interviews with students. This study aims to develop LnC (<i>Ludo and Card</i>) learning media for the human respiratory system unit in eighth grade and to determine its validity, practicality, and effectiveness. This is a research and development (R&D) study using the ADDIE model, with the research subjects consisting of 20 eighth-grade students at MTsN Pinrang. Data collection techniques included validation sheets, questionnaires for teachers (as educational practitioners) and students (as users), as well as learning outcome tests. The research results regarding effectiveness indicated that the LnC (<i>Ludo and Card</i>) media falls into the “highly valid” category with a validity score of 3.7. The practicality of the media received a score of 4 based on teacher responses and a score of 3.6 based on student responses; both scores fall into the “highly practical” category. The media’s effectiveness score was 90%, placing it in the “highly effective” category. Thus, the LnC (<i>Ludo and Card</i>) media is deemed valid, practical, and effective, and is suitable for use as a learning medium for the eighth-grade human respiratory system curriculum.	Keywords: ADDIE, human respiratory system, learning media, Ludo and Card	Kata kunci: ADDIE, Ludo and Card, media pembelajaran, sistem pernapasan manusia
Pembelajaran IPA pada materi sistem pernapasan manusia di MTsN Pinrang masih didominasi metode konvensional sehingga peserta didik kurang aktif dan mengalami kesulitan dalam memahami materi yang bersifat kompleks. Hasil tersebut diperoleh melalui observasi awal dan wawancara terhadap peserta didik. Penelitian ini bertujuan untuk mengembangkan media pembelajaran LnC (<i>Ludo and Card</i>) pada materi sistem pernapasan manusia kelas VIII serta mengetahui tingkat kevalidan, kepraktisan, dan keefektifannya. Penelitian ini merupakan penelitian dan pengembangan (R&D) dengan menggunakan model ADDIE, dengan subjek penelitian terdiri dari 20 peserta didik kelas VIII MTsN Pinrang. Teknik pengumpulan data menggunakan lembar validasi, angket respon guru sebagai praktisi pendidikan dan respon peserta didik sebagai pengguna, serta tes hasil belajar. Hasil penelitian dari segi keefektifan menunjukkan bahwa media LnC (<i>Ludo and Card</i>) termasuk dalam kategori sangat valid dengan nilai kevalidan 3,7. Kepraktisan media memperoleh nilai 4 sebagai respon guru dan nilai 3.6 dari respon siswa, yang kedua nilai tersebut termasuk dalam kategori sangat praktis. Adapun nilai keefektifan media memperoleh nilai 90% dan termasuk dalam kategori sangat efektif. Dengan demikian, media LnC (<i>Ludo and Card</i>) dinyatakan valid, praktis, dan efektif serta layak digunakan sebagai media pembelajaran pada materi sistem pernapasan manusia kelas VIII.	History Manuscript received : 2/09/2026 Revised : 06/10/2026 Accepted : 30/10/2026 Published : 31/10/2026	

A. INTRODUCTION

In terminology, education can be defined as a process or effort that aims to develop human potential as a whole, covering intellectual, moral, and social aspects (Rahman et al., 2022). Therefore, learning supported by media that is in accordance with the characteristics of the material is needed so that the concept of science can be presented in a concrete, interesting, and easy-to-understand manner. According to UNESCO, education is a process that helps individuals develop skills and attitudes to improve the quality of life and contribute to the development of society in general (Laksana, 2016). From this, it can be seen that education is a complex process that aims to form knowledgeable, qualified, and ethical human beings (Pristiwanti et al., 2022).

In achieving educational goals, the learning process needs to be designed in an interesting and meaningful way to increase the motivation and involvement of students in understanding the material. Innovative learning with the support of appropriate media can help students obtain a more concrete and interactive learning experience. In the context of Islamic education, the learning process is also directed at developing knowledge as well as forming students' attitudes and characters. Therefore, the development of LnC learning media can be one of the efforts to support an interesting and meaningful learning process while still paying attention to educational values that are relevant to the characteristics of students. The process of forming individual or group attitudes and behaviors as part of learning and training, both physical and spiritual, is part of the education system (Khasanah, 2021). According to Tafsir Al-Misbah and Al-Azhar in Surah Al-Mujadilah Verse 11, faith and knowledge are two things that cannot be separated. This shows that good education must include spiritual and moral aspects. The provision of optimal learning space by educators, as well as the space provided in the assembly of knowledge, reflects the importance of collaboration in the educational process. In pursuing knowledge, learning manners and the importance of morals are needed. People who are knowledgeable, have noble character, and have faith will obtain a higher degree in the sight of Allah, showing that education is one of the ways to achieve His pleasure (Hendrawan, 2022).

To support the achievement of learning goals, a learning process that is in accordance with the needs of students and supported by creative, relevant, and innovative learning media is needed. Appropriate learning media can help students understand the material more concretely, increase involvement in the learning process, and provide a more meaningful learning experience (Salamun, 2021). The use of media is becoming increasingly important in science learning because some scientific concepts and processes cannot be observed directly so it requires visualization assistance to facilitate students' understanding. The use of media that is not optimal can make students feel bored and bored, because they consider the learning process to be monotonous and not improved. When the methods and media used in learning are not varied or uninteresting, students will lose interest and motivation to learn. As a result, the learning experience becomes less effective, and targeted academic achievements cannot be achieved. The ineffectiveness of this learning media contributes to unsatisfactory learning outcomes, because students are not actively involved and do not get enough stimulation to understand the learning material in depth. Therefore, the renewal and improvement of learning media that is more interesting and relevant is needed. By adopting and implementing various types of dynamic and innovative media, as well as creating a varied learning environment, increasing students' interest and motivation to learn will achieve better results (Utomo & Purwati, 2024).

Based on this description, the researcher conducted initial observations and interviews at MTsN Pinrang, Paleteang District, Pinrang Regency on September 1, 2026. The interview was conducted with one of the educators of science subjects in grade VIII to obtain information about

the implementation of learning, the use of media, and the obstacles faced in learning science, especially in the material of the human respiratory system. The results of the interviews showed that learning still tends to use conventional methods and has not been supported by varied and interactive learning media. The media used in learning is also not fully able to visualize the process of the respiratory system clearly, so that students still have difficulties in understanding the material and are less actively involved during the learning process.

The results of observations on the learning process and the condition of the available media show that the use of learning media is still limited to the media used, namely power points, student worksheets, textbooks. This condition can be seen from the lack of diversity of teaching resources and the lack of learning methodologies and students' understanding of respiratory system materials is still hampered by the lack of use of examples. In addition, needs analysis was carried out through the distribution of questionnaires to 20 students of grade VIII Digital in the odd semester of the 2025/2026 school year. The results of the questionnaire show that the material on the human respiratory system is one of the most difficult materials to understand, with a percentage of 30%. These difficulties are related to the complex scope of the material and the existence of physiological processes that cannot be observed directly. The findings show that there is a need for more varied, visual, and interactive learning media to help students understand the material of the human respiratory system.

By referring to the results of these observations, the researcher concludes that the learning process can be optimized by developing more effective and varied learning media. Because learning media is one of the important components that functions as a bridge between theory and practice. By using innovative media, the learning process can become more interesting and less boring for students, so that an increase in the effectiveness and overall quality of learning can be achieved. Creative and relevant learning media can stimulate students' interest and motivation to learn, so that the interaction process in the teaching and learning process becomes more lively and understanding of concepts can also improve better (Sudiasih & Margunayasa, 2020).

One method to create a fun and interesting learning atmosphere for students is through educational games. Educational games are games that are designed as learning media by integrating materials in the form of text, sounds, images, videos, and animations (Hidayatulloh et al., 2020). The use of educational games in learning can increase students' concentration and learning motivation because it provides a more interactive and fun learning experience. In addition, educational games have the potential to encourage students' intrinsic motivation so that they can create a more conducive learning atmosphere.

Educational games also have several functions in learning, namely providing knowledge through play while learning, stimulating the development of thinking, creativity, and language, creating an interesting, safe, and fun learning environment, and improving the quality of learning (Pratiwi et al., 2021). One of the games that can be modified as a learning medium is Ludo. Ludo is a board game that uses pawns, dice, and colored squares. In the context of education, Ludo games can be modified by including materials, questions, and challenges that suit the learning objectives.

The modified ludo can be used as a science learning medium because the visual elements and game rules can help students understand abstract material. The interactive and collaborative nature of the game also encourages active student involvement, cooperation, communication, as well as critical thinking and problem-solving skills (Khodizah, 2018; Ulhusna & Diana, 2020). The flexibility of the Ludo game allows teachers to adapt the content of the game to the material and characteristics of the students, for example through the addition of question cards, challenge cards, and certain rules related to the learning material.

In the material of the human respiratory system, the game of Ludo can be modified by connecting each part of the game with the concept of organs and the process of breathing. Students not only run pawns based on the results of dice rolling, but also have to answer questions related to the structure and function of respiratory organs as well as the process of air entry and exit. The use of Ludo in respiratory system learning can create more fun, interactive, learning activities and encourage students to understand the material through play activities (Maria et al., 2021).

In its implementation, students are divided into four groups, with each group consisting of 6–7 people. Each group plays using a Ludo board that has been modified according to the material of the human respiratory system. The game begins by rolling the dice in turns to determine the number of steps of the pawn. When the pawn stops on a certain square, the group takes a question card containing questions or situations related to the respiratory system. The group must discuss and give the right answers to be able to continue the game. If the answer is not correct, the group can be given a challenge or penalty, such as going back to the previous square. Through these activities, students not only understand the material, but are also trained to communicate, collaborate, discuss, and make decisions in groups.

The game ends when one of the groups reaches the last square or obtains the highest number of points based on the correct answers. Thus, the modified Ludo can be a learning medium that integrates elements of the game and science materials, so that the learning process of the human respiratory system becomes more active, interactive, and fun for learners. With this approach, learning about the respiratory system becomes more fun and interactive.

Based on this background, LnC (*Ludo and Card*) learning media was developed on the human respiratory system material for class VIII MTsN Pinrang. Unlike the Ludo media that has been developed previously, LnC combines the Ludo game board with question cards as the main component of learning. The 60 × 60 cm game board is equipped with pawns, dice, question cards, and game rules, while the content of the cards is arranged based on the material and learning objectives of the human respiratory system. Thus, game activities not only focus on the movement of pawns, but also require students to answer questions related to the material during the game. These characteristics are the main differentiators of LnC developed in this study compared to the previous Ludo media which has also been used as a learning medium on respiratory system material, so the author will conduct a research with the title "Development of LNC Media (*Ludo and Card*) on Human Respiratory System Material Class VIII MTsN Pinrang".

B. METHOD

The research method contains the method used by researchers in collecting research data in the form of time and place of research, research objects, research tools and materials (specifically for science research), research procedures, data collection techniques and data analysis. The research method is written using Times New Roman Font, 12 with 1 spacing.

This research uses *the Research and Development (R&D)* method with the ADDIE development model which consists of five stages, namely *Analyze, Design, Development, Implementation, and Evaluation*. This model is used to develop LnC (*Ludo and Card*) learning media on human respiratory system material in class VIII at MTsN Pinrang.

In the Analyze stage, a needs analysis was carried out through interviews with science teachers and the distribution of questionnaires to students. The analysis was carried out to identify learning problems, media needs, student characteristics, and learning objectives. The results of the analysis showed that the available media and learning resources were still limited and the presentation of respiratory system materials had not provided a thorough explanation.

The Design stage is carried out by designing LnC media based on the results of needs analysis. The media is designed in the form of a 60 × 60 cm board game equipped with a game board, pawns, dice, question cards, and game rules. The material and questions are arranged based on the learning objectives of the human respiratory system. At this stage, research instruments are also prepared in the form of validation sheets, questionnaires of educators and students, and learning outcome tests.

The Development stage is carried out by developing a media prototype and validating it by two validators. The assessment includes aspects of appearance, content, technical quality, language, and ease of use of media. The validation results are used as a basis for revising the product before implementation.

The Implementation stage was carried out through a media trial on 20 students of grade VIII Digital MTsN Pinrang who were selected by *purposive sampling*. Students used LnC media in learning, then responded and took a learning outcome test. The Evaluation stage was carried out by analyzing the results of validation, the responses of educators and students, and the results of learning tests to determine the level of validity, practicality, and effectiveness of LnC media. Validity and practicality data were analyzed using the average score value, while effectiveness was analyzed based on the results of students' learning tests.

The research data was analyzed to determine the level of validity, practicality, and effectiveness of LnC media. Validity data was obtained from validator assessments and analyzed using average scores. Practicality data was obtained through teacher and student response questionnaires, while effectiveness was determined based on the percentage of students who achieved completeness after using LnC media.

Table 1. Criteria for Validity, Practicality, and Effectiveness of LnC Media

Aspects	Interval	Category
Kevalidan	3,26–4,00	Highly Valid
	2,51–3,25	Valid
	1,76–2,50	Quite Valid
	1,00–1,75	Less Valid
Practicality	3,26–4,00	Very Practical
	2,51–3,25	Practical
	1,76–2,50	Quite Practical
	1,00–1,75	Less Practical
Keefektifan	90–100%	Highly Effective
	80–89%	Effective
	70–79%	Quite Effective
	60–69%	Less Effective
	50–59%	Ineffective
	0–49%	Highly Ineffective

C. RESULTS AND DISCUSSION

1. LNC Media Development (Ludo and Card)

The LnC (*Ludo and Card*) learning media developed is a game-based learning media on human respiratory system material for grade VIII students. The product is in the form of a 60 × 60 cm game board equipped with pawns, dice, question cards, and game rules. The material and questions in the game are arranged based on the learning objectives of the human respiratory system material. The media contains material related to the structure and function of the respiratory organs, respiratory mechanisms, and disorders or diseases of the respiratory system. The use of media is carried out in groups so that students are involved in play activities, answer questions, and

interact with group members. The product developed is then validated by two validators with assessment aspects including appearance, content, technical quality, language, and ease of use. The validation results obtained an average score of 3.7 with a very valid category, so that LnC products were declared suitable for use in learning.

Based on the results of the needs analysis through interviews with science educators at MTsN Pinrang and questionnaires to students, it is known that the variety of learning media used is still limited and students need media that can provide a more interesting learning experience and actively involve students. The findings were then translated into the design of LnC (Ludo and Card) learning media which integrates human respiratory system material with game activities. The media is designed in the form of a 60 × 60 cm game board equipped with pawns, dice, question cards, and game rules. The question cards are arranged based on the material and learning objectives of the human respiratory system, so that play activities are still directed to achieve learning goals. The design allows students to learn in groups through the activities of rolling dice, running pawns, and answering questions obtained during the game. Thus, the results of the needs analysis are not only the basis for media development, but are directly used to determine the form, components, content, and mechanisms of using LnC in learning.

The first stage, namely Analyze, was carried out through interviews with science educators and the distribution of questionnaires to students to identify learning needs, student characteristics, and material characteristics. The results of the analysis showed that the use of learning media and resources on respiratory system materials is still limited, while the presentation of the material has not fully provided a comprehensive explanation. These findings show the need for learning media that can help students understand respiratory system material through more interesting learning activities and actively involve students. The results of the need analysis then became the basis for determining the form and components of the developed LnC (*Ludo and Card*) media.

The second stage, Design, is carried out by compiling an initial prototype of LNC (*Ludo and Card*) media based on the results of the analysis. The media is designed in the form of a modified Ludo board and question cards with different levels of difficulty, equipped with visual elements in the form of bright colors, simple fonts, and illustrations of respiratory organs. The content of the media is adjusted to the core competencies which include the structure and function of the respiratory organs, respiratory mechanisms, gas exchange, respiratory system disorders, and the impact of cigarettes.

The third stage, Development, focuses on improving the media prototype based on input from media experts and subject matter experts. The LNC media was revised five times, by product validation consisting of two validators. Validation included aspects of appearance, content, technical quality, language, and ease of use. The validator's input was used as the basis for improving the prototype before implementation. The validation results of the two validators obtained an average score of 3.7 with a very valid category based on the criteria used in the research.

In the fourth stage, Implementation is carried out by applying LNC media to grade VIII students in two meetings. At this stage, the researcher observes the learning process, collects practicality questionnaires, and provides learning outcome tests to assess the effectiveness of the media.

In the fifth stage, Evaluation is carried out by analyzing the results of observations, responses of educators and students, and the results of multiple-choice learning outcome tests. The test consists of 20 questions given after the use of LnC (*Ludo and Card*) media to determine the achievement of students' learning outcomes on respiratory system materials. The evaluation shows that LnC media is valid, practical, and effective based on the results of validation, user responses,

and learning outcome achievements. Based on these development stages, LnC (Ludo and Card) learning media can be used as an alternative learning media to human respiratory system materials.

2. LNC Media Validation Results (*Ludo and Card*)

The validity of LNC media is determined through a media validation sheet that assesses aspects of display, material content, technical quality, and language use. The assessment is carried out by expert validators and the results are presented in Table 2 as the basis for the feasibility of media before being used in learning.

Assessment Aspects	Validator Assessment Results I	Validator Assessment Results II	Total/Average	Category
Display	3,75	4,00	3,88	Highly Valid
Content LnC	3,50	3,50	3,50	Highly Valid
Technical quality	3,60	4,00	3,80	Highly Valid
Language	4,00	3,60	3,80	Highly Valid
Average	3,60	3,80	3,72	Highly Valid

Based on Table 2, the validity score of LNC media from Validator I was 3.6 and Validator II was 3.8 with an average of 3.7. The value is in the range of $3.5 \leq V \leq 4$ so that LNC media is included in the category of "very valid" and suitable for use in learning. This validity is supported by a high score in all aspects of assessment (≥ 3.3), especially the content of the material, technical quality, and ease of use, which shows that the LNC media is according to the learning objectives, has a clear appearance and instructions, and is easy to use by students.

LnC (*Ludo and Card*) learning media was developed as an alternative learning resource that is fun and facilitates understanding of the material. Before use, this media goes through a validity testing stage by validators using a validation sheet to assess its feasibility in learning. The results of the validity test show that LNC media obtained an average score of 3.7 with the category "very valid", making it suitable for use in respiratory system materials. The assessment was carried out based on the aspects of display, content suitability, technical quality, and language use. The display aspect obtained an average score of 3.8 with a very valid category, which shows that the media design is attractive, easy to read, and in accordance with the characteristics of the students (Anggreini & Dewi, 2020).

The assessment of the content and material aspects in the LNC media (*Ludo and Card*) obtained an average score of 3.5 with a very valid category. This shows that the respiratory system material presented is in accordance with basic competencies, learning indicators, and the needs of students, with accurate concepts, clear language, and gameplay that supports the understanding of the material (Alhakim et al., 2021). The language quality aspect in LNC media obtained an average score of 3.8 with a very valid category. The validation results showed that LnC (Ludo and Card) media had met the aspects assessed in the validation instrument, including appearance, content, technical quality, language, and ease of use. In the language aspect, the use of language in the media was considered easy to understand and in accordance with the characteristics of students. In the content aspect, the material and questions presented were adjusted to the learning objectives of the human respiratory system material. Meanwhile, the appearance and technical quality aspects included readability, visual presentation, and ease of use of media. Based on the results of the assessment of two validators, LnC media obtained an average score of 3.7 with a very valid category. The use of language is in accordance with the rules of PUEBI and meets the principle of "VISUALS", which is easy to read, interesting, simple, useful, accurate, reasonable,

and arranged in order (Zulkarnain & Nirwana, 2025).

LNC (*Ludo and Card*) learning media has an attractive appearance, simple and clear language, and material that is in accordance with basic indicators and competencies. This shows that LNC media meets valid criteria because the content is structured, systematic, and relevant to the learning topic (Putriningtyas & Ambarwati, 2024). Some of the factors that support the high validity of this media include the systematic preparation of material from simple to complex concepts, the availability of feedback to strengthen understanding, and the suitability of teaching materials with the characteristics and stages of development of students so as to increase learning motivation (Harahap, 2022).

3. Result of the validation of the practicality of LNC Media (*Ludo and Card*)

The practicality of LNC media is measured based on aspects of presentation techniques, language suitability, material content, and ease of use by students. The assessment is carried out through a questionnaire to students and educators, with the results of responses presented in the Table

Table 3. Overall Response Results		
Assessment aspects	Educator	Students
Presentation technique	4,0	3,7
Facilities	4,0	3,6
Achievement of learning objectives	4,0	3,5
Average	4,0	3,6
Category	Very Practical	Very Practical

LNC (*Ludo and Card*) learning media was used by beginning with the formation of a study group and a brief explanation of the rules of the game. Students played Ludo as a learning medium, while question cards were used to understand concepts, and learning ended with reflection. The results of the practicality test showed that the educator's response obtained an average score of 4.0, while the student's response obtained an average score of 3.6. Both results were in the range of 3.26–4.00 so they were included in the very practical category. These results showed that LnC media was considered easy to use, had good presentation techniques, and could support the achievement of learning objectives and was suitable for application in learning. Positive responses from educators and students showed that LNC (*Ludo and Card*) learning media was included in the very practical category. Practicality can be seen from the design of the media that is attractive and easy to use, clear material according to the learning objectives, simple and easy-to-understand language, and flexibility of use in group and independent learning. Thus, LNC media is declared feasible and practical because it is easy to use, easy to understand, and in accordance with the initial design and can be applied effectively in the learning process (Gulo et al., 2024).

The practicality of LnC media was reviewed from three aspects, namely presentation techniques, convenience, and achievement of learning objectives. The results of the assessment showed that educators gave an average score of 4.0, while students gave an average score of 3.6, so LnC media was in the category of very practical. In the aspect of presentation techniques, students gave an average score of 3.7. This shows that the appearance of media, image quality, and the relevance of material presentation are considered to support the use of media in learning. The instrument shows that LnC media has an attractive appearance, images that support respiratory system material, and the presentation of interrelated material. Clear and organized visual presentation is important because good media design can help students process learning

information better. The results of the study on multimedia design also show that the quality of media design is related to the learning process and the management of students' cognitive load (Noetel et al., 2022).

In the aspect of convenience, students obtained an average score of 3.6. Practicality in this aspect is supported by several characteristics of the media, namely writing on cards that are clear and easy to understand, materials that are presented systematically, and media that are easy to use and carry. Thus, the ease of LnC is not only caused by the simple form of the game, but also by the presentation of clear information so that students can understand how to use the media and follow learning activities. The existence of game components such as boards, question cards, pieces, and game rules also helps to provide a clear structure during the activity. Research on the practicality of learning media shows that ease of use is one of the important aspects in determining whether a media can be used without causing difficulties for users (Mutia et al., 2023).

In the aspect of achieving learning objectives, students obtained an average score of 3.5. This aspect includes the suitability of the question cards with learning objectives, willingness to learn, focus on learning, cooperation, and students' activeness while using LnC media. Question cards that are prepared in accordance with learning objectives keep game activities related to respiratory system material, so that games not only function as entertainment activities, but also as part of the learning process. In addition, the use of LnC in groups provides opportunities for students to work together and participate in the game process. This is in line with the results of the questionnaire which showed that students gave a score of 3.8 on the aspect of cohesiveness in teamwork and 3.6 on the willingness to be more active in learning through LnC media.

Overall, these results show that the practicality of LnC media is supported by an attractive and structured presentation, ease of understanding information and using media, and the suitability of game activities with learning objectives. These findings are in line with learning media development research that places interest in media, material content, and media quality as components that support the practicality of a learning product (Milala et al., 2022). Thus, the practicality score obtained not only shows that LnC media is easy to use, but also shows that the components in the media have supported its use in the learning process of human respiratory system materials.

4. Results of the validation of the effectiveness of LNC media (*Ludo and Card*)

The effectiveness of LnC (*Ludo and Card*) learning media in this study is seen based on the level of completeness of students' learning outcomes after using media on human respiratory system materials. Measurement was carried out through learning outcome tests in the form of 20 multiple-choice questions given after the learning process. The research involved 20 students of grade VIII Digital at MTsN Pinrang. The completeness of learning outcomes was determined based on the achievement of the applicable KKTP $\geq$ scores (Safira & Suprayitno, 2020). The results of the students' tests are then used as a basis to determine the level of learning completeness after the use of LnC media.

Table 4. Classification of Students' Mastery Levels

Score	Number of Students	Classification
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$90 \leq \text{TPP} \leq 100$	4 Person	Highly effective
$75 \leq \text{TPP} < 90$	14 Person	Effective
$60 \leq \text{TPP} < 75$	2 Person	Quite effective
$40 \leq \text{TPP} < 60$	0 Person	Less effective
$0 \leq \text{TPP} < 40$	0 Person	Very ineffective

The effectiveness of LnC (*Ludo and Card*) media was measured based on the results of students' learning tests after the use of media. The test consisted of 20 multiple-choice questions and was given to 20 students in grade VIII Digital MTsN Pinrang. The test results were then classified based on the set score range. A total of 4 students (20%) obtained scores in the very effective category, 14 students (70%) were in the effective category, and 2 students (10%) were in the very effective category. There were no students who were in the less effective and less effective category. Thus, all students were in the category of quite effective to very effective based on the results of the test after the use of LnC media (Utomo & Purwati, 2024).

LNC (*Ludo and Card*) learning media is stated to be effective because it is able to help students achieve learning goals, which is shown by most students to obtain scores above KKM. In respiratory system materials, LNC media is effective in improving understanding of concepts through fun and meaningful learning, by combining card games and ludo boards so that students are actively involved in the learning process. In addition to improving cognitive learning outcomes, LNC media also encourages cooperation, activeness, and interaction between students through group play activities. Learning media that is in accordance with the characteristics of students is able to foster learning motivation and create a more interactive, effective, and fun learning process (Maulidya & Astuti, 2025).

Learning is considered classically successful if at least 80% of students achieve completeness scores. The percentage of students' learning completeness after using LNC media in this study is presented in Table 5 as an indicator of the success of media implementation in improving the understanding of human respiratory system materials.

Table 5. Percentage of Completeness of Student Learning Outcomes

No.	Student Score	Quantity	Percentage (%)
1	75–100	18	90
2	<75	2	10
Quantity		20	100

Based on Table 5, as many as 18 out of 20 students (90%) obtained a score of 75–100 and was declared complete, while 2 students (10%) obtained a score below 75 and was declared incomplete. Thus, the percentage of classical completeness reached 90%, so that it met the criteria of classical completeness set, which was $\geq 85\%$. These results show that based on the indicators of completeness of learning outcomes used in the research, the LnC (*Ludo and Card*) learning media met the criteria for effectiveness.

LNC (*Ludo and Card*) learning media has the advantage of helping students understand abstract respiratory system material through board and card games that are interactive, fun, and in accordance with learning indicators. The combination of visual elements, question variety, and flexibility of use makes LNC media able to increase motivation, activeness, and learning effectiveness, both in groups and independently. However, LNC media still has limitations because it does not utilize multimedia elements such as audio and video and requires the assistance of educators to stay focused on learning goals. Therefore, further development is needed, for example with the integration of digital media, so that LNC can become a more comprehensive learning facility in the future.

D. CONCLUSION

Based on the results of the research that has been obtained and the discussion that has been carried out thoroughly, in this section several important conclusions can be formulated as follows:

1. LnC (*Ludo and Card*) learning media has been successfully developed on human respiratory system material for grade VIII MTsN Pinrang through the ADDIE model and produces game-based learning media that can be used in the learning process.
2. LnC media met the criteria of being very valid and very practical, with an average validity value of 3.7, educator response of 4.0, and student response of 3.6. These results show that the media has feasibility in terms of content, appearance, technicality, language, and ease of use.
3. Based on the test results after the use of media, LnC met the effectiveness criteria based on learning completeness, with 18 out of 20 students (90%) achieving a score of ≥ 75 and an average learning outcome of 85. Thus, LnC media can be used as an alternative to game-based learning media to support the achievement of completeness of learning outcomes in human respiratory system materials.

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