Development of Animated Video Media Using Powtoon Application to Improve the Fourth-Grade Elementary Students' Motivation in Learning

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ABSTRACT

This paper examines the development, feasibility, and response of students about animated video media using the Powtoon application in order to increase students' learning motivation in theme 8 of My Living Area on Subtheme 1 of My Living Environment Learning 1 in Class IV SD ST. Antonius Bangun Mulia Medan. The research is a research and development using the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The research subjects are four validators, namely one validator of learning media design experts, two experts in learning media materials, and one education practitioner who is carried out by class teachers. The sample consists of 30 students. Data collection techniques are tests, questionnaires, and documentation. Based on data analysis, it is concluded that animated video media using the Powtoon application to increase students' motivation in learning result is "Very Feasible", which was used with details of the average scores obtained by media and material experts with a final score at 100%, the media at 87.98% and material experts at 100% with the same category. In terms of practicality, the teacher's average score is 100% with the category "Very Feasible". The results of the question reliability are 0.900 with a very strong category and the results of the questionnaire reliability were 0.878 with a very strong category. Results of the coefficient Sis at 0.855 so it can be concluded that there is a significant effect. At the last stage, the summary model result, which is proven by the value of R Square or Coefficient of Determination (KD), is 73.1% so it can be concluded that H_o is rejected, which means that there is an improvement in learning motivation after students use the animated video media Powtoon application in class IV SD ST. Antonius Bangun Mulia Medan.

Keywords: *thematic learning animation video media, Powtoon application, students' learning motivation, elementary students*

INTRODUCTION

Education at this time is growing even various kinds of updates have been carried out in the world of education that aims to improve the quality and quantity of education in Indonesia. The process of improving the quality and quantity of education needs an update in learning innovation, not only there but learning media in education must be improved. To improve the learning process, teachers are required to make learning more creative and innovative which encourages students to learn optimally both in independent learning and in classroom learning. Education serves to improve the quality of human learning. For humans, education serves as a means and facilities that make it easy, can direct, make and guide towards a better life, not only for themselves but for other humans.

In teaching contains two important elements, namely teaching methods and teaching media, these two aspects are interrelated. The selection of one particular teaching method will affect the type of synchronous teaching media although there are still various other aspects that must be considered in choosing media including pedagogical objectives, types of tasks and responses that students are expected to master after teaching takes place.

The school used as a place of research is SD ST. Antonius Bangun Mulia Medan School Year 2022/2023. Based on the results of observations that have been made, it is known that schools that are used as objects of observation produce some data, namely, teacher needs for learning media and the lack of media

in supporting the learning process in the classroom, the teacher also said that in the classroom there are supporting tools available in displaying media such as projectors but not fully used. The teacher learning process in the classroom still has never used Powtoon-based learning media   in every lesson, the teacher only uses Powerpoint and   props as a learning medium, from the information obtained by researchers, it can be seen that teachers have never used Powtoon-based learning media. Thus, researchers want to develop moreinteresting learning media such as Powtoon-based video media which shows that the existence of this video learning media Able to handle the difficulties of students in understanding the material during the learning process   and effectively able to improve student learning outcomes much more better than the previous one.

Powtoon-based learning animation video   is one of the audio and visual-based learning media that has interesting animation features in delivering messages in the form of video. Powtoon is a software application that allows users to create videos easily, because Powtoon's working appearance is very similar to Powerpoint, and is equipped   with   a lot of character selection features, which are very interesting including, Powtoon handwriting animations, cartoon animations, and transition effects that are more vivid in appearance and   very easy timeline settings, has objects, backgrounds and music, so that users can produce videos using the features that are already available , In addition, users can also import images or audio. Therefore, the aim of this research is to develop animated video media using the Powtoon application to increase student learning motivation. Theme 8 Where I Live Class IV Elementary School ST. Antonius Bangun Mulia Medan.

LITERATURE REVIEW
Model Development Concept
The concept of model development is something that describes the existence of thinking patterns. A model usually describes all concepts as interrelated, in other words the model can be viewed as an attempt and to concretize a theory as well   as a analogies and representations of the variables contained in the theory. In R&D research, there are models that can be used as a guide in developing a product, including Sugiyono suggesting research methods used to produce certain productsand test the   effectiveness of the product, to be able to produce a particular product   used that is a needs analysis and to test the   effectiveness of the   product in order to function in teaching and learning activities.

In this study, the author wants to develop a learning media using the Powtoon application, this product is made with the aim that students can be happier and better understand the material that is being learned and can increase learning motivation in the classroom. After the author provides a variety of learning media using the Powtoon application then asks experts to validate the learning media   using the Powtoon application which will made into products. Products that will be validated later if there are shortcomings or weaknesses, the product will be revised and then corrected.

Understanding Learning Media
Media comes from Latin which means intermediary, which can connect information between sources and recipients of information (Yaumi, 2018: 5). Conditions that produce learners (learners) able to acquire knowledge, skills, and attitudes. More specifically, the definition of media in the learning process tends to be interpreted as graphic, photographic, or electronic tools, to capture, process, and compile back visual or verbal information (Jennah, 2016: 1).

Learning media is a messenger technology, generating motivation and stimulation of teaching and learning activities so that it can achieve the learning objectives to be achieved and   a set of material written and unwritten are arranged systematically to create a student learning environment which is a tool used by teachers in the learning process (Rizal et al, 2020: 44).

Based on the theory that has been presented by some of the experts above, the researcher concludes that learning media is something that can connect information between sources and recipients information,

generate motivation and stimulation of teaching and learning   activities and can achieve learning goals to be achieved, so that a conducive learning environment occurs where The recipient performs the learning process efficiently and effectively.

Understanding Animated Video Media

In carrying out teaching and learning activities between teachers and students, a support is needed for the implementation of the learning process in accordance with the learning objectives that have been set, one of the The support is learning media. There are so many kinds of learning media that can be used to support the teaching and learning process, but here researchers will discuss learning media based on animated video media. According to (Laily Rahmayanti 2016: 431) suggests that "Animated video media is an audio-visual media by combining animated images that can move with followed by audio according to animated characters".

Based on the description mentioned by the experts above, researchers can conclude that the definition of animated video media is audio-visual media by combining animated   images with animated characters and create a moving impression and there is also a sound that supports the movement of the image so that it can tell an event / event from the picture.

Advantages and Disadvantages of Animated Video Media

All types of learning methods have disadvantages and advantages, including in animated video media. Animated video media has its own advantages and disadvantages that cannot be doubted in improving student learning outcomes, this animated video media has advantages   that can improve student learning outcomes. The advantages of animated video media according to (Johari, Andrian.et al. 2014: 11) that the advantages of this animated video media are:

1. Large objects can look small, and vice versa
2. Presenting complex information can be easier
3. Can combine more than one medium in learning.
4. Can attract the attention of students when learning
5. Students easily understand subject matter that is difficult to understand
6. Students can play an active role in the teaching and learning process.
    In addition to advantages, learning media has disadvantages.
1. The disadvantages of animation video media   based (Nuswantoro and Vicky Dwi Wicaksono 2019) explained that "Animation video media also has disadvantages, namely users must have laptops, computers and projectors. In addition, making animated videos takes a long time because the work is quite complicated so it consumes a lot of time.".
2. According to (Johari et al. 2014) suggests that the disadvantage of animated video media is that its use requires the help of a laptop or computer and projector, creativity really needs to be needed in the process of making it so that the video is   made become more interesting.
3. The opinion according to (Kurniawan 2015) suggests that the lack of animated video media is that it requires quite expensive costs in the process of procuring films or videos and during the learning process Using video, the state of the video certainly continues to move quickly, so that it makes students less focused on the information conveyed.

Based on the above opinion, researchers can conclude about the shortcomings of animated video media, including the use of animated video media requires the help of a laptop or computer and projector, as well as video making Animation takes a long time because the work is quite complicated so it consumes a lot of time.

Understanding the Powtoon Application

In his opinion (Ariyanto et al., 2018) Powtoon is one of the audio and visual-based learning media that has interesting animation features in delivering messages in the form of videos. Delviana (2017,p.2) states that "Powtoon is an online service for creating an exposure that has interesting animation features, including handwritten animation, cartoon animation , and effectsMore lively transitions and very easy time line settings".

(Liesdiani et al., 2016) The Powtoon application contains subject matter in which there is a combination of animation features including handwritten text animation, cartoon animation, drawings, photos, audio, music and Interesting transition effects to improve student learning outcomes on subject matter, digital multimedia-based Powtoon audio visual that can be accessed and downloaded on computers, laptops, smartphones, and Another gudget, through an online application, namely YouTube.

Based on the description mentioned by several experts above, researchers can conclude that the Powtoon application is an online service to create an exposure that has animated features Interestingly, including handwritten animation, cartoon animation , and more vivid transition effects as well as very easy time line settings improve student learning outcomes on the material lessons, Powtoon audio-visual based on digital multimedia that can be accessed and downloaded on computers, laptops, smartphones, and other gudgets, through an online application, namely YouTube.

Disadvantages and Advantages of Powtoon

The use of the Powtoon application in making learning video media as a learning resource has disadvantages and advantages, here researchers will explain the results of opinions from experts, including. Deliviana (2017,p. 4) states that the Powtoon application in learning is dependent on the availability of technological support facilities must be adapted to existing systems and conditions. The advantage of the Powtoon application lies in interactive learning media and covers all aspects of the senses. Powtoon-based learning media is also practical to use, besides that it can trigger creative and collaborative learning.

According to Augustine (2017: 42), the shortcomings of Powtoon media are that the results of videos made using the Powtoon application must go through a series of processes that are slightly complicated and the operation of this media requires the main tool in the form of laptop and if used as a learning medium in the classroom, LCD Projectors and speakers are needed to produce maximum image and sound, while the advantages of the Powtoon application in Learning is practical use, easily accessible with www.powtoon.com website without having to download applications. This Powtoon application also has many choices of background templates so that in the worksheet you only need to insert images, text, audio and video that you want to be used as teaching material.

(Adkhar 2016) explained that one of the advantages of Powtoon is that it is quite easy to use and does not require special skills because the steps taken are no different from playing videos usual on a computer/laptop. In addition, many interesting and funny animation options are already in the 'Powtoon' application so that users no longer need to create animations.

Based on the description of the disadvantages and advantages of Powtoon media mentioned by the expert above, researchers can conclude that the advantages of the Powtoon application are that it can help smooth the process learning and increasing student interest and achievement, while the disadvantage of the Powtoon application is that it requires user proficiency in operating technological devices such as computers / laptops as well as the costs that are also required to access the internet. So the solution in using the Powtoon application is the use of the Powtoon application can contain learning materials packaged in the form of videos that can attract the attention of participants Educate and can increase the interest in learning students. By using the Powtoon application, teachers are able to explain the material easily and can invite students to learn while watching learning videos made by teachers using Powtoon app.

METHOD
Research Method Approach

In research activities, there are several types of research that can be an option for researchers, including quantitative, qualitative and development   research. In research on the development of animated video media using the Powtoon application, researchers use research methods, namely research and development or Research and Development. Research   and Development is a   method used to produce certain products and test the effectiveness of these products (Sugiyono, 2013: 297).

Research and Development is a research method used to develop or validate products. If the product has been validated and tested, then the product will help and facilitate work so that the desired goals can be achieved. This is in accordance with the purpose of the study, namely developing, testing the feasibility and testing the educator's response to the Powtoon application-based learning media product in grade IV of SD ST. Antonius Bangun Mulia Medan on Theme 8 of My Residence for the 2022/2023 School Year.

Model Development Steps

This research is a research and development with the ADDIE model (*Analysis, Design, Development, Implementation and Evaluation*), in line with the research design of ADDIE, Trisiana and Wartoyo (2016, p. 315) said that "Model development can be interpreted as an effort to expand to bring a situation or situation in stages to a more perfect or more complete situation or a better state. Development with the ADDIE model is carried out to produce a learning system that has a broad scope." The steps of *the ADDIE* development model can be seen as follows:

Figure 1. Step – Research Steps Based on ADDIE Framework

1. Analysis Phase

At the analysis stage of the development research entitled "Development of Animated Video Media Using the Powtoon Application to Improve Student Learning Outcomes on the Theme 8 Areas Where I Live in Class IV of SD ST. Antonius Bangun Mulia Medan Academic Year 2022/2023" is the basis for the emergence of this research. At this stage, researchers make observations as the first step to collect data to find problems, identify and find the cause of problems that occur in SD ST. Anthony Bangun Mulia Medan.
2. Tahap Design

At the design stage, researchers prepared an initial design of Powtoon-based learning video media as a learning resource in Theme 8 of My Living Area for grade IV students, including collecting materials in accordance with the material, drafting Powtoon-based learning video media as a learning resource in accordance with the learning concept.
3. Development Stage

At this stage, researchers will develop an initial product format in the form of Powtoon application-based learning video media as a learning resource will be developed and compiled as completely and perfectly

as possible. After determining what media to use, material and everything needed, researchers develop media with a predetermined application, namely Powtoon media with predetermined subject matter and then evaluate in correcting the shortcomings obtained after making the media. After everything has been completed, including at the evaluation stage, researchers develop a guidebook on how to use media.

4. Implementation Phase

The implementation stage is the product trial stage as a result of the development of the previous stages that have been carried out. At this stage, researchers prepare the learning environment and apply the use of media by involving teachers so that they can provide an assessment of the Powtoon animated video media that has been developed. Assessment is carried out using tests and questionnaires. Furthermore, product trials were carried out to students as a form of product application.

5. Evaluation Phase

In the evaluation phase, research procedures are evaluated to determine whether the stage is completed successfully and effectively. Evaluation is a process to analyze media, at the implementation stage there are still shortcomings and weaknesses. If there is no revision in the media, then the media is suitable for use and the media is declared effective well. At this stage analyze the data that has been obtained from media design experts and media material experts as well as education practitioners carried out by teachers related to the products developed.

Model Development Planning

Analysis techniques and results of learning media feasibility assessment using the Powtoon application are carried out with Steps to Convert the results of the questionnaire assessment per item into quantitative data using the Likert scale with gradient questionnaires consisting of the results of feasibility tests of material experts, media experts and teacher and student assessment questionnaires on learning media using the Powtoon application.

Model Validation, Evaluation, and Revision

Data analysis in this study used quantitative descriptive analysis. Furthermore, from the data obtained, the results are averaged and used to assess the quality of the products developed. Product criteria will be converted into values with a scale of five using the Likert Scale which is analyzed descriptively (average score and percentage) which calculates the percentage of indicators from each category on the Lectora Inspire media that has been developed using the formula:

$$Skor\ Empiris = \frac{Jumlah\ Skor\ yang\ Diperoleh}{Jumlah\ Skor\ Ideal\ SeluruH\ Item}\ x\ 100\%$$

Furthermore, the percentage of validity criteria can be seen in Table 3.1

Table 1. Percentage Indicator Conformity Criteria

No	Criterion	Percentage Interval	Information
1	Excellent	$85\% \leq X \leq 100\%$	No Revision Required
2	Good	$75\% \leq X \leq 84\%$	No Revision Required
3	Keep	$65\% \leq X \leq 74\%$	Revised
4	Less	$55\% \leq X \leq 64\%$	Revised
5	Very Not Good	$0\% \leq X \leq 54\%$	Revised

Meanwhile, in calculating the feasibility level of animation media using the *Powtoon* application as a learning medium as follows:

Table 2. Percentage Eligibility Rate Criteria

No	Eligibility Level	Score
1	Not Worth It	< 65%
2	Less Decent	65% - 74%
3	Proper	75% - 84%
4	Very Worth It	85% - 100%

Teacher and Student Responses

Data regarding teacher and student responses to animation media using the *Powtoon* application as a developed learning media, were given a questionnaire after completing learning the material Theme 8 My Living Area Subtheme 1 My Living Environment Learning 1. The criteria for assessing conformity with indicators of teacher and student responses to macromedia flash media as a learning medium can be seen in table 3.6 below:

Table 3. Percentage of Teacher and Student Response Criteria According to Indicators

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Improved Student Comprehension Ability

To determine the improvement of students' mathematical comprehension skills, an initial test (*pretest*) and a final test (*posttest*) were carried out. The results of both tests are calculated by N-gain:

$$(g) = \frac{(gain)}{(gain)Max} = \frac{(posttest)-(pretest)}{100-(pretest)}$$

The upgrade criteria are determined as follows:

Table 4. Improvement Criteria

Criterion	Information
g < 0.3	Low Category
$0{,}3 \leq g \leq 0{,}7$	Medium Category
$g \geq 0.7$	High Category

Evaluation
Validitas Tes

To measure the test, *Pearson's Product Moment correlation* (Arikunto, 2009: 72) is used by correlating between the scores obtained by students on a question item with the total score. The formula used is:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[(N \sum X^2)-(\sum X)^2][(N \sum Y^2)(\sum Y)^2]}}$$

Information:

R_{xy} : correlation coefficient X and Y

N: Number of respondents/ many students

X: The number of scores obtained by students for each question item

Y: Total correct score

To find out the significance of the correlation obtained, it is tested by the formula t:

$$t = r_{xy}\sqrt{\frac{N-2}{1-(rxy)^2}}$$

With:

t= Power difference test t

N = Number of subjects

r_{xy} = Correlation coefficient between item score and total score

Determine the validity of a question item. The criteria that must be met for a question item to be valid is if $t_{counts} > t$ table with t $_{table} = t_{(1-\alpha)}$(dk) for dk $= N - 2$ and (significance level) is selected 5%.

To interpret the reliability coefficient of an evaluation tool (Arikunto, 1999) provides the following criteria:

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Table 5. Interpretation of the Correlation Coefficient

Coefficient interval	Relationship Level
0,00-0,199	Very Low
0,20-0,399	Low
0,40-0,599	Keep
0,60-0,799	Strong
0,80-1,00	Very Powerful

Based on the test results using the formula above, an item will be declared valid if it has a high discrimination index, which is $r_{calculate} \geq r_{table}$. And vice versa, if the obtained count r is smaller than the table r the item is declared invalid or the count $r_{calculate} \geq r_{table}$.

The calculation of the validity of the question item is carried out by interpreting the correlation coefficient, namely r_{count} compared to r_{table} of 5% significant level. The r value of the $_{table}$ of 5% significant level for the validity of the question item is 0.361. This means that if r_{count} is greater than or equal to 0.361 (0.538 0.361), then the question item can be said to be valid. Based on the calculation results, it is known that r $\geq_{count}$ = 0.538 is greater than r $_{table}$ = 0.361 (0.538 0.361). Therefore, question item no. 1 is declared valid. Testing all question items can be done in the same way as testing question item number 1 and the overall question item validity test results can be seen in the table of question item validity test results for the implementation of learning media.

Based on the provisions that have been determined and determined r $_{calculate} \geq r_{table}$ with a significant level of 5%, the questionnaire instrument is declared valid. The results of the calculation of the validity test of the animated video media questionnaire instrument in the development of animated video media using the *Powtoon* application to increase student learning motivation, then the valid questionnaire was 11 statements. The data or statement will be tested to students at the research site. To calculate the manual method with the example of Granules Questionnaire No. 1, namely:

N = 30
$\sum X = 127$
$\sum Y = 2147$
$\sum X^2 = 571$
$\sum Y^2 = 155989$
$\sum XY = 9307$

Then find the validity of the questionnaire, then analyzed using the *product moment* formula, namely:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2\}}}$$

$$r_{xy} = \frac{(30)(9307) - (127)(2147)}{\sqrt{\{(30)(571) - (127)^2)\}\{(30)(155989) - (2147)^2\}}}$$

$$r_{xy} = \frac{279210 - 272669}{\sqrt{\{(171130) - (16129)\}\{(4679670 - 4609609)\}}}$$

$$r_{xy} = \frac{6541}{\sqrt{\{(1001)\}\{(70061)\}}}$$

$$r_{xy} = \frac{6541}{\sqrt{70131061}}$$

$$r_{xy} = \frac{6541}{8374428}$$

$$r_{xy} = 0.781$$

The value of r_{xy} on question instrument number 1 obtained is 0.781. When compared with the $_{r\ table}$ on 30 respondents, the value is 0.361. So the value of r $_{xy}$ is greater than the table r which is 0.781 > 0.361. So for question instrument number 1 is declared valid. For the calculation of the next questionnaire instrument calculated using *SPSS* 23.

Test Reliability

According to Arikunto (2021: 230) "Reliability test is an instrument reliable enough to be used as a

data collection tool because the instrument is good". Therefore, to calculate the reliability test researchers use the KR-20 formula (Kuder Richardson).

The formula KR-20 (Kuder Richardson) is as follows:

r$_{11}$ $= \left(\frac{n}{n-1}\right)\left(\frac{s^2-\sum pq}{s^2}\right)$.........Arikunto (2016:115)

Information:

r_{11} = test reliability
p = proportion of subjects who answered the item correctly
q = proportion of subjects who answered the item incorrectly
$\sum pq$ = Number of multiplication results between p and q
n = Number of items
S = Standard deviation

The formula for finding the standard deviation is as follows:

$$SD = \frac{\sum fX^2}{N}$$

Information:

SD = Standard Deviation
$\sum fx^2$ = Number of multiplications between the frequency of each interval and the frequency squared
N = number of students taking the test

The interpretation of the value r 11 refers to Jihad and Haris (2012: 180) is presented Table 3.8.

Table 8. Interpretation of reliability

No	**Coefficient** Interval	**Relationship** Level
1.	$0,80 < r_{xy} \leq 1,00$	Very High Degrees
2.	$0,60 < r_{xy} \leq 0,80$	High Degrees
3.	$0,40 < r_{xy} \leq 0,60$	Sufficient Degrees
4.	$0,20 < r_{xy} \leq 0,40$	Low Degree
5.	$r_{xy} \leq 0,40$	Very Low Degree

Based on the results of the reliability test of developing animated video media using the *Powtoon* application which is processed using *SPSS version 23* and can be seen in the table of items-total *statistics* column *Cronbach' Alpha Based on Standardized items*. So the calculation results for all statement items are obtained, the following is a reliability test calculation of the implementation of Animated Video Media Using the *Powtoon* Application to

Increase Student Learning Motivation by using the help of *SPSS Version 23* application.

Table 9. Results of Question Religibility

Reliability Statistics	
Cronbach's Alpha	N of Items
.900	25

The results of the calculation of the reliability test of question items with *SPSS Version 23* obtained a correlation coefficient of 0.900 where when viewed from the guideline table the correlation coefficient obtained a very strong level of relationship.

The following are the results of the calculation of the reliability test of questionnaire items using *SPSS Version 23* are as follows.

Table 10. Reliability Results of Animated Video Media Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
.878	11

The results of the calculation of the reliability test of animated video media questionnaire items with *SPSS* version 23 obtained a correlation coefficient of 0.878 where when viewed from the guideline table the correlation coefficient obtained a Very Strong relationship level.

Model Revision
Initial Product Revision
In this case what will be revised is to analyze shortcomings / weaknesses, as well as errors made in the previous stage, namely trials. Advice from media experts, material experts, teachers can also be considered for the creation of appropriate learning models that can be applied by other educators. After conducting expert validation, the results of the questionnaire obtained will be processed. From the results of data analysis, conclusions will be obtained regarding the feasibility of the product developed. This product is said to be feasible if the   minimum percentage shows 76%, if it is below   76% then the product requires revision. The revision was carried out in accordance with respondents' input and respondents' statements stating that the product was not feasible.

Model Revision
The latest product revision is an improvement on the results of the product tested   for use. This is done if the results of the analysis state that the product has not met the specified objectives.

Final Product
The final product is a product that has been declared feasible to be implemented in accordance with the validity test stage and is effective in usage trials. The product is ready for dissemination and implementation.

Model Implementation
The implementation of this research is planned by disseminating learning media products using the *Powtoon* application which is designed and has undergone revisions so that it becomes the final product result to be used in elementary schools. The data obtained in this study are qualitative and quantitative data. Qualitative data in this study was obtained from comments and suggestions of exercise media products through questionnaires used for product development purposes. While quantitative data is obtained from scores obtained through questionnaires filled out by material experts, media experts and field trials, namely teachers and students. Based on the theoretical description above, a research hypothesis can be drawn which is a temporary answer to the formulation of the problem proposed in the study. It is said to be temporary, because the answers given are only compiled based on initial observations before experiments are carried out on the object of research and combined with the results of studies of literature relevant to the field of research, have not been based on empirical facts obtained through data collection and analysis of research data.

RESULTS AND DISCUSSION
Model Development Results

This development and research uses Research and Development (R&D) Methods. The location of research on the development of animated video media using the Powtoon application is located on Jalan Sisingamangaraja KM. 11 No. 68 Bangun Mulia Kec. Medan Sandpaper, Medan City, North Sumatra. This school has facilities including 12 classrooms, 1 library, 1 computer laboratory, 1 teacher's office, 1 administration, 1 principal's room, 1 vice principal's room, 5 bathroom, and has a fairly large field. The class chosen for research is class IV-A with 30 students. This research was conducted from June 7 to June 8, 2023 which was carried out from 07.15 WIB to 13.10 WIB. The infrastructure in the classroom consists of whiteboards, markers, erasers, teacher desks, student desks, chairs, and infocus and speakers in addition to what researchers use in delivering learning media presentations using the Powtoon application. Based on the research and development conducted, the following research results were obtained.

Results of Needs Analysis

Based on the findings of class IV-A research at SD ST. Antonius Bangun Mulia Medan The fundamental problem in the teaching and learning process is the learning media used by teachers and student learning motivation. The learning model used especially in day-to-day learning is less than optimal. Teachers are only glued to books so that learning seems boring because students play less active role in learning. This happens because of the lack of practicality of learning media used by teachers in teaching. In daily learning, teachers use learning media but it is not developed according to what students need, so it is necessary to develop learning media to create active learning and effective.

The results of this research are in the form of a learning media product in the form of animated videos using the Powtoon application, using the Research and Development research model with the ADDIE model. The steps of the research model for developing animated video media using the Powtoon application are as follows:

1. Analysis Phase

The analysis stage is carried out by observing the situation and school environment where the researcher is so that it can be determined what products will be developed as an effort to solve problems. At this stage of analysis, data collection is carried out in the form of observation.

2. Teacher Needs Analysis

On February 13, 2023, researchers conducted an interview with Mrs. Lhoyani Sari Sitohang, S.Pd. As homeroom teacher of class IV SD ST. Anthony Bangun Mulia Medan. The interview aims to find out what happened during the implementation of learning at SD ST. Anthony Bangun Mulia Medan. Based on interviews conducted by researchers in the needs analysis stage at the research location, one of the problems in learning was found that the media used was very limited and only is concrete.

The learning media used is only in the form of media in the form of Powerpoint media and print media such as posters, images and learning media pasted in cartoons or colored paper. In accordance with the results of observations, learning media are needed that are in accordance with the development of technology and information and are able to be conditioned in online and offline learning in order to achieve goals learning.

Learning Device Analysis

Learning media available in class IV SD ST. Antonius Bangun Mulia Medan is only a simple media in the form of Powerpoint and print media so it is necessary to develop learning media based on information and communication technology. By using learning tools that are in accordance with the development of science and technology, it is expected to be able to attract the attention and enthusiasm of learning students in learning activities.

Student Analysis

At the student analysis stage, this process is carried out to determine the characteristics of students based on the development of knowledge, attitudes and skills of students to use learning media at the time of the learning process takes place in class IV of SD ST. Anthony Bangun Mulia Medan. The importance of student analysis is to find out what kind of design will be developed and what kind of development is used. Based on the analysis of students, it is known that in the delivery of learning material students will prefer learning activities if taught using learning media because it will making learning more varied and more engaging to learners. Elementary school students have the characteristic of concrete thinking, so if taught something by imagining they will be difficult to digest so it can be inappropriate goals as expected by the teacher who teaches. So the use of this media will be very helpful in the delivery of learning material.

Based on the information obtained, the researchers developed animated video media using the Powtoon application which was developed according to the characteristics of students by creating audio-visual media that combines images, audio and video to expose the material and help more interesting learning activities and for learners.

Curriculum and Material Analysis

The stage of curriculum analysis and this material is to find out the curriculum used in the school. This analysis is carried out as a form of adjustment of the material chosen as the material to be used for the media. Therefore the material must be adjusted to the Learning Objectives and Learning Activities in the curriculum used so that the products applied in learning can meet the objectives learning to be achieved.

The material will be developed into the form of animated video media using the Powtoon application which is presented in the form of audio, images and videos that can be used in learning activities. The material analyzed was taken from Theme 8 of My Living Area, Sub Theme 1 My Living Environment, Learning 1 class IV of SD ST. Antonius Bangun Mulia Medan School Year 2022/2023.

Design Stage

After the analysis stage has been completed as a whole, the resilience of media design is continued by designing the development of animated video media using the Powtoon application by adjusting the results of the analysis that was done. The steps for developing animated video media using the Powtoon application include:
Subject matter adjustment

The preparation of this subject matter is adjusted to the curriculum applied in schools, namely the 2013 curriculum. During the research, the material taught was the thematic book Theme 8 My Living Area, Subtheme 1, My Living Environment, Learning 1 with coverage of Indonesian and Science subjects.

Compilation of Learning materials

The preparation of these learning materials begins with making a Learning Implementation Plan (RPP) from Theme 8 Daaerah Where I Live Subtheme 1 My Living Environment in grade IV Elementary School. Other supporting materials of this are like student books and pictures.

Developing Learning Media Quality Assessment Instruments

Research on the quality of material and learning media instruments is needed as a way to determine the level of feasibility of learning media and the content of the material presented on learning animation video media using the Powtoon app. So an instrument consisting of indicator points is prepared as a reference for assessing the media. Each indicator item is adjusted to the learning animation video media using the Powtoon application with the material, appearance and quality of the learning media developed. Instruments are given to material experts and media experts and filled in by giving a check mark in accordance with the value criteria that have been prepared and will be calculated as part of a media feasibility trial.

Collection of Images, Videos, Backsound Music, and Audio

At the design stage compiling the initial product is one of the most important things, so researchers collect images, videos, music backsound and audio in the form of sound recordings or supporting audio, However, the audio section can also be arranged later if it is in the form of a recording or the voice of the researcher and everything is adjusted to the design of the work so that the In the development stage, researchers only need to compile and develop learning animation media using the Powtoon application.

Test and Questionnaire Preparation

The last step carried out by researchers at the design stage is the creation of tests and questionnaires as a way to assess the level of media effectiveness. Tests and questionnaires are given to students according to the experience gained during learning. The test is made as many as 50 questions and the questionnaire is made as many as 20 points of statements and then tested to students and the results of the trial will be given to students in Research School. The use of the questionnaire is to find out how much student motivation increases with learning using the Powtoon application.

Development Phase

At this stage of development, researchers began to develop direct learning media content using the Powtoon application by compiling media images, videos, animations, text, audio either backsound or sound media contet. All of this is combined in the form of learning animation videos using the Powtoon application developed by researchers by adjusting to the learning material that has been set, namely Theme 8 Area T Four My Residence Subtheme 1 My Living Environment Learning 1 Class IV SD ST. Anthony Bangun Mulia Medan.

After that, researchers build content using the Powtoon application by combining everything that has been prepared following the design that has been made. After the media has been made as a whole, the next stage is to revise the product to material experts and media experts as one of the efforts to improve the product.

Learning media that have been revised are then validated by material experts and media experts. Media expert validation is carried out in 1 stage and produces learning video media with good assessment. Media that has been validated by material experts and media experts, then validated by grade IV teachers of SD ST. Anthony Bangun Mulia Medan. Whether or not it is feasible to apply learning video media using the Powtoon application as a learning resource in Theme 8 of the Area Where I Live Subtheme 1 My Living Environment Learning.

Implementation Phase

The implementation stage is the stage of application of the product media resulting from development as an action of media application. At the implementation stage, preparing a learning environment and student engagement is paramount. At the implementation stage, the development of learning media using the Powtoon application was tested on students of grades IV-A SD ST. Antonius Bangun Mulia Medan after validating from the material and media experts and declared very suitable for use.

This implementation is used with the aim of determining the level of feasibility and effectiveness of media using the Powtoon application which was developed using a data collection tool in the form of a questionnaire given after implementation stage. Through the results of the recapitulation of the questionnaire conducted, the results of increasing learning motivation can be calculated to determine the effectiveness of the media. The data obtained is said to be accurate if the instrument used has gone through the calibration process (checking process).

Evaluation Phase

The evaluation stage is the last stage of media development using the ADDIE model. The evaluation phase is carried out as an effort to assess the quality of learning processes and products, before and after implementation. The evaluation stage in the research on the development of learning animation video media using the Powtoon application was carried out by giving questionnaire sheets to students to see the increase in learning motivation students in learning activities.

Model Eligibility

Based on the feasibility results of the initial product of animated video media using the Powtoon application, validity tests were obtained from the validation of media experts, material experts and field trials (teachers). The results of the assessment are as follows.

Media Expert Assessment Data Analysis

The assessment of media experts in this study was carried out by one validator in the field of product design. The aspects in the assessment are program display, technical quality, language aspects, usage concepts. The results of the media expert assessment can be seen in Graph 4.1 below
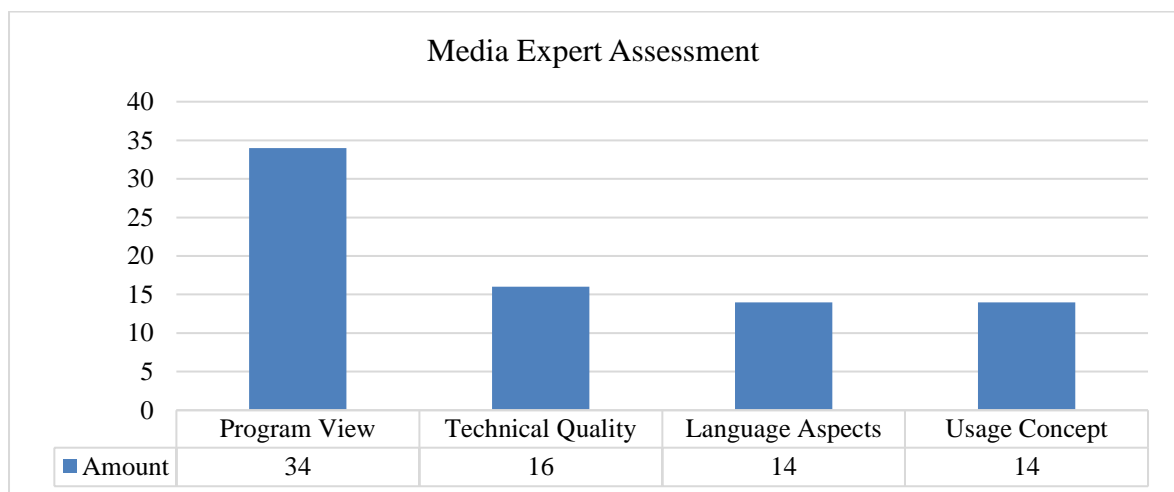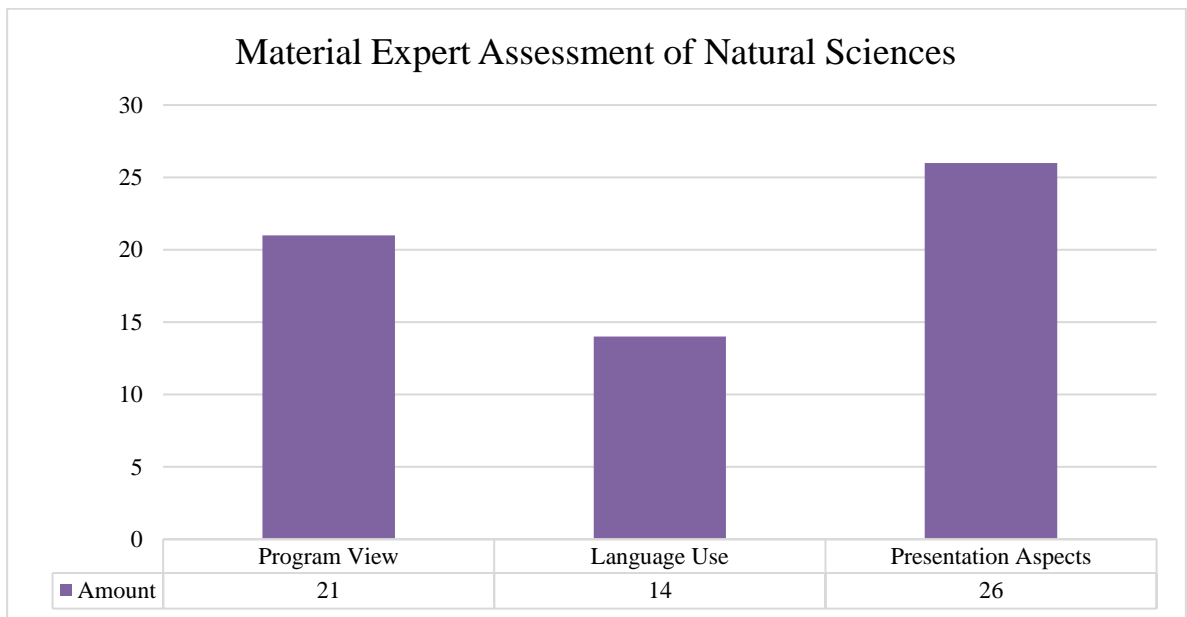

Figure 1. Media Expert Assessment of Animated Video Media Using Powtoon

In graph 1 above that the assessment of media experts in this study was carried out by one validator in the field of product design conducted by Mr. Romanus Damanik, M.Kom. As for the assessment aspect of media experts that the feasibility aspect of the program display is 34, technical quality is 16, language aspect is 14 and the concept of use is 14 and the total number obtained is 78 with an average of 8.67 with a percentage of 100% in the Very Decent category.
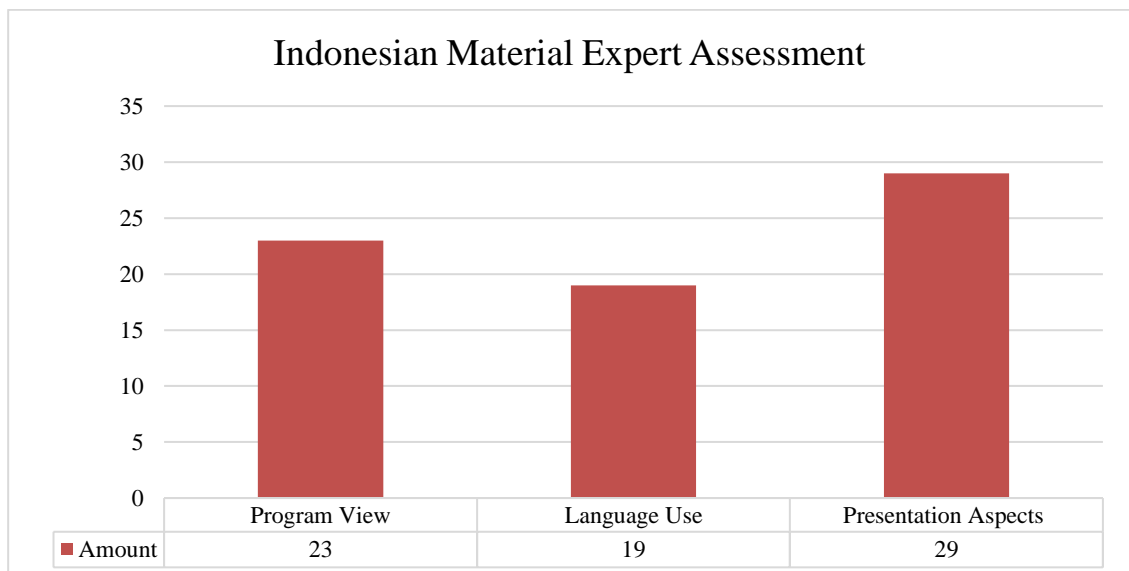
Material Expert Assessment Data Analysis

The assessment of material experts in this study was carried out by two validators in the fields of Natural Science education and Indonesian education. The aspects in the assessment are the appearance of the program, the Use of Language and the Presentation Aspect The results of the material expert assessment can be seen in the following graph.

Figure 2. Natural Science Material Expert Assessment of Animated Video Media Using Powtoon Application

In graph 2 above, the assessment of natural science material experts in this study was carried out by one validator in the field of natural sciences conducted by Mr. Jhonas Dongoran, M.Pd. The aspects of the assessment of natural science material experts are the feasibility aspect of the program display of 21, the use of language of 14, and the presentation aspect of 26 and the total number obtained of 61 with an average of 7.63 with a percentage of 87.98% in the Very Decent category.
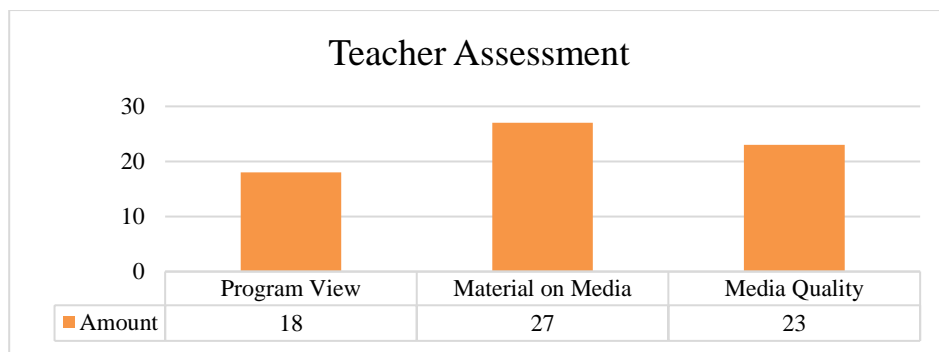

Figure 1. Natural Science Material Expert Assessment of Animated Video Media Using Powtoon Application

In graph 3 above, the assessment of Indonesian material experts in this study was carried out by one validator in the Indonesian conducted by Mrs. Asnita Hasibuhan, M.Pd. The aspects of the Indonesian material expert assessment are the feasibility aspect of the program display of 23, the use of language of 19, and the presentation aspect of 29 and the total number obtained of 71 with an average of 8.88 with a percentage of 100% in the Very Decent category.

Analysis of Field Trial Assessment Data (Teacher)

The teacher's response in this study was carried out by one person, namely class IV-A teachers. The aspects in teacher assessment are Program Display, Material on Media, and Media Quality. The results of teacher assessment data analysis can be seen in graph 4.4 below:
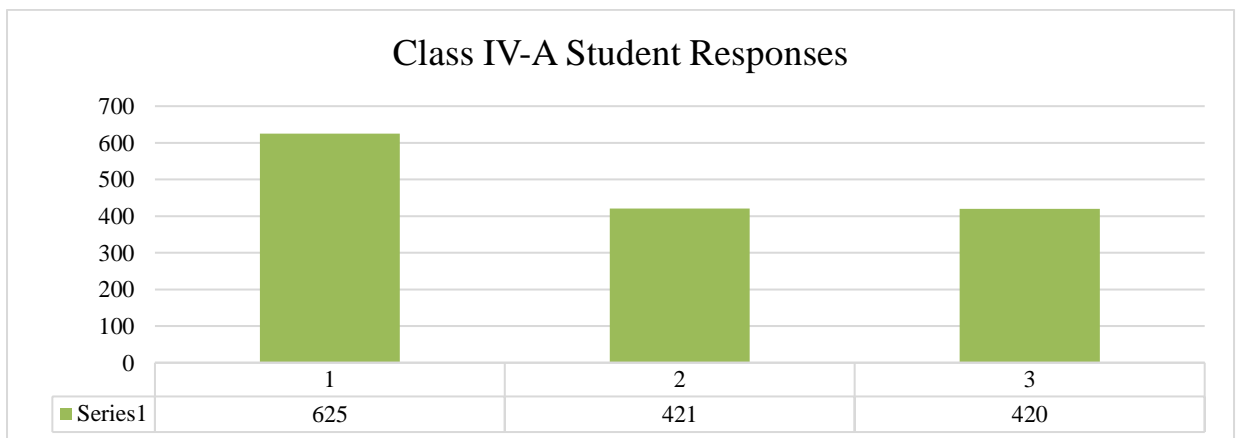

Figure 2. Teacher Assessment of Animated Video Media Using Powtoon

In graph 4 above, the teacher assessment in this study was carried out by one homeroom teacher conducted by Mrs. Lhoyani Sari Sihotang, S.Pd. The aspects of material expert assessment are the feasibility aspect of the program display of 18, Material on Media of 27, and Media Quality of 23 and the total number obtained of 68 with an average of 8.50 with a percentage of 100% in the Very Decent category.

Data Analysis of Student Responses to Field Tests

Student responses in this study were conducted by 30 students of grade IV-A SD ST. Anthony Bangun Mulia Medan. The aspects in student responses to field tests are Active in learning, Happy in learning, and Interest in learning. The results of data analysis of field test student responses can be seen in Graph 5 below.


Figure 5. Assessment of Student Responses to Animated Video Media Using the Powtoon App

In graph 5 above, student responses in this study were conducted by 30 grade IV elementary school students. The expert assessment aspects of student responses in individual tests are the feasibility aspect of Active in learning by 625, Happy in learning by 421, and interest in learning by 420 and the total number obtained by 1466 with an average of 48.86 with a percentage of 97% in the Very Decent category.

Data Analysis of Student Responses on Field Test Tests

At this stage, research on the development of learning animation video media using the Powtoon application is carried out by providing *pre-test and post-test* questions to students to see the development of student learning outcomes before and after learning animated video media using the *Powtoon* application What has been developed has been effectively applied in learning activities and the distribution of question test sheets to students to see the increase in student learning motivation in learning activities. The graph of the increase in pre-test and *post-test* scores can be seen as follows:
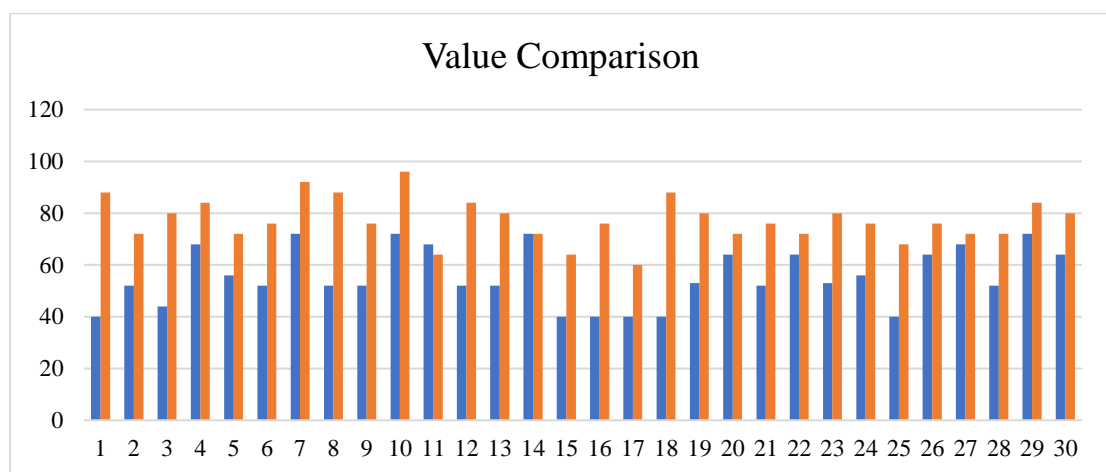
Figure 6. Graph of Student Score Results

So, it can be seen from Graph 6 above that the value of students has increased significantly after learning activities are carried out with animated video media using *the Powtoon* application.

Model Effectiveness

The effectiveness of the model or field test is carried out to determine the effectiveness of learning media using the developed Powtoon application Effectiveness is measured by filling out question sheets and questionnaires to determine the increase in student motivation in the classroom. The question items and questionnaires used in the learning process using the Powtoon application learning media consist of 50 questions but after the trial there are 25 questions and 20 statements but after the trial there are 11 statements for the questionnaire.

Data Analysis of Student Proficiency Improvement

Data on improving students' comprehension skills in terms of field trials can be seen in table 4.1 and table 11 below:

Table 11. Field Trial Pretest-Posttest Data

	PRETES	POSTTEST	GAIN
MIN	40	60	-0,13
MAX	74	96	0,86
ST.. GIANT	11,03	8,36	
AVERAGE	55,33	77,33	0,468

Table 12. Data Decriptive Statistic Pretest-Posttest

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	30	40	72	55.53	11.035
POSTEST	30	60	96	77.33	8.360
Valid N (listwise)	30				

Based on tables 11 and 12, the average pretest score was 55.33 while the posttest average score was 77.33. The average increase was 22. The minimum gain value is -0.13 while the maximum gain value is 0.86. The average value of comprehension ability data gain in theme 8 of my area of residence using animated video media in field trials was 0.468 with the Medium Category.

Correlation Test

The correlation coefficient test is a set of techniques used to measure the correlation of relationships (correlations) between independent variables and dependent variables. Two variables are said to be correlation if a change in one variable is accompanied by another change, either in the same direction or in the opposite direction. The condition for the correlation coefficient is to see $r_{calculate} \geq r_{table}$ using the product moment correlation formula. To see the relationship of the two variables can be done by comparing between r_{count} and r_{table}. Below is the calculation of the correlation test with the help of SPSS Version 23 as follows:

Table 13. Correlation Coefficient Test Results

		QUESTIONNAIRE	POSTTEST
QUESTIONNAIRE	Pearson Correlation	1	.855**
	Sig. (2-tailed)		.000
	N	30	30
POSTTEST	Pearson Correlation	.855**	1
	Sig. (2-tailed)	.000	
	N	30	30

From Table 13, a correlation was obtained between animated video media using the *Powtoon* application with student learning outcomes in theme 8 of my area of residence with a correlation coefficient value of 0.855. This shows that there is a strong relationship between learning media and student learning outcomes. While the direction of the relationship is positive because the r value is positive, it means that the better the animated video media using the *developed Powtoon* application, the more student motivation to learn.

Because of the significance value (0.00 < 0.05), H_0 is rejected which means that there is an increase in learning motivation after students use animated video media using the Powtoon application in class IV SD ST. Anthony Bangun Mulia Medan. To determine the effect of animated video media using the Powtoon application on student learning outcomes can be seen in Table 14 below:

Tabel 14. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855[a]	.731	.722	4.40941

The R value is symbolic of the correlation coefficient value of 0.855. This value can be interpreted that the relationship between animated video media using the *Powtoon* application and student learning outcomes is strong. Through this table, the *value of R Square* or coefficient of determination (KD) obtained is 73.1 %, which can be interpreted that the variable of animated video media using the *Powtoon* application has a contributing influence of 73.1% to student learning outcomes in theme 8, the area where I live, subtheme 1, the environment where I live, learning 1, and the other 26.9% are influenced by other factors outside the variables of animation video media use *the Powtoon* app to improve student learning outcomes.

CONCLUSIONS AND RECOMMENDATION

Research and development on learning media using the Powtoon application in learning Theme 8 My Living Area at SD ST. Antonius Bangun Mulia Medan for the 2022/2023 Academic Year has been carried out with predetermined stages. Based on research and development, conclusions can be drawn, namely:

1. This research has developed learning media using the Powtoon application in learning Theme 8 My Area Where I Live in Class IV of SD ST. Antonius Bangun Mulia Medan School Year 2022/2023. The stages of development with the ADDIE model are: analysis, media design innovation, media development, implementation and evaluation.

2. Learning media using the Powtoon application that has been   developed has been validated by media expert Mr. Romanus Damanik, M.Kom., with a final score of 78 with a very good category, as for the percentage of the score obtained, which is 100% with the Very Decent category.Then it was validated by science and Indonesian material experts with scores of   71 and 61 with very good categories while the percentage of scores that have been obtained is 100% and 87.98% with Very Decent category. Then it was tested by Education practitioner Mrs. Lhoyani Sari Sihotang, S.Pd., with a score of 68 with a very good category with a percentage of the score that has been obtained, namely 100% with the Very Decent category, so it can be concluded from experts that the developed media is Very feasible to use.

3. Learning media using the Powtoon application in learning Theme 8 My Living Area in Class IV of SD ST. Antonius Bangun Mulia Medan for the 2022/2023 Academic Year has been applied to grade IV students, in general, it can be seen that an increase in student learning motivation obtained after using media learning using the Powtoon app. From the data that has been obtained, there is an increase in student learning motivation after students use the animated video media of the Powtoon application. The results of Reliability, namely the results of data processing using SPSS Version 23 showed that the test questions given obtained 0.900 results with very strong categories and results the reliability of the questionnaire obtained a result of 0.878 in the very strong category. the results of the correlation coefficient indicate that there is an influence of animated video media using the Powtoon application on student learning outcomes to see the increase in student learning motivation, where the value of the correlation coefficient is 0.855, it can be concluded that there is a very strong influence. And the last stage of the summary model results show that animation media using the Powtoon application has a significant positive influence, this is evident from The value of R Square or Coefficient of Determination (KD) is 73.1% so it can be

concluded that Ho is rejected which means there is an increase in learning motivation after students using animated video media Powtoon application in class IV SD ST. Anthony Bangun Mulia Medan.

Based on the research that has been done, researchers can provide suggestions as follows:

1. For Researchers

After knowing the results of the study that animated video media using the Powtoon application is feasible and effective for use in learning activities, researchers are expected to apply learning media when become an educator and   develop more creative and innovative media in order to achieve maximum learning goals.

2. For Teachers

Teachers should be more creative in the implementation of learning in the classroom because learning uses the lecture method and is only monotonous, students will be more bored in   learning and Teachers should also be able to adjust to technological developments that   are developing in today's world of education.

3. For Students

Learning media using the Powtoon application was developed to meet the needs of students, therefore it is wiser to use technology in this day and age   apart from learning media using this Powtoon application still supports a lot of student learning. It can be expected that learning media provide alternative learning resources that can be used wherever and whenever they are and provide convenience in understanding lessons to improve   knowledge and abilities and increase enthusiasm for learning.

4. For Other Researchers

Researchers suggest that other researchers can develop technology-based learning medi and can change learning media that are more creative and interesting for students.

REFERENCES

Andriati, Y., Susanti, L. R. R., & Hudaidah, H. (2016). *Development of audiovisual-based Powtoon media on history learning*. CRIKSETRA: Journal of Historical Education, 5(1).

Arshad, Azhar. 2009, *Learning Media.* Jakarta: King Grafindo Persada.

Dewi, F. F., &; Handayani, S. L. (2021). *Development of En-Alter Sources Animated Video Learning Media Based on Powtoon Applications Alternative Energy Source Materials for Elementary Schools*. Basicedu Journal.

Djamarah, B., and Zain, (2002). *Teaching and Learning Strategies*. Jakarta: Rineka Cipta

Fitriyani, N. (2019). *Development of Powtoon Audio-Visual Learning Media on Self-Concept in Group Guidance for Learners in Elementary Schools.* Journal of Tunas Bangsa.

Fika, N. A. (2022). *Development of Powtoon-assisted animation media in Indonesian learning*. Journal of Integrated Education and Learning (JPPT).

HS, Dyan, Wulan, Sari., et al (2022). *Level of Digital Literacy Ability in Internet Search Needs at SMPS PKMI Efesus Aek Batu*. Journal of Social Empowerment and Community Technology.

Jerry, et al. (2018). *Development of animated video media in the learning of grade IV students in elementary schools*. In Journal of EDUTECH Universitas Pendidikan Ganesha (Vol. 6, Issue 1).

Margareta, et al. 2018. *Development of Animated Videos to Increase Learning Motivation and Character Responsibility of Class V Students.* Journal of Character Education.

Silaban, P. J. (2019). Penerapan Model Pembelajaran Inkuiri untuk Meningkatkan Hasil Belajar Siswa pada Mata Pelajaran Matematika di Kelas VI SD Negeri 066050 Medan Tahun Pembelajaran 2018/2019. *Jurnal Ilmiah Aquinas*, *2*(1), 107-126.

Silaban, P. J. (2019). Penerapan Model Pembelajaran Inkuiri untuk Meningkatkan Hasil Belajar Siswa pada Mata Pelajaran Matematika di Kelas VI SD Negeri 066050 Medan Tahun Pembelajaran 2018/2019. *Jurnal Ilmiah Aquinas*, *2*(1), 107-126.

Silaban, P. J. (2015). *Meningkatkan Motivasi dan Kemampuan Pemahaman Matematis Siswa Melalui Pembelajaran Kooperatif Tipe Tgt Berbantuan Alat Peraga Pada Mata Pelajaran Matematika di Kelas VI SD Methodist-12 Medan Tahun Ajaran 2014* (Doctoral dissertation, UNIMED).

Silaban, P. J., & Hasibuan, A. (2021). Hubungan Lembar Kerja Peserta Didik Berbasis Cat Terhadap Kemampuan Pemahaman Matematis Siswa. *Jurnal Ilmiah Aquinas*, *4*(1), 48-59.

Silaban, P. J. (2019). Efektivitas Pembelajaran Melalui Pembelajaran Kooperatif Tipe Tgt Berbantuan Alat Peraga Di Kelas Vi Sd Methodist-12 Medan Pada Kompetensi Dasar Luas Bangun Datar Sederhana. *Jurnal Ilmiah Aquinas*, *2*(2), 175-199.

Silaban, P. J. (2017). Meningkatkan Motivasi Dan Kemampuan Pemahaman Matematis Siswa melalui Alat Peraga Montessori Pada Mata Pelajaran Matematika Kelas IV SD ASSisi Medan. *Elementary School Journal PGSD FIP UNIMED*, *7*(4), 502-511.

Ponza, P. J. R., Jampel, I. N., &; Sudarma, I. K. (2018). *Development of Animated Video Media in Learning for Grade IV Students in Elementary Schools*. Journal of Edutech Undiksha.

Putu, et al. 2018. *Development of Animated Video Media for Grade IV Students in Elementary Schools*. Department of Educational Technology

Rama, et al. 2021. *Development of Powtoon-Based Interactive Multimedia on Thematic Learning in Elementary Schools*. Basicedu Journal.

Roja, L. A., Nas, S., &; Gimin, G. (2022). *Development of Powtoon-Based Learning Media to Increase Student Motivation*. Journal of Balance Sheet: Journal of Accounting Education and Economics.

Silaban, P. J. (2022). *Analysis of the role of teachers in developing the learning motivation of grade V elementary school students*. Natural Science Education Research

Silaban, P. J., Simanjuntak, L., &; Sitepu, A. (2021). *Efforts to Improve Student Learning Outcomes by Using Animation Media in Elementary School Students*. Basicedu Journal.

Silaban, P. J., et al. (2022). *Digital Learning Apps*. Our Foundation Writes.

Shariful, Amelia. 2021. *Development of Powtoon-Based Learning Media in Improving Science Representation Ability in the Middle of the Covid 19 Pandemic.* Journal of Science and Science Learning.

Sugiyono. 2016. *Qualitative, Quantitative and R&D Research Methods*. Bandung: Alfabeta.

Sugiyono. 2017. *Qualitative, Quantitative and R&D Research Methods*. Bandung: Alfabeta.

Umi, et al. 2016. *Development of Animated Video Media to Increase Learning Motivation and Hard Work Character of Elementary School Students.* Journal of Character Education.

Widiyasanti, M., &; Ayriza, Y. (2018). *Development of animated video media to increase learning motivation and character responsibility of grade V students*. Journal of Character Education.

Wulandari, Y., Ruhiat, Y., &; Nulhakim, L. (2020). *Development of powtoon-based video media in science subjects in class V*. Indonesian Journal of Science Education, 8(2), 269–279