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DEVELOPMENT OF POWTOON-BASED AUDIO-VISUAL LEARNING MEDIA TO IMPROVE STUDENTS' CREATIVE THINKING ABILITY ON STRAIGHT-MOTION MATERIALS

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Abstract
Research on the development of Powtoon-based audio-visual learning media aims to determine the feasibility of the product and to see whether there is an increase in students' creative thinking abilities in straight-motion material and to see student responses and teacher responses. This study uses the type of *Research and Development* with the ADDIE model (*Analysis, Design, Development, Implementation, Evaluation*). The instruments used in this study were questionnaires and tests, and the research subjects consisted of class X MAN 3 North Aceh. The results showed that the audio-visual learning media that had been developed was declared feasible and could improve students' creative thinking skills based on assessments: 1) The media expert obtained a percentage of 80.56% according to the criteria of "Decent" and material experts obtained a percentage of 77.33% with "Decent" criteria; 2) The teacher's response to learning media obtained a percentage of 81.33% with the criteria of "very practical"; 3) The results of student responses were very good with the level of effectiveness of the media through product trials in class XI and X which obtained an average percentage of 81.21% with the criteria "Very effective". 4) The N-gain is 0.74 with high criteria. Based on the results of this study it can be concluded that the Powtoon-based audio-visual learning media on straight motion material that has been developed is suitable for use in the learning process.
Keywords: *Audio Visual, Creative Thinking, Learning Media Powtoon*

Abstrak
Penelitian pengembangan media pembelajaran audio visual berbasis powtoon bertujuan untuk mengetahui kelayakan produk, dan untuk melihat apakah terdapat peningkatan kemampuan berpikir kreatif peserta didik pada materi gerak lurus serta melihat respon siswa, dan respon guru. Penelitian ini menggunakan jenis penelitian *Research and Development* dengan model ADDIE (*Analysis, Design, Development, Implementation, Evaluation*).Instrumen yang digunakan dalam penelitian ini berupa angket dan tes, subjek penelitian terdiri dari kelas X MAN 3 Aceh Utara. Hasil penelitian menunjukkan bahwa media pembelajaran audio visual yang telah dikembangkan dinyatakan layak serta dapat meningkatkan kemampuan berpikir kreatif peserta didik berdasarkan penilaian:1) Tingkat kelayakan media oleh ahli media diperoleh persentase sebesar 80,51% dengan kriteria “Layak” dan ahli materi diperoleh persentase sebesar 77,33% dengan kriteria “Layak”; 2) Respon guru terhadap media pembelajaran diperoleh persentase sebesar 81,33% dengan kriteria “sangat praktis”; 3) Hasil respon peserta didik sangat baik dengan tingkat keefektifan media melalui uji coba produk pada kelas XI dan X yang diperoleh rata-rata persentase sebesar 81,21% dengan kriteria “Sangat efektif”;4) N-gain

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diperoleh sebesar 0,74 dengan kriteria tinggi. Berdasarkan hasil penelitian tersebut, dapat disimpulkan bahwa media pembelajaran audio visual berbasis powtoon pada materi gerak lurus yang telah dikembangkan layak digunakan dalam proses pembelajaran.
Kata Kunci : Audio Visual, Berpikir Kreatif, Media Pembelajaran *Powtoon*

PENDAHULUAN

Education is needed by everyone, because education can determine the development of a nation, with education a nation can become a nation that is reliable, independent, characterized, and competitive with the process of learning knowledge, changing one's attitude and behavior in maturing humans through teaching and training which will benefit themselves, society and the nation. To support quality education, progress is needed to achieve the expected achievements that are beneficial to needs in all fields. The era of the fourth industrial revolution or considered the industrial revolution 4.0 is no stranger to this and has even become a hot topic of conversation in academic circles. The reason is that this era is a digital era that has entered technological developments that demand connectivity in all aspects of human life without exception with education (Mirawati et al., 2021). However, with the development of time, technology is also growing rapidly so the emergence of the latest idea, namely the concept of society 5.0 which is the fifth revolution Alone.

The internet is not only for information but for living life. The existence of society 5.0 poses challenges in various fields of life, including the field of education. The era of society 5.0 is characterized by an increase in digitization programs supported by 4 factors: 1) Increased connectivity; 2) Emergence Analysis of capabilities; 3) There is an interaction between humans and machines; 4) Digital transfer instructions to the physical world. So that the implications of the concept in the era of society 5.0 for education include demands for updating competencies that are taught to students to adapt to the needs of society in the era of society 5.0 including learning models (Usmaedi, 2021). From this description, it is known that along with the times, the development of human civilization is increasingly advanced, and technology is no exception. To face the era of society 5.0, students are not only equipped with the ability to write and count but also need to be equipped according to the 21st century, one of which is Creative Thinking or also called the ability to think creatively (Amiroh & Dewi, 2022). Improving the ability to think creatively is needed because this ability is one of the abilities desired in the world of work (Pasaribu & Dia, 2022). The ability to think creatively is a person's ability through thinking activities to get ideas, ideas in solving problems using indicators, namely: 1) The ability to give ideas correctly and appropriately, 2) The ability to generate ideas, answers to questions that vary by using various ways of solving them, 3) Ability to give different answers or opinions, 4) ability to describe answers correctly and appropriately (Nuraini et al., 2020).

Based on the results of observations and interviews with teachers in the field of physics studies by researchers who have carried out at the North Aceh MAN 3 school, it shows that the ability to think creatively is still low, as can be seen from the learning outcomes of students who do not pass the KKM reaching 69%, students still think learning physics is one of the Concepts that are often considered difficult are also included as boring fields of study because they require creative thinking in solving theories and formulas that must be understood. Because physics is often seen as difficult, students think that they are unable to solve problems related to physics concepts such as working on questions and

understanding the material. Teachers still apply the lecture method of learning and are still not maximal in the use of media in learning physics causing students who find it difficult to understand concepts will be increasingly disinterested in learning which will affect the ability to think creatively (Sabiq, M., Marhami, & Muliana. 2021). To overcome this, educators must create a learning atmosphere that is arousing student motivation and can help students overcome difficulties in understanding the concepts being studied, one of which is by applying learning media that are interesting and easy to understand, such as Powtoon-based audio-visual media.

Learning media consists of four groups, namely: technology print, audio-visual technology, computer-based technology, and combined technology (Ware et al., 2022). Media Audio-visual media is one of the media that can be observed and heard, such as sound films, videos, TV, and sound slides that can also concretely provide information or explanations rather than those conveyed using words (Alverina et al., 2019). Learning video media is a medium that presents audio-visual in the form of learning messages containing concepts, principles, procedures, and theory of knowledge to assist in understanding and learning material (Sakdiah et al., 2022). Powtoon is an online service-based animation software that can quickly and easily create animated presentations by inserting images, and voice recordings of users and can also include music (Fitriyani, N. 2019).

Powtoon is an online software that is used to make presentations in the form of animated videos equipped with various image template features, sound recordings can also include musical instruments according to user needs, besides being able to make Powtoon animation-based videos, they can also convert videos to PowerPoint. Powtoon has a variety of interesting animation features including handwriting animations, cartoon animations, and livelier transition effects and timeline settings (Thomas, O., Wulandari, A., & Efriani. 2020). Powtoon media can be used as a medium for interesting delivering learning material way so that students do not feel bored with the material presented by the teacher. From the explanation of the problems contained above, to be able to support the needs of students in the 21st century, one of which is Creative Thinking, it is necessary to develop learning media activities that can help overcome students' difficulties in understanding concepts to create quality education. In this case, the researcher is interested in research on "Development of Powton-Based Audio Visual Media to Improve Students' Creative Thinking Ability in Physics Materials". With the use of Powtoon-based learning media, it is hoped that it can improve students' creative thinking abilities.

RESEARCH METHODS

The development method in this study uses research and development (R&D). The research and development method (R&D) is a research method used to produce a particular product and to test its effectiveness of the product (Sugiyono, 2015). The product developed in this research is Powtoon-based audio-visual learning media on straight-motion material to improve students' creative thinking skills. The design that will be used in this study is ADDIE, which includes 5 stages, namely Analysis, Design, Development, Implementation, and Evaluation. The following is a chart of the development of the ADDIE model according to Ramen A Purba, et al (2021).

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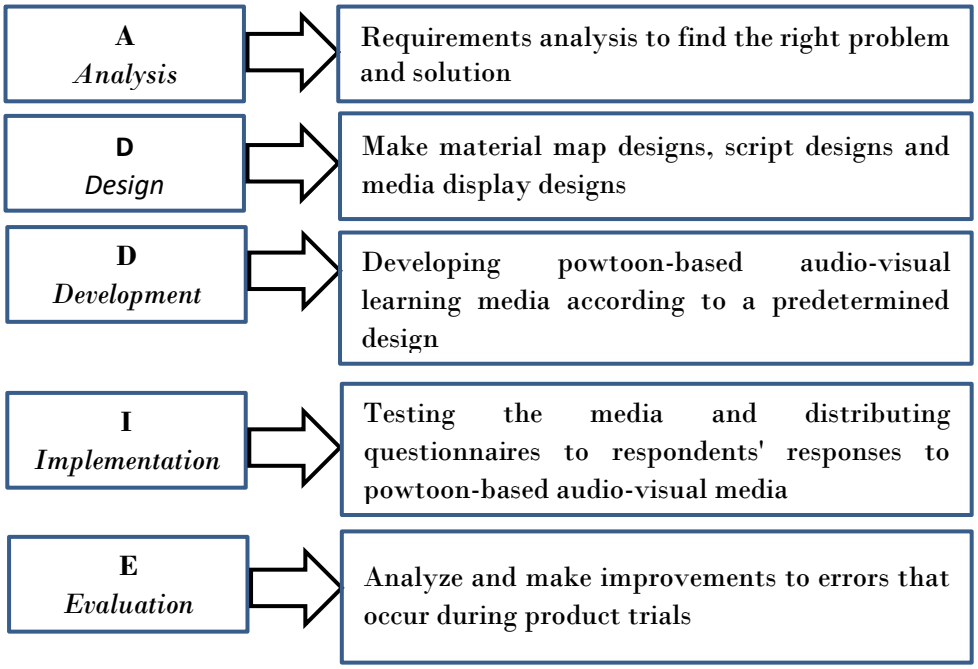

Figure 1. Chart of the stages of Powtoon-based audio-visual development using the ADDIE model

DATA COLLECTION TECHNIQUES AND INSTRUMENTS

Data collection techniques are the most strategic steps in research because the main goal of the research is to obtain data (Sudijono Anas, 2013). In this study, the data collection techniques used by researchers were interviews, questionnaires, tests, and N-gain tests.

1. Interview
   Interviews in the form of questions will be given the aim to provide the right solution through media development planning that is in accordance with the problems in the field.
2. Questionnaire
   According to (Arsyad, A. 2002) a questionnaire/questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer. In this development study, the researcher used a questionnaire/questionnaire as a data collection technique regarding the feasibility of using Powtoon-based audio-visual media which was given to media experts, subject matter experts, and students as trial subjects.
3. Test
   The test data is in the form of questions that will be given to students after using the media that has been developed to determine the level of students' ability to think creatively.

The data collection instruments used in this study are as follows:

1. Expert Test Questionnaire Sheet
   The expert test questionnaire sheet used aims to test the feasibility of the product to be developed by researchers who will be tested by material experts and media experts (Djamarah, S. B., & Zain, A. 2015).

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Table 1. Feasibility Test Grid Instrument

Aspect	Indicator	Statement	Item Number
Presentation view	Picture	Image placement and image size	1
	Text and letters	Selection of fonts	2
		Text readability	3
	Color	Contrast	4
	Animation	Animation size accuracy	5
		Animation Excitement	6
Voice	Backsound music	Musical clarity	7
		Music Fun	8
	Narrator's voice	Narrative clarity	9
		Narrative intonation	10
		Narration speed	11
		Narration can be understood	12
	Language	Using standard language	13
		language clarity	14
Eligibility	Program	Easy to operate	15
		Support independent study	16
		Can be run on a computer device	17
	Eligibility	Feasibility of learning media	18
Number of Items			18

2. Question Sheet

The questions that will be given to students are in the form of descriptions to see students' creative thinking abilities.

3. Test the N-gain

The N-Gain test is a test carried out to see the increase in students' creative thinking skills before and after using Powtoon-based audio-visual learning media.

(*Normalizad gain)*= g namely:

$$N-Gain(g) = \frac{(Posttest\ Score - Pretest\ Score)}{(Maximum\ Score - Pretest\ Score)}$$

Table 2. N-Gain Interpretation Criteria

N-Gain	Interpretation Criteria
N-Gain > 0,7	High
0,3 < *N-Gain* ≤ 0,7	Medium
N-Gain ≤ 0,3	Low

Sumber : Hake. (1999)

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DATA ANALYSIS TECHNIQUE

The data analysis technique used is in the form of descriptive qualitative data and quantitative descriptive data analysis techniques that describe the results of the feasibility test. The following data analysis techniques were obtained in this development research, namely:

1. Qualitative Descriptive Analysis
   Qualitative data analysis was carried out by grouping information in the form of input, suggestions, and criticism contained in the questionnaires of media experts and material experts regarding the improvement of audio-visual learning media products (Arikunto, S. 2013).
2. Quantitative Descriptive Analysis
   Quantitative data analysis was obtained from a questionnaire given to the product feasibility test validator based on the Likert scale).

Table 3. Evaluation criteria by experts

Description	Score
Very Eligible	5
Eligible	4
Eligible Enough	3
Less Eligible	2
Not Eligible	1

The score obtained can then be calculated using the following formula:

$$\text{V.ah} = \frac{Tse}{Tmax} \text{x } 100\%$$

Descriptoin
V.ah = Expert validation
Tse = Total Score obtained
Tsh = Maximum Total Score

The results obtained will be interpreted to see the feasibility of media and material experts using the following criteria:

Table 4. Interpretation of the Likert scale for product eligibility

Persentase	Interpretation
81% - 100%	Very Eligible
61% - 80%	Eligible
41% - 60%	Eligible Enough
21% - 40%	Less Eligible
0-20%	Not Eligible

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RESULTS AND DISCUSSION

1. RESULTS

The results of the research on the development of Powtoon-based animated video learning media on straight motion material refer to the ADDIE development model which consists of five stages. ADDIE is designed with systematic sequences of activities to solve learning problems that are tailored to the needs and characteristics of learning (Faradillah et al., 2021). To measure the level of validity or validity of an instrument, the validity is given to media experts. Based on the results of audio-visual media validation by media experts through the questionnaire method with a questionnaire instrument, the initial stage obtained a value of 77.78% and the second stage obtained a value of 83.33%, which means that the media is very suitable for use in field trials. The results of the comparison of the percentage of Powtoon-based audio-visual media ratings by media experts can be illustrated through the following graph:

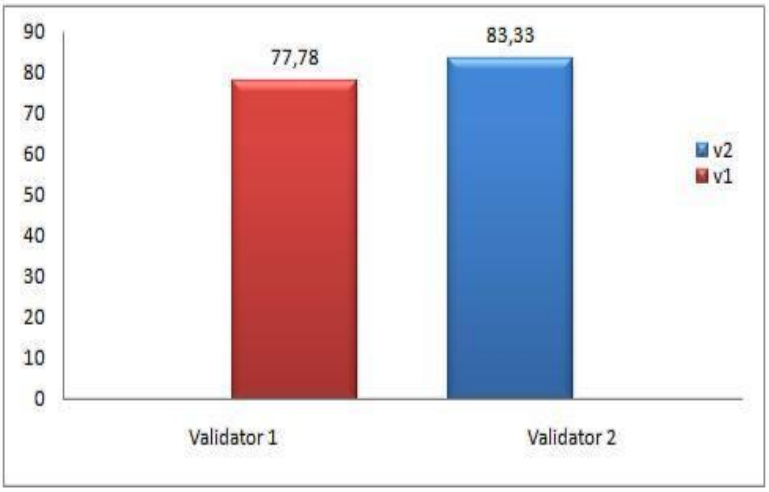

Figure 2. Graph of Comparison of Audio Visual Media Ratings by Media Expert Validator 1 and 2

Based on the validation results of audio-visual material in the form of animated videos by material experts, the initial stage obtained a value of 72% and the second stage obtained a value of 82.67%, which means that the media is suitable for use in the field trials. The results of the comparison of the percentage of Powtoon-based audio-visual media ratings by material experts can be illustrated through the graph as follows:

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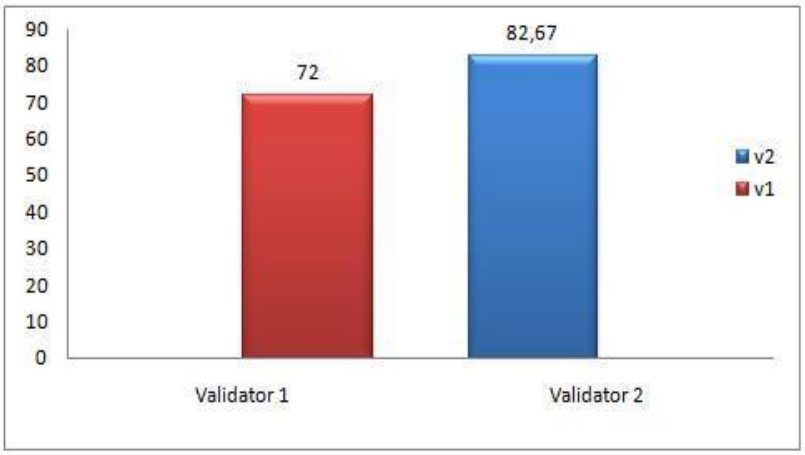

Figure 3. Graph of Comparison of Audio Visual Media Ratings By Material Expert Validators 1 and 2

After the questions were declared fit for use, the researchers conducted a pretest in the experimental class, which obtained an average score of 47.41 with the lowest score of 28.57 and the highest score of 53.57. The pretest is carried out before the audio-visual learning media product is applied. After using Powtoon-based audio-visual learning media products in the learning process, the researcher conducted a final test, namely the posttest where the posttest obtained an average score of 84.59 with the lowest score of 57.14 and the highest score of 96.43.

Experimental Class

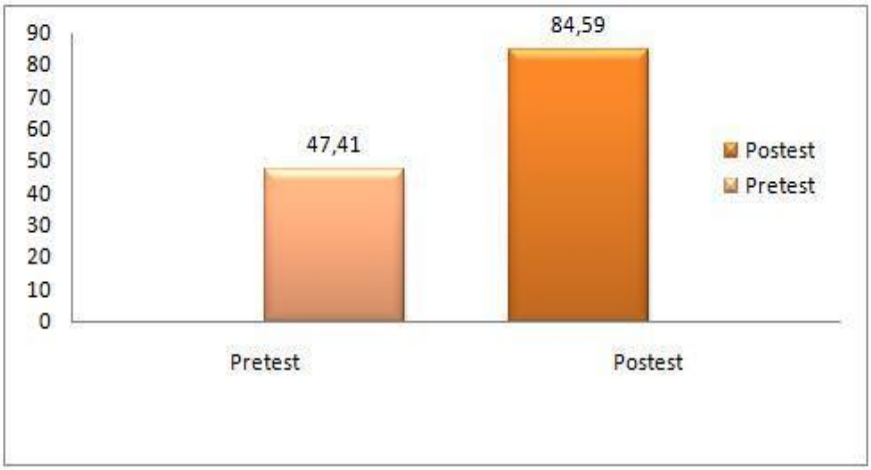

Figure 4. Comparison graph of the pretest and posttest averages of the experimental class

In the control class, an initial test was also carried out, namely the pretest, which obtained an average value of 26.59 with the lowest score of 14.29 and the highest score of 39.29 after using PowerPoint media in the learning process. The average value of 76.26 with the lowest value of 64.29 and the highest value of 85.71.

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Control Class

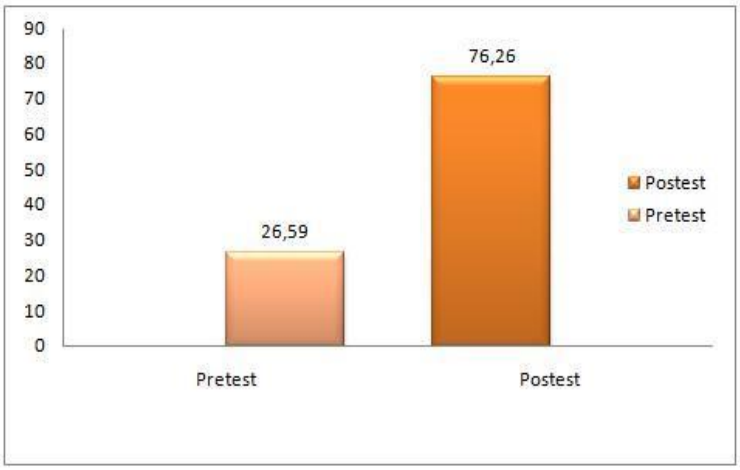

Figure 5. Comparison graph of the pretest and posttest averages of the experimental class

Furthermore, the N-gain test was carried out to see the increase in students' creative thinking skills.

Table 5. N-Gain Values

Class	N-Gain	Criteria
Experiment	0,74	High
Control	0,68	Medium

2. DISCUSSION

This research was conducted at MAN 3 Aceh Utara using 2 classes, namely class X-IPA 2 with a total of 21 students as the experimental class and class X-IPA 3 with a total of 21 students as a control class which was taken as a sample. the experimental class used Powtoon-based audio-visual learning media and PowerPoint media in the control class. The use of learning media can help achieve learning objectives (Muliani et al., 2022). The research aims to find out whether there is an increase in students' creative thinking skills in straight-motion material at MAN 3 North Aceh by applying Powtoon-based audio-visual learning media. The results showed that the increase in results in the experimental class was 0.74 in the high category, using Powtoon-based audio-visual learning media, while in the control class, a score of 0.68 was obtained in the medium category, using visual learning media in the form of power points. It can be concluded that the product developed in the form of Powtoon-based audio-visual learning media which is applied to the experimental class can improve students' creative thinking skills in straight-motion material. This agrees with research conducted by Mirawati et al (2021) Ulandari, N., Putri, R., Ningsih, F., & Putra, A. (2019) which states that the application of video-based learning media using Powtoon can improve students' creative thinking skills feasible to use with validation results from material experts, the video-based teaching materials developed are in the valid category.

The research (Sari & Manurung, 2021) entitled "The Effect of Using Powtoon Animation-Based Learning Media on Increasing the Creative Thinking Ability of Class III Students at Gudang Tigaraksa

Elementary School" also stated that there was an influence on the use of Powtoon learning media and an increase in creative thinking abilities after using Powtoon learning media. The results research of (Manurung, 2020) entitled "Project Based Learning Activities: Powtoon Media in Elementary Science Learning to Analyze Students' Creative Thinking Skills" stated that through the process of making Powtoon media based on the results of the analysis in the form of questionnaires and observation sheets, it was obtained that Powtoon media was able to grow students' creative thinking skills.

CONCLUSION

Based on the results of research on the development of Powtoon-based audio-visual learning media to improve students' creative thinking skills in straight motion material at MAN 3 North Aceh, it can be concluded that:

1. After carrying out product development through the ADDIE stage which is then validated by the validator who has determined that the product being developed is declared worthy of field testing with the percentage obtained from media experts of 80.56% and material experts 77.33%.
2. Statistical test results from the N-gain test obtained 0.74 with high criteria with an average pretest in the experimental class obtained by students was 47.42 and an average posttest of 84.59, while in the control class, the average pretest obtained by students is 26.59 and the average posttest is 76.26. it can be concluded that the development of Powtoon-based audio-visual learning media can improve students' creative thinking abilities.

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