Received: 4 October 2024
Accepted: 23 July 2025
Published: 5 August 2025

p-ISSN: 2716-1722
e-ISSN: 2715-8128

DIDAKTIKA
Jurnal Pendidikan Sekolah Dasar
Volume 8, Nomor 1, 13–23, 2025
Journal homepage: https://journal.uny.ac.id/index.php/didaktika

Development of Mystery Box Media "Taringbarua (Pull the Net of Building Space)" In Learning Mathematics for Elementary School Students

Tania[1], ✉, Risnina Wafiqoh[2], Sisi Pitriyana[3], Zhansaya K. Markhmadov[4]

[123] Universitas Muhammadiyah Bangka Belitung
Jl. KH A Dahlan No. Km. 4, Keramat, Kec. Rangkui, Kota Pangkal Pinang, Kepulauan Bangka Belitung, 33134

[4]Abai Kazakh National Pedagogical University
Dostyk Ave 13, Almaty 050010, Kazakhstan

✉Corresponding Author: taniataniaa83@gmail.com

Abstract
This study addresses the issue of inadequate use of learning tools among students, which leads to decreased interest, reduced focus, and limited understanding of the material. It is the goal of this study to create a media mystery box taringbarua (pull the net wake space) that is trustworthy, useful, and aware of how it might affect the mathematics learning of elementary school children. ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model is used in this type of work as part of the research and development (R&D) method. There were 44 fifth graders from SD Negeri in the south Bangka area who took part in the study. To get information, we used tests, surveys, and interviews. E The N-Gain score was used for quantitative analysis, while qualitative data were analyzed through thematic review. Findings from the validity acquisition of questionnaires from media and material specialists show that the language evaluation is 100% "very good," the media assessment is 97.61% "very good," and the material assessment is 94.44% "very good." The acquisition of student answer surveys, which include one-to-one trials (96.67% "excellent"), small group trials (98.33% "excellent"), and field trials (86.15% "excellent"), demonstrates the practicality of assessment. Based on the test findings, which showed an average N-Gain of 72.77 in the "high" category, it can be said that the mystery box taringbarua media can improve students' conceptual comprehension.

Keywords: build space, concept comprehension, mystery box,

Pengembangan Media *Mystery box* "Taringbarua (Tarik Jaring Bangun Ruang)" Pada Pembelajaran Matematika Siswa Sekolah Dasar

Abstrak
Permasalahan yang terjadi pada siswa yaitu kurangnya penggunaan media pembelajaran sehingga siswa kurang tertarik dengan materi yang dipelajari dan kurang mampu berkonsentrasi, merupakan permasalahan yang dibahas dalam penelitian ini. Tujuan utama penelitian ini adalah untuk mengetahui apakah media mistery box Taringbarua dapat membantu siswa SD dalam mempelajari matematika. Selain itu, penelitian ini juga ingin membuat media mistery box Taringbarua yang benar-benar bermanfaat untuk jaring-jaring tarik geometri. Penelitian ini menggunakan model pengembangan ADDIE (Analyze, Design, Development, Implementation, and Evaluation) dari sebagai bagian dari metode penelitian dan pengembangan (R&D). Sebanyak 44 siswa kelas V di Kabupaten Bangka Selatan menjadi subjek penelitian ini. Metode yang digunakan dalam penelitian ini adalah tes, survei, dan percakapan. Untuk melihat data, digunakan analisis kuantitatif dengan angka N-Gain dan analisis data kualitatif. Jajak pendapat validitas ahli materi dan media menghasilkan hasil 94,44% "Sangat Baik" untuk materi, 100% "Sangat Baik" untuk bahasa, dan 97,61% "Sangat Baik" untuk media. Siswa diminta untuk menilai kegunaan uji coba satu lawan satu (96,67% mengatakan "Sangat Baik"), uji coba kelompok kecil (98,33%), dan uji coba lapangan (86,15% mengatakan "Sangat Baik"). Dengan rata-rata N-Gain 72,77 dalam rentang "Tinggi", hasil pengujian menunjukkan bahwa media mistery box Taringbarua memiliki pengaruh atau potensi. Dalam hal ini, media dapat membantu siswa memahami konsep pada materi pembelajaran.

Kata kunci: Bangun Ruang, *Mystery box*, Pemahaman Konsep

INTRODUCTION

One of the most crucial aspects of learning activities is communication, which occurs when teachers share information and messages with students, and students receive and respond to these communications. This exchange of information and messages constitutes a meaningful and enjoyable learning experience. By providing students with educational opportunities including those related to mathematics such communication also contributes significantly to their understanding. In the field of education, the learning process becomes effective when communication and interaction between teachers and students occur intensively (Inah, 2015).

Mathematics is one of the essential subject's students need to learn. It serves as a tool for thinking, communicating, and solving problems. Mathematics learning is an interactive process among learning components that aims to develop students' thinking abilities to construct mathematical concepts (Gusteti & Neviyarni, 2022). Conceptual understanding is critical in learning mathematics as it affects students' ability to comprehend other concepts they may encounter in the future. Since themes and concepts in mathematics are interconnected either directly or indirectly students must gain a strong understanding of mathematical concepts (Rahayu & Pujiastuti, 2018).

Understanding refers to the cognitive ability to explain and interpret information, provide illustrations, give examples, and offer comprehensive and creative elaboration. A concept, meanwhile, refers to a mental representation, idea, or understanding (Aledya, 2019). When students grasp the mathematical concepts, they are learning, they are less likely to struggle with similar concepts in subsequent topics and can apply them accurately and efficiently. Conversely, students who struggle with conceptual understanding often find it difficult or impossible to progress to related topics (Wafiqoh et al., 2022).

For learning activities to run effectively, supporting variables are necessary to ensure success. One such factor is the availability of adequate facilities and infrastructure to support the teaching and learning process. Facilities and infrastructure are among the most vital aspects of educational management, requiring proper planning to achieve educational goals effectively and efficiently (Bararah, 2020). Several factors influence the learning process, including learning objectives, educators (teachers), students, instructional tools (such as learning media), and environmental variables (Mukido, 2018). Learning media are tools that support the delivery of educational content and clarify the meaning of the message. These tools help learners study the material more effectively.

Learning media encompass all means used to convey instructional messages, thereby stimulating students' attention, interest, thoughts, and emotions during learning to achieve specific educational objectives (Kustiawan, 2016). These media come in various forms, both digital and tangible, each with its functions, strengths, and limitations. Media types include auditory media (non-print media used through listening), visual media (media relying on visual stimuli such as images), and audiovisual media (which combine sound and visual elements such as animated videos) (Saleh et al., 2023). Such media bring diversity and variation to the learning process, engaging students more actively in constructing mathematical concepts and enhancing their understanding, ultimately leading to better learning outcomes (Andrijati, 2014).

The use of educational media can enhance the quality of instruction and facilitate the achievement of learning goals (Pitriyana & Hevitria, 2023). Furthermore, teachers play a vital role in stimulating students' interest and motivation by using media to deliver instructional messages in ways that ensure comprehension and retention. Thus, the teacher is not merely a transmitter of content but also a leader and educator responsible for achieving educational goals (Agustini, 2018). Accordingly, for effective learning to occur, all components of instruction must be interconnected.

However, there are still challenges in learning activities, such as the continued use of traditional teaching methods, varied levels of student understanding, low motivation and interest, and limited or monotonous instructional materials. Observations conducted by the researcher in a fifth-grade class at a public elementary school in South Bangka Regency revealed that mathematics instruction still relies heavily on lecture-based methods. Instructional materials are limited to textbooks and blackboards, leading to student disengagement, lack of focus, and boredom due to insufficient motivation or interest. This reluctance to learn impedes the achievement of instructional goals. Students will also struggle to understand learning concepts if they are not given adequate time and space to develop individually.

In mathematics learning specifically, students often face difficulties such as slow calculation skills, weak logical reasoning, poor writing or drawing abilities, and lack of motivation especially regarding

mathematics (Hasmawati et al., 2022). Therefore, instructional tasks must be improved to make learning more appealing and motivating, particularly in mathematics. This can make learning more engaging and enjoyable. One approach is to diversify learning resources. When varied media are used in teaching and learning, students become more enthusiastic and attentive to the content delivered by the teacher. Such variation also boosts their interest and excitement about the topic (Abdullah, 2017).

Among the many tools that can be used to teach mathematics specifically about plane figures is the Taringbarua puzzle box. The development of this interactive media is crucial as it not only assists teachers in delivering content but also enhances student participation by promoting two-way communication between students and the digital tools or media used (Pasya et al., 2023). A study titled "Development of the Mystery Box Challenge Interactive Media on Plane Figures for Grade III Elementary Students" also created interactive media. Media design experts rated it 91.6% in the "highly feasible" category, while limited student trials received 86.6% in the same category. Lastly, professional teachers gave a rating of 88.03% in the "highly feasible" category after confirming that the media supported their instructional content (Pasya et al., 2023). Media can assist struggling learners and increase their interest in learning.

In line with the problems as mentioned earlier, this study aims to develop the "Taringbarua Mystery Box" (Tarik Jaring Bangun Ruang) as a valid and practical mathematics learning medium for elementary school students, and to investigate its potential effect on learning outcomes. The media developed in this study is a tangible or visual medium that can be directly used by teachers, especially those with limited access to digital media. One of the advantages of using visual media is that students can be actively involved in the learning process, experience it firsthand, and verify processes or results through direct observation, which promotes student engagement. Another advantage is that visual media provides students the opportunity to explore learning content, practice scientific and rational thinking, and expand their knowledge (Collins et al., 2021).

Previous studies have primarily focused on developing feasible learning media. In contrast, this study not only focuses on media development but also explores the potential effects of the media on learning outcomes. Moreover, while earlier studies developed digital media, the current study develops a physical learning medium tailored to the limitations faced by schools such as instructional goals, learning environment factors, and educator constraints that hinder the effectiveness of the teaching and learning process.

METHODS

This study aims to produce a product and to determine how beneficial that product is by using the Research and Development (R&D) method. The development model used in this study includes five stages: analysis, design, development, implementation, and review (Supratman, 2015). The analysis stage was carried out through interviews with the Grade V homeroom teacher using an interview guide to explore several aspects, such as curriculum analysis to understand the curriculum used in the school, media analysis to identify the learning media used during instruction, and analysis of student characteristics in the learning process.

The design stage involved three steps. The first step was designing the initial product by developing sketches or designs using Microsoft Word, followed by selecting materials to be used for developing the learning media. The second step involved the preparation of product assessments in the form of interview questions for teachers and students, as well as validation questionnaires for media and content experts, and test items for assessing student responses. The third step consisted of organizing the learning material to be used in the media development phase, which was derived from the validation of the questionnaires by the media and content experts.

The development stage included the creation of the media based on the outcomes of the previous stages, followed by validation from media and content experts. The feedback obtained was used for revisions before conducting trial activities in the test class. In this stage, the media was tested in Class 5A, which consisted of 22 students. The class was divided into three trial groups: a one-to-one trial, a small group trial, and a field trial, using test instruments (pre-test and post-test) and student responses. The results of these trials were used to evaluate the validity and practicality of the media developed for use in learning activities, and to conduct revisions before the implementation stage in Class 5B.

The implementation stage involved applying the media during mathematics learning activities in Class 5B using a pilot test with pre-test and post-test assessments. The purpose was to observe the potential effects of the developed media on the learning process. The evaluation or review stage is the final step of

the ADDIE development model, which aims to interpret the results regarding the quality of the developed product. These results were obtained from interviews, questionnaires, test results, and student responses.

In 2024, this study was conducted at one of the public elementary schools in Bangka Selatan Regency. The selected research site was a school with limited facilities for learning and several other constraints, such as instructional goals, the learning environment, and teacher-related factors, which hinder effective learning processes. The participants of this developmental study were 44 fifth-grade students. Trials were conducted on Class 5A students while they were still in their developmental stage. The trials were carried out using several types of testing: one-to-one trials with three students (one with low ability, one with medium ability, and one with high ability), small group trials with six students (two from each ability level), and field trials with thirteen students (excluding those involved in the previous two trials). As part of the implementation stage, a pilot test was conducted with 22 students from Class 5B. There were two research subjects: Class 5A and Class 5B. Students in Class 5A were used to assess whether the developed media was valid and practical, while students in Class 5B were used to evaluate the potential effects of the media in supporting the learning process.

This study used three data collection techniques: interviews, surveys (involving expert assessments of the media and content, as well as student responses), and tests (pre-tests and post-tests). Interviews are a type of non-test evaluation conducted through conversation and questioning, either directly or indirectly (Rima Damayanti et al., 2024). In this study, interviews were conducted directly using an interview guide containing ten questions, which had been previously discussed. The survey used in this research was a questionnaire, a data collection technique involving a set of written questions or statements provided to respondents (Rima Damayanti et al., 2024).

The questionnaires included validation questionnaires and student response questionnaires. The validation questionnaire, aimed at content and media experts, consisted of twelve questions. The student response questionnaire consisted of ten questions and aimed to assess the validity of the developed media. Tests are tools or procedures for measurement or evaluation in education, typically in the form of tasks or sets of questions designed to yield scores that represent students' performance or achievements (Alam et al., 2019).

The tests used in this study were pre-tests and post-tests, each consisting of eight questions. The N-Gain score was used to measure student learning outcomes after the intervention, based on whether there was an increase from the pre-test to the post-test. N-Gain is a method used to measure the effectiveness of a learning activity or intervention in improving student learning outcomes. It measures the relative improvement in students' understanding before and after instruction (Sukarelawan et al., 2024). The N-Gain score is classified into three categories: high ($0.70 \leq N \leq 1.00$), medium ($0.30 \leq N < 0.70$), and low ($0.00 \leq N < 0.30$). The data analysis method used in this study included both quantitative and qualitative analyses. The data collection techniques were tailored to the needs of the media development process and included various aspects such as content, design, knowledge, usefulness, and others.

RESULTS AND DISCUSSION

The result of this development research is a product that is valid and beneficial, and it can assist students in better understanding mathematics. The final product is the Taringbarua Mystery Box Media ("Pulling Net of 3D Shapes"), designed to support mathematics learning among elementary school students. The five stages of the ADDIE model are analysis, design, development, implementation, and evaluation (Supratman, 2015).

In the analysis stage, a framework of inquiry was used to pose ten questions to Mrs. M., a homeroom teacher of Grade V at a public elementary school in Bangka Selatan Regency, during the assessment phase. Based on the curriculum review, the Independent Curriculum is the curriculum implemented in Grade 5 at one of the public elementary schools in Bangka Selatan Regency. In Grade 5, the mathematics topic on three-dimensional shapes includes lessons on cubic and inverse space shapes. These lessons cover learning outcomes (CP), learning objectives (ATP), and the following indicators.

Table 1. CP, ATP and Indicator

Learning Outcomes	Learning Objectives Pathway (ATP)	Indicators
By the end of Phase C, students are able to deconstruct and describe three-dimensional shapes (cubes, rectangular prisms, and their combinations), and	1. Through learning activities, students can understand three-dimensional shapes.	1. Understand the concept of three-dimensional shapes.

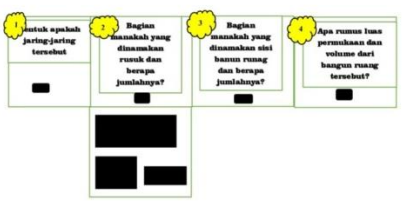
Learning Outcomes	Learning Objectives Pathway (ATP)	Indicators
recognize spatial visualization (front, top, and side views). They are also able to compare the characteristics between two-dimensional and three-dimensional shapes, and to identify locations on a grid-based map.	2. Through instructional activities, students can understand the nets of cube and rectangular prism shapes. 3. Through learning activities, students can understand the volume and surface area of cube and rectangular prism shapes.	2. Recognize the nets of cube and rectangular prism shapes. 3. Identify the volume and surface area of cube and rectangular prism shapes.

The media analysis showed that at one of the public elementary schools in Bangka Selatan Regency, the use of learning media remains limited to commonly used classroom materials such as textbooks, blackboards, photographs, and measuring tools (e.g., rulers). The analysis of student characteristics revealed that during Grade 5 learning activities at the same public elementary school, students demonstrated diverse learning styles and methods. For instance, some students found it easier to understand the material when presented theoretically, while others struggled unless the material was illustrated with concrete examples or visual representations. Furthermore, when learning activities did not involve the use of media, students tended to be less engaged and had difficulty maintaining focus on the subject matter.

The design stage consists of several tasks. The first step is product design, which begins with the creation of sketches or black-and-white designs of the product to be developed, along with the selection of necessary instruments and equipment. Once the product sketch or design is completed, the supervising lecturer provides further guidance. The second step involves preparing three instruments that form the evaluation tools: tests, questionnaires, and interview guides. There are two sets of interview guides: one for teachers, consisting of ten questions, and another for students, consisting of four questions. The questionnaire, which consists of twelve items, is subsequently validated by media and subject matter experts to determine its validity. The ten questions comprising the pre-test and post-test are designed to measure how the Taringbarua Mystery Box media affects elementary school students' understanding of mathematics. The third step is the preparation of learning material related to geometric shapes. Cube and cuboid are the two geometric shapes selected from the original set of seven three-dimensional figures. The range of topics covered includes the understanding of various types of cube and cuboid nets as well as the properties and characteristics of these geometric figures.

The development stage involves collaboration with the supervising lecturer to produce the product based on the sketches or designs created during the design stage. Following the media development phase, a validation phase is conducted by a team consisting of media and subject matter validators: Mrs. M, Mrs. H, and Mrs. IJL. The purpose of this validation study is to confirm the accuracy and validity of the content and media in the Taringbarua Mystery Box. Three components are assessed during the validation process: media, language, and content. The content aspect received a score of 94.44%, the language component related to the media received a score of 100%, and the media component received a score of 97.61%, based on the results from the three validators. After the validation process, comments and suggestions were collected to be incorporated into the revision process. The revised outcomes based on feedback from the media and subject matter expert validation are presented in Table 2.

Table 2. Revisions by Media and Content Experts

Aspect of Revision	Before Revision	After Revision
Question cards	What are the formulas for the area and volume of the shapes?	What are the formulas for the surface area and volume of the shapes?
Addition of question order on the media		

Aspect of Revision	Before Revision	After Revision
Addition of a user guide		

The next trial was conducted in Class 5A. This trial included a one-to-one trial, a small group trial, and a field trial. The purpose of conducting these cross-group trials was to determine whether the results of the student response questionnaires indicated that the media was practical to use. The following presents the data obtained from the trial activities.

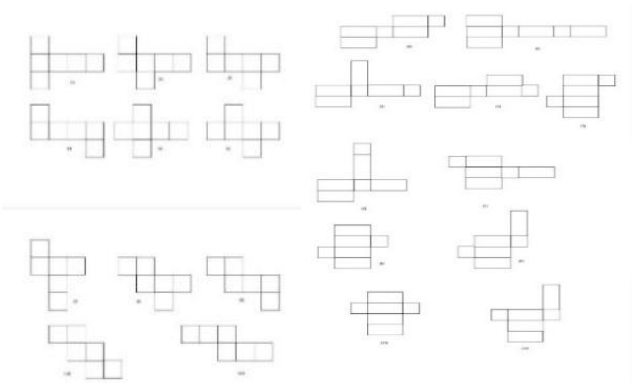
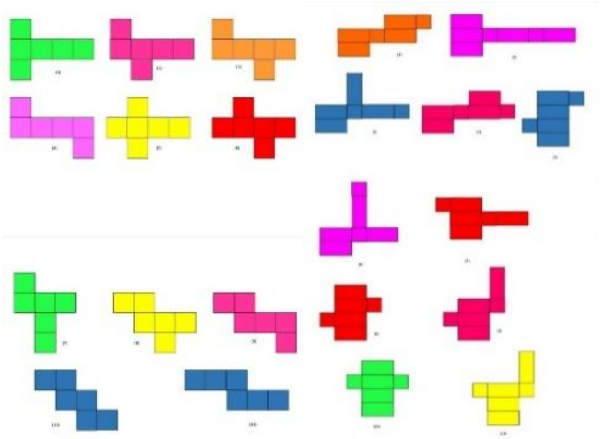
1. One-to-One Trial, three students participated in this trial, representing high, medium, and low ability levels. The questionnaire results from the one-to-one trial yielded a percentage of 96.67%. In addition, interviews were conducted with the three students to collect suggestions for revisions or improvements. Table 3 presents the revisions made based on the one-to-one trial activities.

Table 3. Revisions from the One-to-One Trial

Before Revision	After Revision
Part of the question 1. Observe the characteristics of the three-dimensional shape below! a) Has equal side lengths b) Has 6 faces c) Has 12 edges d) Has 8 vertices Based on the characteristics above, what type of 3D shape is being described?	Part of the question 1. Observe the characteristics of the three-dimensional shape below! 1) Has equal side lengths 2) Has 6 faces 3) Has 12 edges 4) Has 8 vertices Based on the characteristics above, what type of 3D shape is being described?
2. Observe the characteristics of the three-dimensional shape below! 1) Has length, width, and height 2) Has 6 faces (4 rectangular faces and 2 square faces) 3) Elongated shape like a rectangular prism 4) Has 12 edges and 8 vertices Based on the characteristics above, what type of 3D shape is being described?	2. Observe the characteristics of the three-dimensional shape below! 1) Has length, width, and height 2) Has 6 faces (4 rectangular faces and 2 square faces) 3) Elongated shape like a rectangular prism 4) Has 12 edges and 8 vertices Based on the characteristics above, what type of 3D shape is being described?

2. Small Group Trial: four students with average abilities, two students with high abilities, and two students with low abilities participated in this trial session. A score of 98.33% was obtained based on the questionnaire data from the small group trial. The modified version of the small group trial activity is presented in Table 4.

Table 4. Revisions from the Small Group Trial

Before Revision	After Revision
	

3. Field Trial: This trial activity was conducted with 13 students out of a total of 22. The questionnaire results from the field trial showed a percentage of 86.15%. Revisions from the field trial activity are presented in Table 5.

Table 5. Revisions from the Field Trial

Before Revision	After Revision
side × side × side = S^3	V = S × S × S
6 × side × side = 6 × S^2	L = 6 × S × S
length × width × height	V = L × W × H
2 × {(L × W) + (L × H) + (W × H)}	L = 2 × {(L × W) + (L × H) + (W × H)}

The implementation stage was carried out in a different class, namely Class 5B, involving a pilot test group consisting of 22 students. This stage aimed to examine whether the developed media had the potential to support students' understanding of mathematical concepts through pretest and posttest activities. The potential effect of the media was assessed using the N-gain results obtained from the tests. The media used during the implementation stage had previously undergone validation and revision processes.

Figure 1. Exterior View of the Taringbarua Mystery Box Media

A mystery box, also known as a magic box, generally refers to an opaque container made of cardboard. When the box is closed, its contents become a mystery to the students. It is called a mystery or magic box because children will not know what is inside until the lid is opened (Heldayani et al., 2022). Figure 1 shows the exterior view of the Taringbarua mystery box media, which takes the shape of a cube. Each side of the box measures 30 × 30 cm, making it a regular cube. The inner part of the media is made from rice carton, layered with black cardboard. At the bottom of the media, there is a green flannel cloth shaped like an arrow, attached using adhesive. The purpose of this plan is to keep the box securely closed during

transport. Additionally, on the outer side of the media, there is a yellow cloud-shaped section that serves as a hook for hanging strings connected to the nets that will be used in the learning activity.

Figure 2. Interior View of the Taringbarua Mystery Box Media

Figure 2 shows the interior of the Taringbarua mystery box media, which contains several compartments, each serving a specific function. On the inner walls of the box, there are several questions that will later be answered by students using answer cards. The wall includes numbered labels (1 to 4) marked with yellow icons to guide the reading order of the questions.

In the center of the box, there are three compartments containing answer cards and various shapes of geometric nets. The wall-mounted questions consist of four items related to cube and cuboid geometry. The following are examples of the questions:

1. What shape does this net represent?
2. How many faces does a cube have?
3. How many edges does a cube have?
4. What is the formula for the surface area and volume of a cube?

After reading the questions in order, students are expected to answer them by attaching the corresponding answer cards below each question. At the bottom of each question, an adhesive strip is provided to hold the student's answers in place.

Figure 3. Inner Compartments of the Taringbarua Mystery Box Media

Figure 3 illustrates the three internal compartments located inside the Taringbarua mystery box media. Each compartment is labeled accordingly: Cuboid, Cube, and Answer Cards. Compartment 1 contains the nets of cuboid shapes, Compartment 2 holds the nets of cube shapes, and Compartment 3 stores the answer cards used to respond to the questions presented on the box walls.

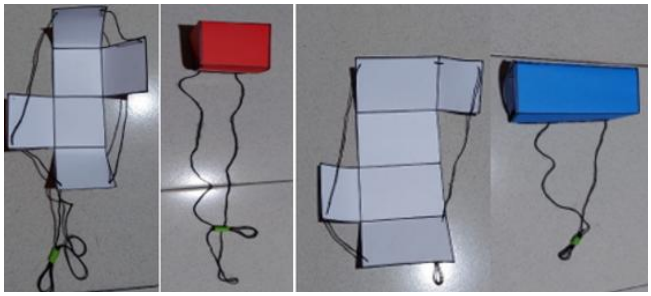


Figure 4. Contents of Boxes 1 and 2: Cube and Cuboid Nets

Figure 4 presents an example of the geometric nets found in Boxes 1 and 2. These nets are made of paper, perforated, and tied together with strings. The strings can be pulled so that the nets transform into three-dimensional shapes. The figure displays one of the possible configurations of cube and cuboid nets used as part of the learning media.

Figure 5. Contents of Box 3 (Answer Cards)

Figure 5 shows an example of the contents of Box 3, which contains answer cards corresponding to the questions displayed on the interior walls of the Taringbarua mystery box media, as described in Figure 1. The answer cards are laminated and have adhesive strips attached to the back, allowing them to be affixed directly below the corresponding questions on the media wall. The N-Gain data reflect the results of the pretest and posttest activities, with an overall average N-Gain score of 0.7277. This N-Gain value is classified into three categories: low, medium, and high. The classification is based on normalized gain values as follows: $0.70 \leq N \leq 1.00$ is considered high, $0.30 \leq N \leq 0.70$ is medium, and $0.00 \leq N \leq 0.30$ is low. These categories were determined based on the individual pretest and posttest scores obtained by students in completing the test. The N-Gain results from the pilot test revealed an improvement in students' learning outcomes. Among the 22 students, 11 students were categorized as having high improvement, 10 students showed medium improvement, and 1 student fell into the low category. The average pretest score was 12.09, while the average posttest score was 31.95, resulting in an overall average N-Gain score of 0.7277.

The evaluation phase occurred throughout all stages of the research process, incorporating feedback, comments, and adjustments from both instructors and students. This evaluation aimed to assess each phase of the research independently. During the analysis stage, the curriculum analysis, media analysis, and student characteristics analysis were all evaluated. In the design stage, the instructional media to be developed were finalized. During the development stage, the media were produced and assessed for both content and design. Following this, a validation process was carried out in collaboration with subject matter and media experts. In the implementation stage, a trial was conducted to test the developed media. Finally, in the evaluation stage, revisions were made to the media or the pretest and posttest questions, based on suggestions from validators, teachers, and students. This stage also included interviews with teachers and students. The findings indicated both the feasibility and the potential effectiveness of the media. This study aligns with previous research titled "Development of Interactive Media 'Mystery Box Challenge' on Plane Figure Materials for Grade III Elementary School Students", published in 2020, where review and evaluation activities were also conducted throughout the research process. The evaluation results confirmed the media's feasibility and its potential to support students' learning activities (Pasya et al., 2023). The present study is consistent with earlier findings, as both aim to produce and enhance instructional media that can support students in the learning process using educational tools.

CONCLUSION

This validation process included a comprehensive evaluation of both material and media components, based on a set of evaluation criteria. The material evaluation yielded a percentage score of 94.44%, which falls into the "Very Good" category. The language aspect received a 100% score, also classified as "Very Good." Additionally, the media component scored 97.61%, indicating an overall evaluation in the "Very Good" category. Based on these findings, the Taringbarua Mystery Box media was categorized as "Very Good" and is considered feasible for educational use. Student response surveys also confirmed the usefulness of the media in supporting learning. The results of the one-to-one trial, small group trial, and field trial were obtained through student response questionnaires. Three students completed the questionnaire in the one-to-one trial, resulting in a score of 96.67% categorized as "Very Good." Six

students participated in the small group trial, yielding a score of 98.33%, also in the "Very Good" category. Finally, thirteen students completed the questionnaire in the field trial, which produced a score of 86.15%, still classified as "Very Good." These findings indicate that the Taringbarua Mystery Box media is "Very Good" or beneficial for educational purposes.

The results of the pretest and posttest administered to Class 5B indicated that the Taringbarua Mystery Box media supported elementary students in learning mathematics. According to the category table, the N-Gain score of 0.7277 falls within the "High" category, as it lies in the range of $0.70 \leq N \leq 1.00$. Among the 22 students who participated in the interpretation process, 11 students were categorized as High, 10 students as Medium, and 1 student as Low. The average pretest score was 12.09, and the average posttest score was 31.95, resulting in a score difference of 19.86 points between pretest and posttest. These results demonstrate that students learned significantly more mathematics after using the Taringbarua Mystery Box media. It can therefore be concluded that this media helps elevate students' learning outcomes from a lower to a higher level of mathematical understanding.

Based on the overall findings, the media developed namely, the Taringbarua Mystery Box for elementary mathematics learning is considered feasible and effective in supporting the learning process. This conclusion is drawn from the validation questionnaire results obtained from both subject matter and media experts, as well as from student feedback, all of which fell into the "Very Good" category. Moreover, the pretest and posttest results indicate that the media had a positive impact on student learning, as evidenced by the N-Gain improvements. For future researchers interested in developing similar media, it is recommended to explore improvements in terms of design, materials used, and overall durability, so the media can be effectively used over a longer period.

REFERENCES

Abdullah, R. (2017). Pembelajaran Dalam Perspektif Kreativitas Guru Dalam Pemanfaatan Media Pembelajaran. *Lantanida Journal*, *4*(1), 35. https://doi.org/10.22373/lj.v4i1.1866

Alam, S., Japar, M., & Asnur, M. N. A. (2019). Pengembangan Instrumen Tes Siswa Tingkat Sekolah Dasar di Kabupaten Kuningan. *Qalam : Jurnal Ilmu Kependidikan*, *8*(1), 59–68. https://doi.org/10.33506/jq.v8i1.389

Aledya, V. (2019). Pada Siswa. *Kemampuan Pemahaman Konsep Matematika Pada Siswa*, *2*(May), 0–7.

Andrijati, N. (2014). Penerapan Media Pembelajaran Inovatif Dalam Pembelajaran Matematika Sekolah Dasar di PGSD UPP Tegal. *Jurnal Penelitian Pendidikan*, *31*(2), 123–132.

Bararah, I. (2020). Pengelolaan Sarana Dan Prasarana Pendidikan Dalam Meningkatkan Kualitas Pembelajaran. *Jurnal MUDARRISUNA*, *10*(2), 351–370. http://dx.doi.org/10.22373/jm.v10i2.7842

Buchari Agustini. (2018). Peran Guru Dalam Pengelolaan Pembelajaran. *Jurnal Ilmiah Iqra*, *12*, 1693–5705.

Collins, S. P., Storrow, A., Liu, D., Jenkins, C. A., Miller, K. F., Kampe, C., & Butler, J. (2021). *Peningkatan Pemahaman Konsep Matematika Melalui Media Visual pada Siswa Kelas IV SD NEGERI WIDORO*. *04*(01), 422–428.

Gusteti, M. U., & Neviyarni, N. (2022). Pembelajaran Berdiferensiasi Pada Pembelajaran Matematika Di Kurikulum Merdeka. *Jurnal Lebesgue : Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika*, *3*(3), 636–646. https://doi.org/10.46306/lb.v3i3.180

Hasmawati, H., Usman, U., & Ahsan. (2022). Peningkatan Kemampuan Peserta Didik dalam Menjumlah Bilangan Pecahan dengan Menggunakan Media Gambar Luas Daerah di Kelas VII MTs.N 1 ENREKANG. *Journal of Mathematics Learning Innovation (Jmli)*, *1*(1), 17–32. https://doi.org/10.35905/jmlipare.v1i1.3259

Heldayani, E., Meilyana, M., & Tanzimah, T. (2022). Pengaruh Media Mystery Box terhadap Hasil Belajar IPS Siswa Kelas V SD Negeri 195 Palembang. *Journal On Teacher Education*, *4*(1), 25–32.

Kustiawan, U. (2016). *Pengembangan Media Pembelajaran Anak Usia Dini*. Penerbit Gunung Samudera [Grup Penerbit PT Book Mart Indonesia]. https://books.google.co.id/books?id=gpYqDwAAQBAJ

Mukido. (2018). Tela ' Ah Filosofis Arti Pendidikan Dan Faktor-Faktor Pendidikan Dalam Ilmu Pendidikan. *Jurnal Penelitian Pendidikan*, *10*(2), 1468–1476.

Nur Inah, E. (2015). Peran Komunikasi Dalam Interaksi Guru Dan Siswa. *Al-Ta'dib*, *8*(2), 150–167.

Pasya, H. R., Mufliva, R., Lestari, D. A., & Andriani, N. (2023). Pengembangan Media Interaktif "Tantangan Mystery Box" Materi Luas Bangun Datar untuk Siswa Kelas III Sekolah Dasar. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *7*(1), 249. https://doi.org/10.20961/jdc.v7i1.71269

Pitriyana, S., & Hevitria, H. (2023). Pemanfaatan Media Pembelajaran Calistung Sebagai Upaya Menumbuhkembangkan Kemampuan Anak Usia Dini. *Community Development Journal : Jurnal Pengabdian Masyarakat*, *4*(3), 6255–6259. https://doi.org/10.31004/cdj.v4i3.17405

Rahayu, Y., & Pujiastuti, H. (2018). Analisis Kemampuan Pemahaman Matematis Siswa Smp Pada Materi Himpunan. *Symmetry: Pasundan Journal of Research in Mathematics Learning and Education*, *3*, 93–102. https://doi.org/10.23969/symmetry.v3i2.1284

Rima damayanti, Nuril Huda, & Dina Hermina. (2024). Pengolahan Hasil Non-Test Angket, Observasi, Wawancara Dan Dokumenter. *Student Research Journal*, *2*(3), 259–273. https://doi.org/10.55606/srjyappi.v2i3.1343

Saleh, M. S., Syahruddin, Saleh, M. S., Azis, I., & Sahabuddin. (2023). *Media Pembelajaran*. https://repository.penerbiteureka.com/publications/563021/media-pembelajaran

Sukarelawan, M. I., Indratno, T. K., & Ayu, S. M. (2024). N-Gain vs Stacking. In *Surya Cahya*.

Wafiqoh, R., Ardiansah, F., Anisa, F., & Zananti, S. (2022). Modifikasi Permainan Caklingking Untuk Meningkatkan Kemampuan Pemahaman Konsep Berhitung Siswa. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *11*(3), 1924. https://doi.org/10.24127/ajpm.v11i3.5365