# Development of Educational Monopoly Learning Media in Science Subjects to Improve Students Learning Outcomes

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**Abstract:** Student interest in learning will increment in the event that the educator utilizes different learning media than expected. This research and development mean to develop and test the feasibility, and effectiveness of educational monopoly learning media in grade V elementary school science subjects. This study used the Borg and Gall model. Data collection techniques use tests (pretest-posttest) and non-tests in the form of observations, questionnaire interviews, and document data. The results of validation by media and material experts show that the media has met the very valid criteria with percentages of 88.69% and 93.33% respectively. Based on thes results pretest-posttest, is known that educational monopoly learning media is effective in improving learning outcomes, shown by the results of an increase in the average pretest score of 54.67 to 80.33 at the time of the posttest and the results of the N-Gain test obtained a value of 0.58 with the medium classification. In light of the aftereffects of the questionnaire, the response of teachers and students received a very positive response. So, it can be concluded that the educational monopoly learning media is effective in improving science learning outcomes and is suitable for use in class V learning at SDN 03 Mereng.

**Keywords:** Educational Monopoly; Learning Media; Learning Outcomes

## Introduction

Education is the main foundation in the development of individuals and society. Education includes planned and systematic efforts that are important to prepare the younger generation to face the times in the global era (Haeruman et al., 2022). In an era that continues to change rapidly like today, education plays a key role in stimulating the potential of students and creating a learning environment that is in accordance with the characteristics of students' potential. Education is essentially an effort to form a certain cycle to create a quality human being in the fields of science and personality. To create quality schooling and work on the nature of human resource, education must be implemented as well as possible. According to (Nurrita, 2018) The learning process is inseparable from the media, methods and learning outcomes. Media is utilized for the purpose of giving educational material

delivered by teachers to students. In relation to learning, learning media as an instrument given by instructors as a wholesaler of data to understudies to urge understudies to advance rapidly, unequivocally, and without any problem. Learning is a cycle carried out by students with the aim that students achieve changes in behavior due to their involvement.

Learning is not only limited to open materials that can be accessed from one source such as books (Alika & Radia, 2021). While the learning method regulates the organization of teaching materials and delivery strategies. Furthermore, learning outcomes are measured effectively and efficiently to determine students' abilities and interests in subjects. Then the selection of the right media can support the learning method used, which in turn can help achieve the desired learning outcomes. It is very important for educators to utilize learning methods and media to provide a topic

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that is very clear about the results of the learning process experience (Julia et al., 2023).

In the growing experience, the utilization of learning media is extremely important to make it more straightforward to convey learning material. Learning media can be interpreted as a tool used to convey the content of the material to students (Azizah et al., 2021). Learning media is everything that is used to channel messages so that it can stimulate the attention, interest, contemplations and sensations of understudies in figuring out how to accomplish learning objectives (Ardhani et al., 2021). Learning media is not only a tool to convey information, but also a means to stimulate the attention, interest, thoughts, and feelings of students. By using the right learning media, teachers can facilitate a more effective and engaging learning experience for students, thus helping them achieve their set learning goals (Fatchurahman et al., 2022). Teachers should have high professional abilities and attributes to achieve learning goals (Kristi & Andriani, 2023).

One of the lessons that requires a learning medium in teaching and learning to be more meaningful is Natural and Social Sciences (IPAS). Natural and Social Sciences are an important component of the educational curriculum, namely the independent curriculum. The Merdeka Curriculum encourages integration between Natural Sciences and Social Sciences in learning. This reflects the importance of understanding the interrelationships between the physical and social aspects of the environment and society. Science studies natural phenomena, natural laws, life cycles, atomic structure, earth dynamics, and more. The goal is to understand the universe and the natural processes that take place in it. Social studies studies human behavior, social organization, public policy, social change, and cultural dynamics. The goal is to understand how society functions, how individuals interact, and its impact on the world.

Natural and Social Sciences Learning (IPAS) can be planned so as to further develop understudy learning results. Inherent Sciences is one of the subjects that should be examined and shown in primary schools (Kholidah & Sari, 2023). By implementing student-centered, relevant and interactive learning strategies, as well as the utilization of learning media in science learning can be more interesting and effective, thereby improving student learning outcomes in understanding the physical and social world around them. In using learning media that has been designed in the learning process, guidelines are needed for students in the learning process (Hamid et al., 2022). Engaging, interactive, and varied learning media can increase student engagement in learning. When students are more involved in the learning process, they tend to have a greater interest in the subject matter and are more

motivated to learn. By utilizing learning media effectively, teachers can create an engaging, interactive, and supportive learning environment for students, which in turn can improve their learning outcomes. However, it is important for teachers to choose learning media that suit their learning objectives and student characteristics, as well as to continue to develop skills in the effective use of learning media. Therefore, learning requires learning media innovations that are effective, efficient, interesting, easy to make and close to the lives of students (Peranti et al., 2019). In implementing learning media you can use various kinds learning theory.

In view of information got through observation, interview and archive information through learning results, the following data were obtained, at SDN 03 Mereng in class V several problems were obtained. The problems encountered by researchers include the lack of learning media, learning resources and references used. The learning media used by teachers in learning is image media, while the learning resources used in learning are student books. The teacher uses a conventional model with lecture and assignment methods only so that understudies don't figure out the material given by the educator. This causes learners to often play and talk to themselves when the learning process is in progress. The accessibility of learning media is still somewhat deficient. Teacher creativity in developing learning media that suits student characteristics is still relatively lacking. Teachers just utilize straightforward media like pictures or direct media. The growing experience did utilizing media that will in general be dull can certainly cause boredom for students.

Learners' need for more innovative learning media is essential to improve the quality of their learning and learning outcomes. The advantages of learning media are that it can increment learning motivation, make it easier for students to understand learning and make students more active in following the learning process (Ardhani et al., 2021). Based on these problems, a arrangement is expected to beat them, in particular by developing. Media advancement by joining components of games is one of the creative answers for further develop science learning in the homeroom. Media improvement for this present circumstance is given to the early age school instruction level to make dynamic, inventive, intelligent, successful and fun learning. The right and appropriate media can improve the learning experience and can make students more enthusiastic in learning (Ulfa & Rozalina, 2019).

Learning media is made by the attributes of understudies. Grade school understudies incline toward while learning is finished while playing. States that learning media with a game system is reasonable for use in the educational experience since learning while at the

same time playing can make the learning climate more charming for understudies since it isn't exhausting during the growing experience, understudies can be more dynamic and proficient in accomplishing learning targets. The use of learning media with a game system aims to invite students to solve problems in subjects by completing exercises or simulations contained in the game (Khasanah et al., 2018). The type of game that is often used in the world of education is board games, one of the most famous board games is monopoly (Permana & Nugroho, 2023). Monopoly game is a simple game that can give a tomfoolery growth opportunity to understudies in the learning process (Hendri & Jarnawi, 2021).

Monopoly is a game played by more than two people and emphasizes mastery of the materials taught by the teacher. The monopoly game created is not the same as other games, this game was created by combining logical steps, namely paying attention, asking, trying, dissecting, thinking, and conveying. (Anjaswuri et al., 2023). This game is changed into a tomfoolery learning media to help realizing with the goal that understudies can comprehend the material to be shown by the instructor. Imposing business model media is liked by students to learn and furthermore practice trustworthiness. Students can learn while playing as an alternative to learning to establish learning motivation with the goal that it is more obvious the material to work on understudies' mentalities in day to day existence (Mahesti & Koeswanti, 2021). The utilization of imposing business model learning media is extremely important in light of the fact that it is as per the qualities of grade V understudies at SDN 03 Mereng who will generally really like to play, so learning media with the idea of learning while at the same time playing is exceptionally essential.

This is evidenced by a study entitled "Development of Monergi Media (Energy Monopoly) to Grow the Ability to Understand Science Concepts of Elementary School Students". The results of his research show that the development of Monergy media (energy monopoly) helps students to understand learning concepts, especially science, learning becomes fun and students become more active. The results of this study are "valid" because monopoly game media can make students better understand concepts and learning becomes meaningful. Development of Science Monopoly Learning Media to Get to the next level Cognitive Abilities and Foster Character Values in Elementary School Students. The research results are valid, practical and effective since this imposing business model media advancement can be involved by educators in science learning to grow student character values and create student learning activity in participating in learning activities. Development of Science Monopoly Game

Learning Media for Grade IV Students of SDN Pragaan Laok I. The results of student responses showed a positive response to monopoly game media. Student learning outcomes also show an increase in students' cognitive outcomes by using monopoly game learning media so that it is suitable for use in the learning process.

Based on the explanation above, researchers need to conduct new research to make it more straightforward for understudies to follow and grasp realizing so that it becomes meaningful. Varied media are applied with special designs that are different from previous or new media and have interesting and fun steps so that students are more active and learning becomes more meaningful. Development of monopoly game-based learning media or called educational monopoly. Educational games are games that contain elements of education and learning (Jatmiko & Hobri, 2021). Educational games are able to visualize real life problems (Jamalludin et al., 2023). Educational monopoly learning media can be utilized by students to learn while playing, so the educational experience becomes fun, students are more enthusiastic to follow learning and can make it easier for students to understand learning, help develop thinking power to be more creative and active. Monopoly games can arouse students' enthusiasm and curiosity. This monopoly learning media makes it more straightforward for educators to convey material to understudies and can make it simpler for understudies to grasp the material. So as to achieve learning objectives and improve student learning outcomes.

In order to address the issues raised by earlier research, the researcher created educational monopoly learning materials for class V students at SD Negeri 03 Mereng. These materials serve as a social science teaching tool for the students in class V at SD Negeri 03 Mereng. Because monopoly game learning media may attract and boost students' interest in learning science, the creation of game-based learning media will facilitate information acquisition for students. In order to create an instructional monopoly game that may be used to teach students about the human digestive system, its design and gameplay were updated from monopoly games in general.Based on the background described above, a research was conducted entitled "Development of Educational Monopoly Learning Media in Science Subjects to Improve Learning Outcomes of Class V Students of SDN 03 Mereng, Warungpring District, Pemalang Regency".

## Method

The type of research used is *Research and Development* (R&D). This method is used to produce a

particular product and test its effectiveness. Understanding R&D can be interpreted as a process to develop new products or perfect existing products, for which the product can be accounted for.

In this study, the model used refers to Borg *and* Gall. These research steps include: Potential and problems data collection, product design, design validation, design Revision, product trials, product revision, test usage. This is because it is based on limited time and cost.
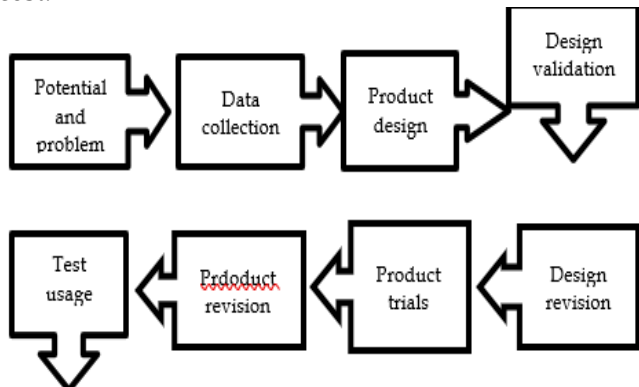


**Figure 1**. Borg and Gall Research and Development Steps

The research was conducted in February of the 2023/2024 school year and was carried out at SDN 03 Mereng located in Bengkeng Hamlet, Mereng, Warungpring District, Pemalang District, Central Java. The populace in this review was grade V understudies at SDN 03 Mereng. The media trial sample used a small group, which amounted to 5 randomly determined students. The data collection methods used include observations made during preliminary research by observing and analyzing the learning process and the characteristics of students as guidelines in creating and developing optimal learning media. Questionnaires are used as measuring tools to determine the feasibility of products obtained from the results of assessments by material experts, media experts and test subjects. Interviews to gather information from teachers and learners. Documentation is used as complementary data to the main data in the form of photos of teaching and learning activities, and teaching modules.

The data analysis techniques used are quantitative and qualitative. Quantitative data is collected through analysis of assessment sheets or questionnaires from media experts, material experts and student responses while qualitative data is in the form of information obtained through responses from material experts, media experts and teacher teaching equipment documents. Data analysis in this study is as follows.

*Analysis of material expert and media expert validation sheets*
Data analysis techniques in expert validation using Likert scale with a rating scale of 1-5

**Table 1.** Assessment criteria

| Criterion | Value |
| --- | --- |
| Totally agree | 5 |
| Agree | 4 |
| Nervous | 3 |
| Disagree | 2 |
| Strongly disagree | 1 |

*Analysis of student questionnaire sheets*
The data analysis technique used for students' instruments is the Guttman scale. Answers on the Guttman scale can be made the highest score 1 (one) and the lowest 0 (zero). For example, the answer "Yes" is scored 1 and "No" is scored 0 and analyzed using the formula:

$$Percentage = \frac{skor\ yang\ diperoleh}{skor\ kriterium}\ x\ 100 \qquad (1)$$

Based on the calculations above, the results of the answers obtained are useful for developing media feasibility conclusions.

**Table 2.** Eligibility percentage

| Percentage (%) | Criterion |
| --- | --- |
| 91-100 | Very decent |
| 81 - 90 | Proper |
| 71 - 80 | Pretty decent |
| 61 - 70 | Less viable |
| 10 - 60 | Not worth it |

Based on the table above, this monopoly game media will be said to be feasible as a learning medium for grade V students if the assessment results reach 91%-100% Conversely, learning media is said to be "Not feasible" to use if the eligibility percentage is 10%-60%.

*Analysis of student learning outcomes*
The data analysis used is due diligence of learning outcomes, normality test, homogeneity test, t test and test *N-Gain*. Test *N-Gain* Conducted to see the improvement of student learning outcomes from before (*pretest*) and after (*posttest*) Using educational monopoly learning media. Test *N-Gain* aims to determine the difference in student learning outcomes on the pretest and posttest. Result *N-Gain* These are then classified according to the established criteria, these criteria can be seen in the Table 3.

**Table 3.** N-Gain Test Criteria

| Percentage (%) | Feasibility |
| --- | --- |
| N-Gain <0.30 | Low |
| 0.30 ≤ N-Gain < 0.70 | Keep |
| N-Gain ≥ 0.70 | Tall |

## Results and Discussion

The product result of the development research conducted by the researcher is an educative monopoly learning media on the human digestive system material. The research and development model carried out is the Borg development model *and* Gall, which includes: Potential and problems, data collection, product design, design validation, design revision, product trials, product revision, test usage, product revision, production of learning media. The research step according to Borg and Gall consists of 10 steps, however, researchers only develop products until the eighth step, namely trial use due to time and cost constraints. In line with research (Joko Widodo & 'Arifatul Hanifah, 2020) Researchers only develop products until step seven, which is the revision step of the final trial and is completed with the refinement of the final product due to time constraints. The following is the process of developing educational monopoly media by referring to the R&D model of Borg and Gall.

### Potential and Problems

Researchers identified it through interviews and learning outcomes documents at SDN 03 Mereng. Interviews are conducted using an open meeting type. Open meetings are utilized to figure out the issues of learning media and sort out the necessities of teachers for learning media to be made. The first interview was directed at Lina Latifatunnisa, S.Pd as a grade V teacher where the focus of questions was on subjects that still had many grades below KKM, subjects and what things were most difficult for students to understand and then narrowed to learning media. It tends to be inferred that overall, the lack of optimal class V science learning is due to the media used not supporting student understanding, this causes students to tend to be passive in following learning because students often play and talk to themselves when learning is in progress. This statement is reinforced by research (Adilah & Minsih, 2022) which states that learning in class looks passive because the teacher focuses on the lecture method, this makes understudies less spurred in the growing experience, understudies don't focus on the clarification given by the educator in the learning process, this is because students often play, talk, and sometimes complain when the learning process is in progress. Teachers must be able to plan learning creatively to teach and foster positive character in students.

### Data collection

Collecting information, in an effort to overcome the problem needs initial data to be identified, then initial data from various sources is processed into information which is then used as material for product preparation.

After finding potential and problems in class V SDN 03 Mereng, researchers collected some data that will be used as a reference for researchers in designing products. Data collection is carried out to determine media characteristics Based on the analysis of the characteristics and learning behavior of students in the classroom, students need learning conditions that are pleasant and can stimulate students to be actively involved. These learning conditions can be created through the use of interesting and interactive learning media, namely educational game-based media. According to (Hikmah et al., 2023) the utilization of instructive game-based learning media can stimulate activeness and motivation as well as enthusiasm of students in learning. This data collection used student needs questionnaires and teacher needs questionnaires. The results of the recapitulation of student needs questionnaires and teacher needs questionnaires are a reference for researchers in developing learning media to be made. As with research (Adilah & Minsih, 2022) Researchers collect data to evaluate the needs of learners used for media creation, the information is collected using questionnaires created by researchers that serve as a starting point for the development of learning media.

### Product Design



**Figure 2**. Results of Learning Media Development Educational Monopoly

Researchers design media designs that will be developed by referring to questionnaires of teacher and student needs. The media is designed according to CP, what's more, the learning goals to be accomplished, are changed in accordance with the level of development of grade V students of SD 03 Mereng. Monopoly with a size of 60cm x 60cm designed using the Canva application and printed using fynil sticker paper with wooden board components with HDF material to make it more sturdy and durable which is equipped with : Monopoly use

manual containing scoring, monopoly game instructions and game rules and human digestive system IPAS materials; Question cards containing questions, smart cards containing supplementary materials about the human digestive system, chance cards and point cards, Pieces and dice. In line with research (Khairunnisa et al., 2018). In planning, the determination and review of learning materials for media developed as per essential abilities and learning targets will be integrated into the learning implementation plan. Therefore, the determination and review of material on the media developed as per the learning results and learning targets that are integrated in the teaching module.

*Design validation*

Monopoly media approval is done by a group of specialists, specifically media specialists, material experts. Where any shortcomings will be used as material for revision which is expected to be more effective. As with research (Andriana et al., 2017) The validation process is completed by material master speakers, media master instructors and educators. The feasibility of instructive syndication learning media is surveyed by two master, namely material expert and media expert. The consequences of the approval of material specialists and media specialists indicate that the developed product is feasible to continue at the next stage, namely field trials. The assessment is carried out by distributing survey sheets to material specialists and media specialists, with the percentage of eligibility of educational monopoly learning media can be seen in Table 4.

**Table 4.** Percentage of eligibility of Educational Monopoly Learning Media

| Percentage % | Criterion |
|---|---|
| 81 - 100 | Very decent |
| 61 – 80 | Proper |
| 41 - 60 | Pretty decent |
| 20 - 40 | Less viable |

The results of the feasibility assessment of educational monopoly learning media by material experts and media experts can be seen in Table 5 and Table 6.

**Table 5.** Results of Feasibility Assessment by Material Experts

| Assessment aspect | Score | Score obtained | Percentage (%) | Criterion |
|---|---|---|---|---|
| Conformity | 25 | 23 | 92.00 | Very decent |
| completeness | 10 | 9 | 90.00 | Very decent |
| Feasibility | 15 | 14 | 93.33 | Very decent |
| Competence | 15 | 13 | 86.66 | Very decent |
| Sum | 65 | 59 | 90.77 | Very decent |

Based on Table 5, the feasibility value of educational monopoly learning media by material expert validators with four assessment aspects, namely aspects of suitability, completeness, feasibility, and competence of educational monopoly learning media received a score of 59 out of 65 with a percentage of value of 90.77% with the criteria "Very Feasible". Material validation is carried out by providing instrument rubrics that have 3 aspects, namely the feasibility of content, language and encouraging curiosity and activeness with four criteria, namely very feasible, feasible, quite feasible and less feasible. The evaluation given by material master validators got a level of 78% which showed an evaluation with plausible measures.

**Table 6.** Results of Feasibility Assessment by Media Experts

| Assessment aspect | Score | Score obtained | Percentage (%) | Criterion |
|---|---|---|---|---|
| Media aspect | 35 | 30 | 85.71 | Very decent |
| Display aspect | 60 | 54 | 90.00 | Very decent |
| Aspects of use | 20 | 18 | 90.00 | Very decent |
| Sum | 115 | 102 | 88.69 | Very decent |

The feasibility assessment of educational monopoly learning media is carried out by media expert validators. Based on Table 6, the feasibility value of educational monopoly learning media by media expert validators with three assessment aspects, namely the media aspect, the display aspect, and the use aspect, received a score of 102 out of 115 with a percentage of scores of 88.69% with the criteria "Very Decent". As with research (Udin et al., 2021) Media validation is carried out by providing a media instrument rubric that has five aspects, namely overall appearance, language, content coverage, linkage and balance, with four criteria, namely very feasible, feasible, quite feasible and less feasible. The evaluation given by media master validators got a level of 83% which shows an evaluation with entirely plausible models. As it was delivered (Deviana & Prihatnani, 2018) Media is said to be valid and practical if the percentage of validation questionnaires is more than 61% or in the good category. Other research from (Ibda et al., 2023) Also get results after due diligence, obtained results from every aspect that the game media Benkangen in light of Magelang's neighborhood shrewdness is exceptionally qualified to be tried with a typical score of 90% from media specialists, materials and clients.

*Design revisions*

Previously the media has been assessed and then validated. The results of the validation must have some shortcomings in several indicators where at this stage the monopoly media will be corrected according to

instructions from a team of experts. Beginning from media plan to the material contained in the media. The aftereffects of the amendment of instructive imposing business model learning media based on suggestions and input from media expert validators are to replace paper materials in guidebooks to make them more durable. Before getting input from a team of experts, the

paper material used is HVS paper, after revision, the paper material used is on the cover using ivory paper, while the contents page uses CTS paper or *art paper* coated with laminate and uses spiral binding with the aim of making the guidebook on monopoly media more attractive and not easily damaged. The aftereffects of the update should be visible in the accompanying Figure 3.



(a)                                              (b)

**Figure 3**. Display of handbook: (a) before revision; and (b) after revision

After making several revisions, the following conclusions or validators' results on the design of educational monopoly learning media can be seen in Table 7. Media is categorized as very feasible with a percentage of media experts 88.69% and material experts 93.33%.

**Table 7.** Results of Feasibility Assessment by Media Experts

| Validators | Percentage (%) | Criterion |
|---|---|---|
| Validator 1 | 88.69 | Very decent |
| Validator 2 | 93.33 | Very decent |

In line with research from (May Sela et al., 2023) The developed monopoly game media is remembered for the substantial class with a percentage value of 91.2%. This is supported by validator assessments that give positive values to the content, construct and language of the media.

*Product trials*

Media products in learning human digestive system material then go through the testing stage in small groups randomly selected by teachers consisting of 5 students. Limited trials are carried out to obtain an overview of the quality of learning media to be developed. This test included teacher response questionnaires and student response questionnaires

which aimed to determine responses from the use of educational monopoly learning media, namely teachers and students. The results of these responses will be used as input to make product improvements. As well as opinions from (Putra et al., 2020) that the results of the data obtained after conducting initial trials will be used as input to make initial product improvements. The results of teacher and student responses to small-scale product trials can be seen in Table 8.

**Table 8.** Results of User Responses to Educational Monopoly Learning Media in Small-Scale Product Trials

| Assessment aspect | Max-score | Score obtained | Percentage (%) | Criterion |
|---|---|---|---|---|
| Teacher | 20 | 18 | 90 | Very decent |
| Learners | 100 | 100 | 100 | Very decent |

Based on Table 8, the results of teacher and student responses in small-scale trials received positive responses with a percentage of 90% by teachers with "Eligible" criteria. With the lack of several indicators of teacher responses, there needs to be an improvement in the application of monopoly game media. In accordance with research (Lestari et al., 2021) The percentage of response questionnaires in phase I obtained a score of 85% with the lack of several indicators that received the smallest scores, the need for revision in the application of monopoly game media and the need to conduct phase

II trials. While the percentage of response questionnaires by 5 students is 100% with the criteria "Very Feasible". As with research (Putra et al., 2020) The percentage of total student responses is 100% with very positive response criteria that have a value of more than 85%. Other research from (Hakiki et al., 2022) In small group trials conducted gotten a normal rate aftereffect of 87.25% so it tends to be presumed that this learning media is extremely legitimate or truly achievable as indicated by the impression of understudies as potential media clients.

*Product Revisions*

After passing the testing stage in small groups, in monopoly media, there must be some shortcomings.

Then the results of the response questionnaire are also analyzed for product improvement materials to be more effective according to the indicators to be achieved. Based on the results of responses by teachers in small-scale product trials, suggestions and input were obtained on the use of writing and sentences on monopoly media cards. Before improvements were made, the use of writing and sentences on monopoly cards was less clear to read, so it was necessary to improve by increasing the size of the writing on the card so that the written sentences could be read by users. The consequences of the revision of educational monopoly media on suggestions and input from teachers can be seen in the following Figure 4.
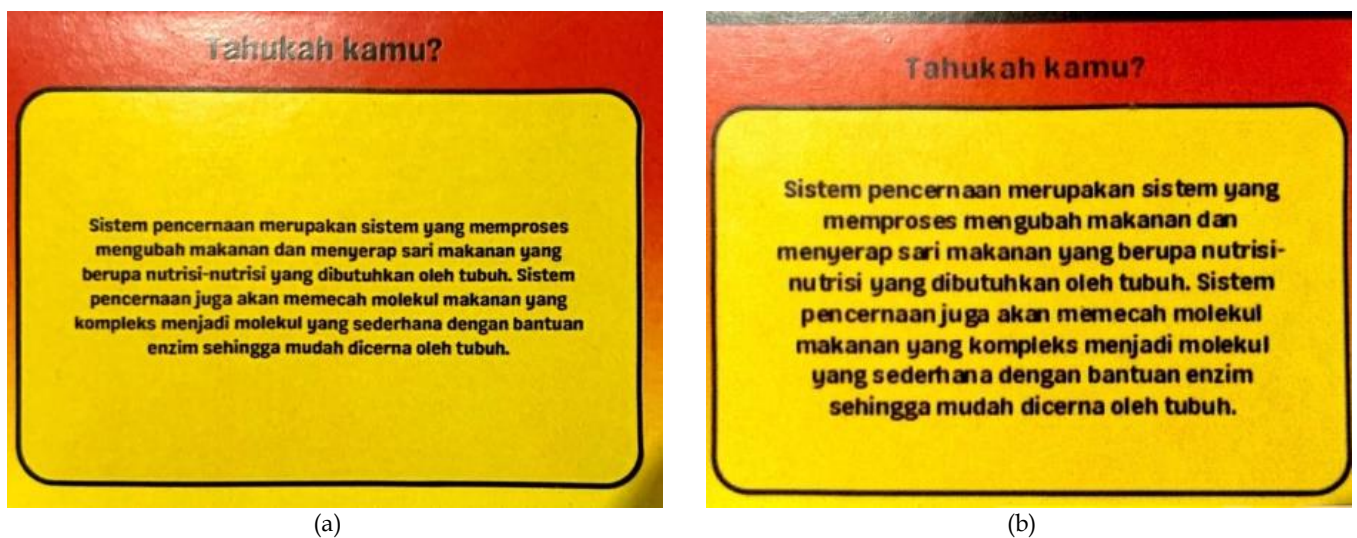


(a)                                                                                                (b)

**Figure 4**. Display of smart card: (a) before revision; and (b) after revision

After going through the product revision stage based on the results of data analysis of teacher and student response questionnaires, the next step is large-scale product trials.

*Usage Trial*

In view of the outcomes of previous approval from the master group and small group testing, the product will be applied in educational institutions. The process of applying media in class V science learning uses tests conducted before treatment using monopoly media to determine differences in learning outcomes. The difference in treatment results before the application of media will be more accurate because it can compare the situation before the application of media and after the application of media. In the trial stage, large-scale product trials were carried out, amounting to 15 students. The data analysis used in this stage is learning due diligence with monopoly media, pretest and posttest normality tests, homogeneity tests, media

efficiency tests and *N-Gain tests*. Student learning outcomes can be seen in Table 9 and Table 10.

Based on Table 8, student learning outcomes in large-scale product trials have increased learning completeness by 93%. After knowing the learning results of understudies. The aftereffects of this study are reinforced by opinions (Prayogo, 2019) that learning achieves classical learning completeness if the percentage of students at least 75% of the number of students in the class has completed learning. Learning results can influence the viability of learning, since one of the learning rules is supposed to be powerful assuming the understudy's learning worth or body is finished, over the base culmination standard worth. Before conducting research in class V SDN 03 Mereng, a pretest was first given which was used to determine the extent of understudies' degree of understanding of science material, namely the human digestive system. The pretest results are then tested *by Lillifors*. The aftereffects of the ordinariness test estimation on the

pretest worth should be visible in the accompanying Table 10.

**Table 9.** Student Due Diligence Results on Large-Scale Product Trials

| Action | Average | Top marks | Lowest score | Complete learners | Incomplete learners (KKM 70) | Learning completeness (%) |
|---|---|---|---|---|---|---|
| Pretest | 54.67 | 70 | 30 | 2 | 13 | 13.00 |
| Posttest | 80.33 | 90 | 65 | 14 | 1 | 93.00 |

**Table 10.** Preetest *Normality Test Results*

| Average | Standard Deviation | L Calculate | L table |
|---|---|---|---|
| 54.67 | 12.74 | 0.17 | 0.22 |
| Pretest scores | | Normally distributed | |

The calculation results of the pretest normality test with an average of 54.67 and a standard deviation of 12.74. It is known that L count < L table, obtained L count 0.17 with dk = 15 obtained $L_{table}$ 0.22, then the data of pretest values of students are normally distributed. The posttest results are then tested for normality using the *Lillifors test.* The results of the normality test calculation test on posttest values can be seen in the following Table 11.

**Table 11.** Posttest *Normality Test Results*

| Average | Standard Deviation | L Calculate | L table |
|---|---|---|---|
| 80.33 | 8.33 | 0.13 | 0.22 |
| Posttest scores | | Normally distributed | |

The calculation result of the posttest normality test with an average of 80.33 and a standard deviation of 8.33. It is known that L count < L table, obtained L count 0.13 with dk = 15 obtained $L_{table}$ 0.22, then the data of posttest values of students are normally distribute. The results of the normality test are in line with the results of the study (Prayogo, 2019) Normality Test Calculation Results pretest with an average of 63.85 and a standard deviation of 11.27. Known L count < L table, obtained L count 0.161 with dk = 20 obtained Ltable 0.190, then the value data Pretest Learners are normally distributed. While the calculation results of the normality test posttest with an average of 89.19 and a standard deviation of 7.96. Known L count < L table, obtained L count 0.132 with dk = 20 obtained Ltable 0.190, then the value data *posttest* Learners are normally distributed. Another study of normality test results obtained significance (Sig) of 0.086 > 0.05 thus the distribution of pretest and posttest normality tests is normally distributed. After the normality test is carried out, the calculation of the homogeneity test is carried out using the F test. The results of the homogeneity test can be seen from the following Table 12.

**Table 12.** Pretest and Posttest Homogeneity Test Results

| Alpha testing | Criteria |
|---|---|
| P-Value < 0.05 | Inhomogeneous data |
| P-Value > 0.05 | Homogeneous data |
| P(F<=f) one-tail | 0.062 |

The homogeneity test results show that Fcalculate = 0.062 while Ftabel = 0.05 can be concluded that Fcalculate < Ftable so that the variance of the two samples is homogeneous. Furthermore, a two-average difference test was carried out to determine the effectiveness of educational monopoly learning media on the results of learning science material for the human digestive system class V SDN 03 Mereng. In this study, the average difference test was carried out using the t test. Paired Two Sample t Test (Alpha 5%) Test Criteria can be seen in the following Table 13.

**Table 13.** Pretest and Posttest Homogeneity Test Results

| Paired Two Sample t Test Criteria (Alpha 5%) | |
|---|---|
| P-Value < 0.05 | There is a significant difference |
| P-Value > 0.05 | There is no significant difference |

**Table 14.** Pretest and Posttest Homogeneity Test Results

| Hypothesis |
|---|
| H0 = There is no significant difference between learning outcomes in the pretest and posttest. |
| H1 = There is a significant difference between learning outcomes in the pretest and posttest. |
| If t counts < t table, then H0 is accepted; H1 is rejected. |
| If t counts > t table, then H0 is rejected; H1 accepted. |

The difference test between two averages of one party or t test obtained tcalculate = 2.23 so that it can be concluded that the P-Value > 0.05, then there is a tremendous distinction between understudy learning results in science subjects of human digestive system material using Educational Monopoly Learning Media. In line with research (Aulia & Wuryandani, 2019) that pre-observation Sig (p) is more than 0.05 and H0 is accepted means that there is no significant difference in caring character between students who use and do not use media. Post-observation showed that H0 decreased meaning that there was a significant difference in caring character between students who used and did not use media. Next, the test is carried out *n-gain* to see the improvement of student learning outcomes from before

and after using educational monopoly learning media. Test *n-gain* aims to decide the distinction in understudy learning results on *Pretest* and *posttest.* Test calculation results *n-gain* the learning outcomes of students in the pretest and posttest can be seen in Table 15.

**Table 15.** N-Gain Test Results of Student Learning Outcomes on Pretest and Posttest

| Action | Multiple learners | Average | Average different | N-Gain Value | Criterion |
|---|---|---|---|---|---|
| Pretest | 15 | 54.67 | 25.67 | 0.58 | Keep |
| Posttest | 15 | 80.33 | | | |

Based on Table 15, the n-gain test value in large-scale product trials is 0.58 with the criteria "Medium". Thus, monopoly learning media is suitable to be utilized as a science learning medium and can improve student learning outcomes. With an increase in the average score of more than KKM, the developed media can be said to be effective (Dwijayani, 2019). In line with research (Fidarti & Nurharini, 2023) The result of the N-Gain test value in large-scale product trials is 0.71 with the criterion "High" so that the digital module is based *minlshake* It is very feasible to be used as teaching material for dance learning and can improve the learning outcomes of students. In addition to using tests, the viability of the created media can likewise be seen from the aftereffects of educator and understudy reactions contained in Table 16.

**Table 16.** Results of User Responses to Educational Monopoly Learning Media in Large-Scale Product Trials

| Assessment aspect | Maximum score | Score obtained | Percentage (%) | Criterion |
|---|---|---|---|---|
| Teacher | 20 | 20 | 100.00 | Very positive |
| Learners | 100 | 100 | 100.00 | Very positive |

Based on Table 16, the results of teacher and student responses to educational monopoly learning media showed very positive results because they obtained scores above 75%. Therefore, the use of monopoly learning media can affect learning outcomes. Educational monopoly learning media likewise get a positive reaction from teachers so that other teachers are more creative and innovative in developing learning media, one of which is with monopoly games because it can decidedly affect the development of students and is also expected to have implications for learning activities. In addition, for students, it can increase enthusiasm and persistence in learning.

This research is in line with research (Prayogo, 2019) shows that the results show that, the evaluation of material specialists is 92.64% (entirely plausible) and

media specialists are 91.66% (truly doable). The created media had the option to increment traditional fulfillment by 26.08% to 100 percent. Thus, it very well may be presumed that the Imposing business model Game Media for Arithmetic Subjects Expansion and Deduction Material for numbers 1 to 500 in Grade II Primary School is plausible to utilize. Previous research that has been done by Khastini et al. (2022) shows that monopoly learning media is developed as a learning resource used to increase student motivation, based on the results of a positive response assessment from students with a score of 95% on digestive monopoly media (MONOPEN) so that the average can be said to meet the possibility of the item as an understudy learning resource.

Research conducted by **Anggraini & Kr**istin (2022) applying social studies learning media Based on monopoly games to increase student motivation and learning outcomes meet the criteria worthy of use in learning according to media experts and material experts with a percentage of media expert assessment of 89.3% with very feasible criteria and assessment from material specialists with a level of 87.5% with truly doable measures. This media is likewise successful for further developing learning results with a normal pretest of 44.33 and posttest 73.67 with importance upsides of 0.000 and <0.05 so there is an expansion in understudy learning results. Research from (Widiyanti & Wiarta, 2021) Developing Learning Media *Monopoly Games Smart* in grade IV elementary school mathematics learning. The results of this study showed that the assessment results from media experts got a value of 91.66% so that they were in good qualifications.

Based on data analysis of the percentage of individual tests conducted on students with media Monopoly Games Smart is 91.5% with a very good eligibility rate. So that the media can conclude *Monopoly Games Smart* suitable for use in the mathematics learning process of grade IV Elementary School. In addition, research from (Suriantara et al., 2022) about simple learning media monopoly on the content of science grade V Elementary School. The consequence of this study is that the plan of syndication media is printed utilizing flag paper with a size of 4 meters x 4 meters and all parts of imposing business model media are embedded into a Styrofoam box estimating 50 cm x 35 cm x 34 cm. The aftereffects of legitimacy test examination from texture specialists, media specialists, and format specialists got the most elevated score of 1 in the exceptionally substantial classification and the least score of 0.77 in the legitimate class. The response of professionals (educators), imposing business model media got a level of 92% with excellent capabilities. Because of understudy reactions, imposing business model media got a level of 96% with excellent

capabilities. The general outcomes show that the straightforward syndication learning media subtheme of animal motion organs for the sophistication of V elementary school is valid and has very good qualifications. Based on these results, it very well may be reasoned that restraining infrastructure educative learning media can further develop understudy learning results in science subjects of human digestive system material.

## Conclusion

The product developed is an educational monopoly learning media. Educational monopoly learning media is declared reasonable for use as a learning media, where it can be proven by assessment by two expert experts and user responses, namely teachers and students who get a very good percentage with very feasible criteria. The results of validation by material and media experts show that educational monopoly learning media have met very valid criteria with a percentage of 88.69% from media experts and 93.33% from material experts, respectively. In addition to assessing the feasibility of educational monopoly learning media was also analyzed. In view of the outcomes of the pretest-posttest, is known the educative monopoly learning media is effective in improving student learning outcomes as shown by the results of an increase in the average pretest score of 54.67 to 80.33 at the time of the posttest and the results of the N-Gain test obtained a value of 0.58 with a moderate category. Based on the results of the questionnaire, the response of teachers and students received a very positive response. From these outcomes, it tends to be reasoned that the educative syndication learning media is powerful in further developing science learning results and is appropriate for use in class V learning at SDN 03 Mereng. It is recommended that students can use educational monopoly learning media in learning activities. Teachers should be able to facilitate students in the learning process, one of which is by utilizing learning media in the form of monopoly game media. This research can also be used as a reference for future research in creating learning media as an educative monopoly to be more creative and interesting.

### Conflict of Interest
The author states that he has no research conflicts.

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