

Development of Tayo Calculating Funnel Media for Multiplication Material in Elementary Schools

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Abstract: This study was motivated by the limited variety of mathematics learning media used at SDIT Qurrata A'yun Batusangkar, which still uses simple objects such as stones or straws. This condition makes learning monotonous and reduces student participation. To overcome this problem, the researcher developed the Tayo Counting Funnel learning media as an innovative alternative for understanding multiplication material. This study aims to produce a learning medium in the form of Tayo Counting Funnel that is valid and practical for elementary school students. The method used is research and development with the 4D model (Define, Design, Develop, Disseminate). The research instruments include a validation sheet and a practicality questionnaire for teachers and students. The validity test was conducted by two lecturers and one teacher from the elementary school level, while the practicality test was carried out with teachers and 27 third-grade students at SDIT Qurrata A'yun Batusangkar. The results showed that the Tayo Calculation Funnel media was declared highly valid with a percentage of 92.8% and highly practical based on the responses of 93.7% of teachers and 90.5% of students. Thus, this media is suitable for use in helping students understand the concept of multiplication interactively.

Keyword: Tayo Calculating Funnel Media, Multiplication, Elementary School

Introduction

Mathematics is one of the subjects that must be taught at all levels of education, from elementary school to university. Mathematics is a science that cannot be separated from human life because humans use mathematics in all their activities. Harahap (in Anastasha et al., 2021) argues that mathematics is a field of science whose objects of study are abstract and developed through deductive reasoning. This is in line with the opinion of Fahrurrozi & Hamdi (2017) that mathematics is a systematic discipline that examines patterns of relationships, patterns of thinking, art and language, all of which are studied with logic and are deductive in nature. This deductive nature means that mathematics does not depend on experiments or observations like the sciences, but rather on drawing conclusions based on basic rules that are considered true. Therefore, learning mathematics requires a deep understanding so that students are able to understand the interrelationships between concepts as a whole. This means that understanding concepts is the main thing that must be emphasised in mathematics learning.

At elementary school level, mathematics learning focuses on introducing basic concepts to train logical, analytical and critical thinking through simple and contextual material (Safrizal et al., 2022). In addition, mathematics learning also aims to equip students with mathematical skills that are useful in everyday life (Yanti & Fauzan, 2021). However, its implementation is often hampered because the abstract nature of mathematics is not always in line with the characteristics of elementary school children. This gap can be explained by Piaget's theory, which states that elementary school students are still in the concrete operational stage, so even though they are capable of logical thinking, they still need real objects as tools to help them understand abstract concepts (Saputra et al., 2023). Therefore, teachers need to utilise learning media as tools that can concretise abstract concepts in mathematics learning so that they are easier for students to understand. The use of media not only facilitates understanding but also increases student engagement in learning. This is in line with Bruner's theory, which emphasises the importance of giving students the opportunity to manipulate teaching aids so that they can discover patterns and regularities directly, which ultimately helps them understand mathematical concepts more clearly and concretely (Wandini, 2019).

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Learning media is a tool that functions and can be used to convey learning messages. Learning media is considered to help teachers improve students' understanding of the material being taught. Therefore, teachers are required to provide relevant and effective media to support the achievement of learning objectives. Apriansyah et al (2023) state that the lack of media use in learning can have an impact on the low quality of student learning. In line with this, Sunarti (2023) emphasises that the use of learning media is an important requirement that teachers must be aware of because each subject has a different level of difficulty. Some subjects may be explained verbally, but others require the use of media to make them easier to understand. Thus, learning media is essential for students to better understand concepts.

Based on observations conducted from 15 to 22 January 2025 in class III of SDIT Qurrata A'yun Batusangkar, learning appeared to be going quite well. However, teachers had not yet utilised a variety of learning media to support student motivation. During the learning process, teachers still rely on textbooks, student books, and blackboards, making learning seem monotonous and causing some students to become bored, lose focus, and even walk around the classroom. In mathematics lessons, the media used by teachers is still limited to simple objects available in the surrounding environment. From interviews with teachers, it was found that the use of learning media is still a major obstacle. Teachers rarely use media and only use it when absolutely necessary. In multiplication lessons, simple objects such as stones or straws are used as teaching aids. However, these aids are considered impractical, limited in number, and unattractive, which discourages students and hinders optimal learning. Subsequent interviews with students revealed similar findings. They felt that the media was rarely used and only used briefly. In the interviews, students expressed their interest in cartoons from the animated series Tayo the Little Bus because the stories were entertaining and suited to the world of children. This interest presented a great opportunity to consider learning media that was closer to the students and familiar to them, which served as inspiration for the development of learning media.

Based on the problems described above, there is a need for innovation in learning media. One solution is to develop learning media that is more interesting and relevant to the world of elementary school children. Engaging media not only helps students understand the material but also fosters a passion for learning (Nurrita, 2018). Learning media should be varied so that students do not get bored. Students will become bored when learning is conducted using media that never changes (Rizka & Febrina Dafit, 2023). One type of media that can help students understand multiplication is the counting funnel.

According to Lubis (2020), the counting funnel is a learning medium used to understand the concept of multiplication as repeated addition, specifically designed for elementary school students. Firdaus et al (2022) state that the counting funnel can also be used for other arithmetic operations such as addition, subtraction and division. According to Faizah et al (2022), the advantage of this media is that it not only helps students understand the learning material but also trains their gross motor skills. According to Wardani et al. (2022), counting funnel media consists of several components, namely cardboard, plastic funnels, congklak seeds, paper, paint, and number labels. In this study, the media was modified by changing its physical form to increase its appeal and learning effectiveness. The media developed uses plywood as the main material with a design resembling the cartoon character Tayo from the animated series Tayo the Little Bus. This design was chosen based on interview results which showed students' interest in the animation because of its bright colours, attractive design, and familiarity to children. This media is covered with Tayo character stickers, equipped with question cards, has ten holes numbered 1–10, a drawer containing ten boxes resembling congklak, beads, and a guidebook.

The purpose of this study was to examine the validity and practicality of the Tayo Counting Funnel media for multiplication material among elementary school students. This calculation funnel media development research has also been developed by several previous researchers, namely (Irmawati et al., 2023), (Janah et al., 2023), (Noer & Anggit, 2019) and (Rukoyah et al., 2021). Previous research results show that the counting funnel media has met the criteria of validity, practicality, and effectiveness, so it is considered very suitable for use in learning.

Judging from the research that has been conducted by several previous studies, the focus of the research is the same, namely to develop counting funnel media, but the difference lies in the material, school level, and physical form of the Tayo Counting Funnel media developed by the researchers.

Method

This study utilises a development research method, also known as Research and Development (R&D). Research and Development is a method used to develop new products or improve existing ones. This is in line with Sugiyono's (2018) opinion that the research and development method is a research method used to produce a product that will later be tested for its effectiveness or feasibility. The model used in this research and development refers to the model suggested by Thiagarajan, namely the four-D (4D) development model. This model is called the four-D (4D) model because it consists of four stages of development, namely the define, design, develop and disseminate stages (Fayrus & Slamet, 2022). The four-D (4D) development model was deliberately chosen because it has the advantage of not being too complicated and not requiring a lot of time (Riani Johan et al., 2023). The stages of the 4D model are as follows:

1. Define

The define stage is the initial stage carried out by researchers to determine the basis for media development. At this stage, several analyses are carried out, namely an analysis of teachers' needs to determine the learning conditions and obstacles encountered, an analysis of students' needs to understand the characteristics of learners and the suitability of the media to their interests, an analysis of learning media to review the media that has been used previously, and an analysis of the curriculum that serves as a reference in the preparation of materials. These four analyses form an important foundation before proceeding to the media development stage.

2. Design

After the definition stage is complete, the design stage begins. In this second stage, researchers design the product being developed. The steps are as follows:

a. Designing Tayo's Counting Funnel media

In designing the Tayo Counting Funnel media, researchers followed the steps described by Wibowo (2019), namely: preparing tools and materials, determining the size, assembling the frame, making functional components (holes and drawers resembling a congklak pattern), designing the appearance to resemble the Tayo bus, and adding supporting devices in the form of question cards, question bags, and a guidebook. Next, the finishing, validation, and revision stages were carried out based on validator input.

b. Designing research instruments

In addition to designing the media, researchers also developed research instruments in the form of media and instrument validity sheets and teacher and student response questionnaires to assess the practicality of the media.

3. Develop

The development stage includes media validation tests and product trials to determine the validity and practicality of the developed media. The objective of this stage is to produce a valid and practical Tayo Calculation Funnel media for use in teaching multiplication in the third grade at SDIT Qurrata A'yun Batusangkar. Validation was carried out by two lecturers from UIN Mahmud Yunus Batusangkar and one elementary school teacher to assess the suitability of the media, after which the media was revised according to the suggestions given. After that, a practicality test was carried out.

4. Disseminate

In the dissemination stage, researchers distributed the Tayo Counting Funnel media in the research school, namely in grade III of SDIT Qurrata A'yun Batusangkar, which was the subject of the trial. This distribution was carried out by handing over four units of the

developed media, each equipped with a user manual, question cards, and beads as counting aids. The media was handed over to the school so that teachers could use it in the learning process, particularly for multiplication material, so that the existence of this media was expected to help improve students' understanding while providing alternative variations of mathematics learning media in the classroom.

The assessment instruments in this study consisted of validation sheets and practicality sheets. The following is an explanation of the instruments used in this study:

1. Validation Sheet

The validation sheet was used to analyze the validity level of the Tayo Counting Funnel media. This instrument was given to three validators, namely two lecturers from UIN Mahmud Yunus Batusangkar and one elementary school teacher. The validation sheet contained several assessment aspects that were used as a reference in assessing the suitability of the media.

Table 1. Product Validation Sheet

No	Assessment aspects	Indicator
1.	Physical Aspects/Appearance	a. The design of the Tayo Counting Funnel media is in accordance with the material in the book. b. Appropriate size and shape c. Simplicity of shape d. Appropriate and attractive colours e. Uniqueness of shape f. Safe to use
2.	Material Aspects	a. Accuracy in material selection b. Media that is safe for elementary school pupils to use c. Strength (not easily damaged, broken, deformed or destroyed) when used
3.	Utilisation Aspects	a. The suitability of the Tayo Counting Funnel media for the cognitive development level of students b. The appearance and method of use are very easy for students to understand c. The suitability of the Tayo Counting Funnel media and the content of the material can encourage student understanding d. Ease of use of the media e. The practicality of the media makes it easy to carry

Source: (Zaelani et al., 2024).

2. Practicality Sheet

The practicality sheet was used to obtain data on the practicality of the Tayo Counting Funnel media, which was developed through a questionnaire containing statements by teachers and students. This questionnaire used a 1–4 Likert scale with the options SS (4 points), S (3 points), KS (2 points), and TS (1 point). (Riza et al., 2020).

Table 2. Practicality Sheet for Teacher and Student Responses

No	Assessment Aspects	Data Collection Methods	Response Questionnaire Sheet
1.	Ease of Use of Media	Response Questionnaire	Practicality Questionnaire
2.	Time Efficiency		
3.	Usefulness		
4.	Attractiveness		

Source: (Yudela et al., 2020)

The data analysis technique in this study utilised qualitative and quantitative data analysis techniques. Data analysis was conducted through validity and practicality tests of the Tayo Counting Funnel media. Validity was assessed using a validation sheet filled out by experts, then calculated using a formula:

$$P = \frac{F}{N} \times 100 \%$$

Source: (Sulaimany & Julianto, 2020).

The media is declared valid if the percentage is $\geq 61\%$, whereas if it is below that, revisions need to be made.

Table 3. Validity Categories

No	Percentage range	Category
1.	81 % – 100 %	Highly Valid
2.	80 % - 61 %	Valid
3.	41 % - 60 %	Sufficiently Valid
4.	21 % - 40 %	Invalid
5.	0% - 20 %	Invalid

Source: adapted from Riduwan, 2015

Then, practicality was obtained from the teacher and student response questionnaires, calculated using the same formula. Media were categorised as practical if the percentage result was $\geq 61\%$, while a value below 60% indicated that the media were not yet practical.

Table 4. Practicality Categories

No	Percentage range	Category
1.	81 % – 100 %	Very Practical
2.	80 % - 61 %	Practical
3.	41 % - 60 %	Quite practical
4.	21 % - 40 %	Less practical
5.	0% - 20 %	Impractical

Source: adapted from Riduwan, 2015

Results and Discussion

Results

The results of this development study show that the Tayo Calculating Funnel media has proven to be very suitable for use in mathematics learning, especially for multiplication material in grade III at SDIT Qurrata A'yun Batusangkar. This suitability is supported by the results of the research and discussion conducted. This study was carried out through the stages of the 4D development model, namely:

1. Define

At this stage, several steps are taken to determine what the school needs and to gather information about the appropriate media to be developed. To that end, an analysis of teacher needs, student needs, learning media, and the curriculum is conducted. The following is a description of the steps taken in the define stage:

a. Analysis of teacher requirements

The analysis of teachers' needs was obtained through direct interviews with third-grade teachers at SDIT Qurrata A'yun Batusangkar. The interviews revealed that teachers rarely use teaching media and only use them when deemed absolutely necessary. Teachers revealed that they had used simple media such as YouTube videos and concrete objects (stones or straws). However, their use was ineffective because videos were only able to attract attention at the beginning of the lesson. Students who were still at the stage of enjoying playing tended to quickly become bored and lose focus when this media was

used repeatedly. Meanwhile, the concrete objects used were considered visually unattractive, and their quantity was often insufficient, so their implementation was also less than optimal. This condition shows that the media used is still monotonous and lacks variety, resulting in low active participation from students. Therefore, the researcher developed the Tayo Counting Funnel media in the shape of a Tayo bus to present more interesting and interactive multiplication learning.

b. Analysis of student needs

Student needs analysis was obtained through observation and direct interviews with teachers and several students. From the observation results, some third-grade students lacked focus during mathematics lessons, with some seen walking around, busy with their own activities, and not paying attention to the teacher. Subsequent interviews with teachers revealed that the majority of students had the same media repeatedly, causing them to lose focus, not engage actively, and become easily bored, as stated by Rizka & Febrina Dafit (2023) that student boredom will arise if the media used does not change.

c. Curriculum analysis

SDIT Qurrata A'yun Batusangkar uses the Merdeka Curriculum in accordance with the Decree of the Minister of Education, Culture, Research and Technology of the Republic of Indonesia Number 56/M/2022, with the following phases: A (grades I–II), B (grades III–IV), and C (grades V–VI). Learning is centred on students and teachers using Teaching Modules as a substitute for lesson plans. This curriculum also requires creativity from teachers, one of which is through the use of learning media.

2. Design

This second stage began after the first stage was completed. At this stage, the Tayo Counting Funnel media was designed and research instruments were developed to assess the validity and practicality of the media. In designing the Tayo Counting Funnel media, the researchers followed the stages described by Wibowo (2019), namely:

a. Determining tools and materials

The initial stage is to determine the tools and materials used in making the Tayo Counting Funnel. The materials used include plywood, small pieces of wood, small boards and beads, while the tools used are a saw, hammer, nails, knife, ruler, screwdriver and bolts.

b. Determining the size of the media

The Tayo Counting Funnel is designed with dimensions of 40.5 cm in length, 17 cm in width, and 20.5 cm in height, while the side drawer measures 30 cm in length and 6 cm in height to hold the beads used in the students' calculations. These dimensions are considered ideal for group use in the classroom.



Figure 1. Measuring Media

c. Developing a media framework

The media frame is constructed from pieces of plywood and small pieces of wood that are assembled to form the Tayo Counting Funnel media frame, including the body, top, sides and drawer, to form a sturdy unit resembling Tayo the bus from the animated series Tayo the Little Bus.



Figure 2. Media Framework

d. Creating functional media components

This stage begins by making a drawer on one side of the medium as a place for the beads to come out, then the top of the medium is pierced with 10 square holes resembling a congklak pattern. After that, wheels are installed under the medium using wooden sticks and PVC pipes so that the medium can be moved.



Figure 3. Functional components of the media

e. Creating a visual media appearance in line with the character of Tayo the Little Bus

Once the frame and components were complete, the Tayo Counting Funnel was decorated with stickers featuring the faces and colours of Tayo and his friends to resemble the original cartoon.

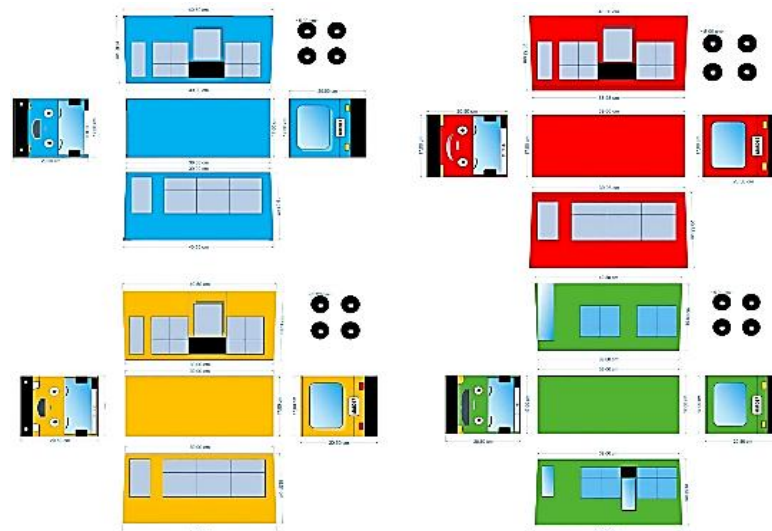


Figure 4. Tayo sticker pattern design



Figure 5. The sticker has been affixed to the medium.

f. Decorating the media

The Tayo counting funnel is decorated with numbers 1–10 on the holes, and character stickers are placed on the drawers and additional paint is applied to make it look neater and more attractive to students.



Figure 6. Numbering on media

g. **Creating supporting components**

In addition to the main media, researchers also created supporting materials such as guidebooks, question cards, question bags and calculation aids. The guidebooks were designed using the Canva application and printed according to the number of media.



Figure 7. Guidebook front and back covers



Figure 8. Question bag on the back

h. **Finishing**

Finally, all parts of the Tayo Calculating Funnel were checked and reinforced, sharp edges were smoothed, and inspections were carried out.



Figure 9. The media is now complete with its supporting elements.



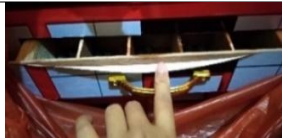

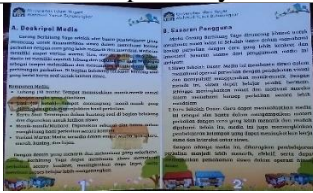
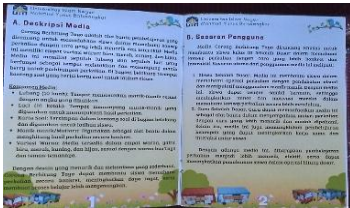
3. **Develop**

At this stage, testing was conducted on the Tayo Counting Funnel learning media that had been developed. The testing included validity and practicality tests. The following is a description of what was done at this development stage:

a. **Validation stage**

Media validation was carried out using validation sheets by three validators, namely two lecturers from UIN Mahmud Yunus Batusangkar and one elementary school teacher. The input and suggestions provided were used as a reference in revising the media, as shown in the following table:

Table 5. Product improvements before and after revision

No	Before Revision	After Revision
1.	 <p>Recommendations:</p> <ol style="list-style-type: none"> The appearance of the drawer is too plain; it is recommended that it be painted so that it does not look like ordinary plywood. The drawer should be decorated to attract the attention of elementary school students. 	 <p>After being revised according to the validator's suggestions</p>
2.	 <p>Recommendations:</p> <ol style="list-style-type: none"> It is recommended that the stickers that appear to be peeling off be repaired so that they look neater. Add instructions explaining that the drawers can be opened by students. 	 <p>After being revised according to the validator's suggestions</p>
3.	 <p>Recommendation: The background on each page of the guidebook should be removed and no background images should be used as they interfere with the readability of the text.</p>	 <p>After being revised according to the validator's suggestions</p>

The revised media was then resubmitted to the validators for further assessment. The validation stage was declared complete when the Tayo Counting Funnel media was deemed valid and suitable for use in learning. The results of the media validation test are presented in the following table:

Table 6. Media validation test results

No	Assessment Aspects	Validator			Nu mbe r	Maxi mum Score	%	Description
		1	2	3				
1.	Physical/Appearance	22	23	24	69	72	95,8	Highly Valid
2.	Material	10	11	12	33	36	91,6	Highly Valid
3.	Utilisation	16	19	19	54	60	90	Highly Valid
	Number	48	53	55	156	168	92,8	Highly Valid

Based on the overall assessment results from the three validators, the Tayo Counting Funnel media achieved a percentage score of 92.8% with a category of highly valid. This is in line with the criteria put forward by Riduwan (2015), namely that if the percentage is in the range of 81% - 100%, it is categorised as highly valid. Therefore, it can be concluded that this media is highly valid and suitable for use in the learning process.

b. Practicality Stage

The practicality test aimed to determine the practicality level of the Tayo Counting Funnel media in learning. The trial was conducted in class III of SDIT Qurrata A'yun Batusangkar, involving 27 students and the class teacher during two meetings (2×35 minutes). The first session covered multiplication of 1–5, while the second session covered multiplication of 1–10. The learning process used the Problem-Based Learning model combined with student worksheets and question cards, where students worked in groups with the help of the media.



Figure 10. Product testing

After the learning activity was completed, teachers and students were asked to fill out a practicality questionnaire to assess the ease of use, time efficiency, usefulness, and attractiveness of the media.



Figure 11. Filling out the practicality questionnaire

The results of the teachers' assessment of the practicality of the media can be seen in Table 6, while the results of the students' assessment can be seen in Table 7.

Table 7. Results of the practicality test of teacher responses

No	Practicality Aspects	Number	Maximum Score	%	Description
1.	Ease of Use of Media	18	20	90	Very Practical
2.	Time Efficiency	10	12	83,3	Very Practical
3.	Usefulness	16	16	100	Very Practical
4.	Attractiveness	16	16	100	Very Practical
	Total	60	64	93,7	Very Practical

Based on the table above, the percentage of practicality of teachers' responses was 93.7%, which is categorised as very practical. This is in accordance with the criteria proposed by Riduwan (2015), namely that if the percentage is in the range of 81% - 100%, it is categorised as very practical. Therefore, it can be concluded that the Tayo Calculation

Funnel is very practical for teachers to use in teaching multiplication to third-grade students at SDIT Qurrata A'yun Batusangkar.

Table 8. Results of the practicality test of student responses

No	Practicality Aspects	Number	Maximum Score	%	Description
1.	Ease of Use of Media	492	540	90	Very Practical
2.	Time Efficiency	284	324	83,3	Very Practical
3.	Usefulness	388	432	100	Very Practical
4.	Attractiveness	401	432	100	Very Practical
	Total	1.565	1.728	90,5	Very Practical

Based on the table above, the percentage of practicality of student responses was 90.5%, which falls into the very practical category. This is in accordance with the criteria put forward by Riduwan (2015), namely that if the percentage is in the range of 81% - 100%, it is categorised as very practical. Therefore, it can be concluded that the Tayo Calculation Funnel is very practical for students to use in the learning process of multiplication for third-grade students at SDIT Qurrata A'yun Batusangkar.

4. Disseminate

The dissemination stage of this study was conducted on a limited, small scale at SDIT Qurrata A'yun Batuskar, where the researcher conducted the study, specifically in Grade III, which was the test subject. The researcher created four units of Tayo Calculation Funnel media equipped with a user manual, question cards, and beads as counting tools. All of these equipment were handed over to the school to be used in teaching multiplication in the third grade. Before use, teachers received a brief explanation of the purpose, function, and steps for using the media and its accessories. This distribution was carried out with the aim that the media could be used continuously outside of the trial activities so as to provide direct benefits to the learning process. The responses of teachers and students showed that the media attracted attention, was easy to use, and helped students understand the concept of multiplication better.

Discussion

1. Discussion Related to the Define Stage

a. Analysis of teacher requirements

At this stage, researchers conducted interviews with third-grade teachers at SDIT Qurrata A'yun Batusangkar to obtain first-hand information about the mathematics learning process, particularly regarding the use of learning media. Based on the interview results, it was found that teachers rarely used learning media and only used it when deemed absolutely necessary. Teachers explained that the media they had used included educational videos from YouTube and concrete objects such as stones and straws. However, their use was considered ineffective. Educational videos were only able to attract students' attention at the beginning of the lesson, while in the next stage, students who were at an age where they enjoyed playing tended to quickly become bored and lose focus when these media were used repeatedly. Meanwhile, the use of concrete media was also not optimal because the availability of objects at the school was still limited, so their use was not maximised. Teachers also revealed that students often felt bored when studying in class, especially in mathematics lessons. One of the causes is the use of monotonous and unvaried learning media. This is in line with the opinion of Rizka & Febrina Dafit, (2023) who stated that student boredom can arise if learning is carried out with media that never changes.

Based on these conditions, the use of Tayo Counting Funnel media is considered to be a solution to increase students' interest and motivation to learn. This media is designed to be interactive and fun with shapes and designs that are liked by students. In

addition, Faizah et al. (2022) state that there are four advantages of the counting funnel learning media, namely: (1) it helps students understand arithmetic operations, (2) it is easy to use for teachers and students, (3) it helps students solve multiplication problems, and (4) it improves students' gross motor skills.

b. Analysis of student needs

Student needs analysis was conducted through observation and direct interviews with teachers and several third-grade students at SDIT Qurrata A'yun Batusangkar. The observation results showed that some students appeared to lack focus in following the lessons. This condition indicated that the classroom atmosphere was not conducive, one of the causes being the lack of variety in the learning media used. The teacher then revealed that the majority of students' learning styles were kinesthetic and visual, so sometimes the media used was not appropriate, which was the cause of the less than conducive classroom conditions. Interviews with students showed similar results, with students saying that they felt bored with the lessons. In the interviews, students expressed their interest in the Tayo the Little Bus animation because the animations were funny and enjoyable.

Based on these results, researchers sought solutions that were closer to the world of children and things that students liked. Namely, the development of counting funnel media by modifying the media into animations from Tayo the Little Bus. The Tayo the Little Bus animation is one of the animated films favoured by children because it features cheerful characters, an engaging storyline, and positive messages that contribute to social and emotional development (Listrianti & Diyana, 2023).

c. Analysis of learning media requirements

Based on observations and interviews, it was found that teachers still tend to use textbooks as the main source of mathematics learning. Although they occasionally use media, the media used is still simple, such as straws and stones when teaching multiplication. These media are passive and have not been able to foster students' interest and active involvement in learning. Teachers also revealed that the availability of learning media in schools is still limited, so teachers often find it difficult to create variety in the learning process. This condition has an impact on the classroom atmosphere, which is less interesting and students easily get bored, especially when learning mathematics, which requires an understanding of abstract concepts.

Therefore, learning media that is interesting, interactive, and suitable for elementary school students who are still in the concrete thinking stage is needed. As a solution, the researcher developed the Tayo Counting Funnel media, which is a Tayo bus-shaped media that children love. This media is expected to help students understand the concept of multiplication in a fun way while increasing their motivation and learning outcomes.

2. Discussion Related to the Design Stage

At this stage, researchers designed the Tayo Counting Funnel media. In the design process, researchers used the Canva application as a tool to create attractive visual media, ranging from bus design to the creation of a media user guide. Canva was chosen because this application provides various easy-to-use graphic design features and researchers can customise the media display to the needs and characteristics of students. This is in line with the opinion of Sihombing et al. (2024), who stated that one of the advantages of Canva is the availability of a variety of attractive and flexible design options. In addition, the design process is not limited to the use of laptops, because Canva can also be accessed via mobile devices such as mobile phones, making it easier for users to design media anywhere and anytime.

3. Discussion Related to the Development Stage

The development of Tayo's Counting Funnel media for multiplication material for third-grade students at SDIT Qurrata A'yun Batusangkar was carried out by the

researcher through the 4D model proposed by Thiagarajan. The development model consists of four stages, namely definition, design, development, and dissemination.

The following discusses the results of research conducted at SDIT Qurrata A'yun Batuskar, which includes the validity and practicality of the Tayo Counting Funnel media.

a. Validity of Tayo Counting Funnel Media

The validity aspect of this study refers to the criteria of Zaelani et al., (2024), which include physical appearance, materials, and utilization. The validation results show that the Tayo Counting Funnel media is in the highly valid category with an average score of 92.8%, covering several aspects, namely physical appearance, materials, and utilization. The validation results show that the Tayo Counting Funnel media is in the highly valid category with an average score of 92.8%. In terms of physical appearance, it scored 95.8% due to its attractive visual design, appropriate colours, and shape resembling the Tayo bus character, which adds to its appeal to students. The material aspect scored 91.6% because the plywood used was considered strong, safe, and stable when used. Meanwhile, the utilization aspect scored 90%, indicating that the media was easy to use, effective in helping students understand the concept of multiplication, and in line with students' needs and cognitive development. Thus, this media was declared highly valid and suitable for use in learning. The results of this study are similar to those of a study conducted by Irmawati et al. (2023) entitled "Development of Doraemon counting funnel media for mathematics lessons on addition and subtraction for first-grade students," which showed that counting funnel media is highly valid and suitable for use in learning. This is evidenced by the validation results, which obtained a score of 93.58% in the highly valid category.

b. Practicality of Tayo Counting Funnel Media

The practicality of the Tayo Counting Funnel media was assessed through questionnaires completed by teachers and 27 third-grade students at SDIT Qurrata A'yun Batusangkar after two multiplication lessons, namely 1–5 and 1–10. The aspects measured included ease of use, time efficiency, usefulness, and attractiveness (Yudela et al., 2020). The teacher assessment results showed a score of 93.7% (very practical), while the student assessment was 90.5% (very practical). Teachers considered this media easy to use, efficient, and useful in supporting learning, while students found the media interesting, enjoyable, and helpful in understanding multiplication. Thus, this media proved to be practical to use from both the teachers' and students' perspectives. These findings are also in line with the research by Noer & Anggit., (2019) entitled "Development of counting funnel media to improve arithmetic skills in elementary school first grade students", which shows a high level of practicality in counting funnel media in elementary schools. This is proven by trials involving teachers and students. Teachers' assessment of the media obtained a score of 94.1%, while students obtained a score of 95.8%, resulting in an overall score of 94.9% in the very practical category.

Conclusion

Based on the results of the development of the Tayo Calculating Funnel media for multiplication material for third-grade students at SDIT Qurrata A'yun Batusangkar, which has been carried out to the practical stage, it can be concluded that this media has met the criteria of being highly valid with a percentage of 92.8%. In addition, the Tayo Calculation Funnel media is also considered very practical for use by both teachers and students in learning activities. This is evidenced by the results of the teacher response questionnaire, which obtained a percentage of 93.7% in the very practical category, and the results of the student response questionnaire, which reached 90.5% in the very practical category. Based on the research conducted, the researcher suggests that teachers and students use the Tayo Counting Funnel media in mathematics learning

on multiplication as an alternative learning media. In addition, the researcher is expected to expand this research so that the effectiveness of the developed product can be further tested.

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