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Development of Canva Application-Based Motion Audio-Visual Media For The Creative Thinking Skills of Grade X Students at SMAN 1 Parigi Utara

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ABSTRACT

Canva application-based motion audio-visual media is one form of learning media that can support 21st century learning. This study aims to develop and see the effectiveness of canva application-based motion audio-visual media on environmental pollution material on the ability to think creatively and science communication of grade X students at SMAN 1 North Parigi. The method used in this research is research and development (Research and Development) with 4D instructional design. This research was conducted on grade X students at SMAN 1 North Parigi totaling 48 students. The results of this study show that: (1) Canva application-based motion audio-visual media developed obtained a percentage of 86% of the very valid category and for practicality of media obtained a percentage of 87.5% of the very practical category for use in biology learning, (2) The effectiveness of motion audio-visual media based on the Canva application developed is very effective in improving students' creative thinking skills with effect size values 1.37 very large categories Based on the results of the development that has been carried out, Canva application-based motion audio-visual media can be a learning medium that can improve students' creative thinking skills in biology learning.

Introduction

The current era of globalization also affects the implementation of education, this is certainly a challenge for teachers as educators to be able to produce student outcomes that are able to use life skills. The ability of life skills will certainly produce competent resources like the world community in the 21st century (Fauzi, Jumaela, Rohmiyati, & Nasrudin, 2022).

The 21st century has a very big change in the world, and Indonesia is no exception. The widespread change of thought especially in the flow of information and technology has been felt in this century. Humans know the 21st century as the century of knowledge which makes it the main foundation in various aspects, especially in social life. The 21st century thinking pattern emphasizes students to be more 4C thinking, able to integrate all

knowledge with real life, understand technology, and information and be proficient in communicating and collaborating (Rama, Putra, Huda, & Lapisa, 2022).

The improvement in the quality of education can be seen from the change in the curriculum, namely K13 towards an independent curriculum. The independent curriculum is a new program implemented by the Ministry of Education and Culture of the Republic of Indonesia which is based on inequality and the low quality of education in Indonesia, with the existence of an independent learning program, it is hoped that students will have good quality and quality education. The quality of education must exist to overcome problems and challenges that will arise in the future (Side, Muzakir, Pebriani, & Utari, 2021).

The presence of this independent learning curriculum also aims to answer the challenges of education in the era of revolution 4.0 where in its realization it must support critical thinking and problem-solving, creative & innovative skills, and skilled in communicating and collaborating for students, besides that the use of appropriate learning media is also needed (Risdianto, 2019).

Audio-visual motion media is a teaching material that combines visual and audive used to stimulate the child's sense of sight and sense of hearing. Audiovisual media is a type of media that contains elements of images that can be seen and listened to. Audiovisual media include video recordings, various sizes of films, sound slides, and so on. The benefit of motion audio-visual media is as a tool to facilitate communication and interaction between teachers and students so that the learning process can run smoothly and efficiently (Wahidah, Anggraini, & Afida, 2023).

SMAN 1 Parigi Utara is located in Parigi Moutong Regency and is a State High School (SMAN) and the only public high school located in the North Parigi Region (Festiyed, Asrizal, & Desnita, 2023). Students of SMAN 1 North Parigi, especially class X, have low creative thinking skills, this is shown based on observations made by researchers on July 17, 2023, it was found that SMAN 1 North Parigi students have low creative thinking skills, which is around 40% who fall into the category of quite creative, this is in accordance with the results of interviews conducted that there are still some students who have not been able to solve problems by providing Various answers during discussion, there are still students who have not been able to solve problems by providing other ways from different points of view, then students are not able to solve problems in new ways and students have not been able to develop ideas or ideas to solve problems in detail (Zakiyah & Sudarmin, 2022).

The school at SMAN 1 Parigi Utara teachers use learning media in the form of textbooks, laptops, and infocus. The teacher has difficulties during the teaching and learning process, namely there are still about 60% of students who do not focus on learning and even go in and out of class during class hours, causing many students whose scores do not reach completeness where the KKM standard at the school is 80, so the teacher often provides repetition opportunities to students who do not achieve completeness scores (Fauziah, Rahayu, & Asri, 2023).

Research conducted by (Saryadi & Sulisworo, 2023), with the research title "Development of E-Module Based on the Discovery Learning to Improve the Student Creative Thinking Skills" explains that the use of appropriate learning media affects students' creative thinking and communication skills. The use of appropriate learning media can be one of the efforts that can be done by teachers that are useful for the implementation of good learning.

Overcoming these problems, an interesting learning medium is needed, so that students' creative thinking skills increase. The selection of media to be used must be appropriate and appropriate to be applied, researchers choose Canva application-based motion audio-visual media in the form of animated learning videos that can help students have enthusiasm and interest in learning. The selection of motion audio-visual media is based on the consideration that in current learning conditions a suitable media is needed to be applied to students, because the current conditions of students have minimal creative thinking and science communication skills and also saturation with media previously applied by teachers.

Research Methods

This research is R&D (Research and Development) research. That is using development and research that produces products (Sugiyono, 2018). The development method applied to this research is 4D Thiagarajan. The 4D models include define, design, develop and dissiminate and use quasi-experimental methods. The data analysis used is media validity analysis, limited trial analysis, and practicality analysis.

Canva App-Based Motion Audio Visual Media Validity Analysis

Canva application-based motion audio-visual media validation data is obtained from the results of validation by lecturers with validation sheet instruments, then it can be analyzed using the formula:

$$\text{V-ah} = \frac{\text{TSe}}{\text{Tsh}} \times 100\%$$

Information:

V-ah : Expert Validation
Tse : Total Empirical Score Achieved
TSh : Total Expected Score

The score categories that have been obtained can be seen in Table 3.1.

Table 1 Media Validation Criteria

Criterion	Validation Level
81%-100%	Highly Valid
61%-80%	Valid
41%-60%	Less Valid
21%-40%	Invalid
0%-20%	Highly Invalid

Source: Akbar, 2013

Product Practicality Analysis

Practicality analysis is obtained through teacher assessment questionnaire sheets about the practicality of using Canva application-based motion audio-visual media products in the ongoing learning process. The results of the teacher assessment are then analyzed using a formula, according to (Puspita, Wahyuni, & Yushardi, 2017) with the following formula:

$$P = \frac{\text{TSe}}{\text{Tsh}} \times 100\%$$

Information:

P = Percentage
Tse = Total Score achieved
Tsh = Total Maximum Score

The score categories that have been obtained can be seen in Table 3.2.

Table 2 Media Practicality Criteria

Percentage (%)	Category
86-100	Very Practical
66-85	Practical
46-65	Less Practical
22-45	Impractical

Source: Puspita et al., (2017)

Limited Trial Analysis

Testing is carried out to obtain information whether the media made by the researcher is more effective and efficient than the previous one. Media assessment or evaluation is intended to find out whether the media created can achieve the goals that have been set or not. Trials are very important to obtain data on the quality of learning videos in the form of canva application-based motion audio-visual media for teachers and students of grade X MIPA at SMAN 1 North Parigi which has been developed. The results of the student assessment are then analyzed using a formula, according to (Akbar, 2013) with the following formula:

$$\text{Percentage} : \frac{\text{Number of scores obtained}}{\text{Maximum Number of Scores}} \times 100$$

The score categories that have been obtained can be seen in Table 3.3.

Table 3 Limited Trial Criteria

Value Qualification	Information
86 < x < 100	Very interesting
76 < x < 85	Pull
80 < x < 75	Quite Interesting
55 < x < 59	Less Attractive
x ≤ 54	Very unattractive

Source: (Akbar, 2013) **Product Effectiveness Analysis**

Analysis of Students' Creative Thinking Skills

Analysis of students' creative thinking skills is obtained through tests. Researchers used test questions in the form of essays consisting of 10 questions to see the level of students' creative thinking ability. These questions are made based on indicators of creative thinking ability. Each question in this creative thinking ability test consists of 4 weights. The weight will be converted to a scale of 100 by dividing the number of weights obtained by the student by the maximum number of weights multiplied by 100. As for the formula used as follows:

$$\text{Score} = \frac{\sum \text{gain weight}}{\sum \text{Maximum weight}} \times 100$$

In this case, each score obtained by students will be used to see the criteria for the level of creative thinking ability. The criteria for the classification of creative thinking ability assessment scores can be seen in Table 3.4.

Table 4 Categories of Creative Thinking Criteria

Value Qualification	Information
86 < x < 100	Very Creative
76 < x < 85	Creative
80 < x < 75	Quite Creative
55 < x < 59	Less Creative
x ≤ 54	Very Uncreative

Source: (Arikunto, 2021)

Results and Discussion

The results of research that has been conducted regarding the development of Class X Canva Application-Based Motion Audio Visual Media at SMAN 1 North Parigi using the 4D model development method consisting of 4 stages, namely Define, Design, Develop, Disseminate are further explained as follows:

a. Define

Based on the observations that have been carried out, the learning used in learning biology at SMAN 1 Parigi Utara is still in the form of printed textbooks for students and the methods used in learning biology still use the lecture method, making it difficult for students in this case which causes a decrease in student interest and concentration. Furthermore, material analysis At this stage, material analysis is carried out that requires learning media in the form of audiovisual movements. This relates to material placed on moving audiovisual media. At this stage, environmental pollution is chosen as the material. The main research material presented in Canva application-based audio-visual motion media on environmental pollution material made by researchers is understanding, types, factors, impacts, solutions that can be done to overcome environmental pollution. Then analyze the learning outcomes. Learning outcomes refer to the goals achieved in the learning process. This includes the knowledge, skills, attitudes and abilities that students must acquire after completing learning. The analysis of learning outcomes of SMAN 1 Parigi Utara refers to a minimum completeness standard of 80 points and a grade standard. The score is calculated from daily assignment scores, daily tests, and final exam scores. The results are processed and adjusted to KKM, and corrections are made if the value continues to be below standard. So far, there are still many students at SMAN 1 Parigi Utara school who have not achieved their final grades. Only about 40% of students do not complete KKM scores, and it is expected that these students can achieve complete scores.

b. Design

Researchers developed learning media products in the form of mobile audiovisual media based on the Canva application regarding environmental pollution. The developed media consists of the initial part consisting of making a cover containing the researcher's biodata and the delivery of material to be discussed in the video that has been made, then a thank you note addressed to the supervisor and examiner, then the learning objectives consisting of the purpose of making the video, then the sub-discussion in the form of materials related to environmental pollution. This content section consists of making the contents of materials related to environmental pollution consisting of air, water, soil, and sound pollution. Furthermore, there are several quizzes that are useful for testing students' understanding of the material displayed in the learning videos that have been made. This section includes making conclusions on learning videos to provide a summary of the material that has been delivered in the video, in addition to conveying important points, the essence of learning, and the main message to be conveyed to the viewers of the video with the conclusion, viewers can gain a clearer understanding of the material that has been delivered and can remember important information. c. Development At the product development stage, the development of motion audio-visual media based on the Canva application is carried out which is designed first in the Canva application. This stage consists of several steps as follows:

a. Video Creation

This development stage is carried out making learning videos in accordance with the design that has been made. The display of learning videos that have been made by researchers can be seen through Figures 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, and 4.8.

1) Initial Section

Figure 1 Opening Cover

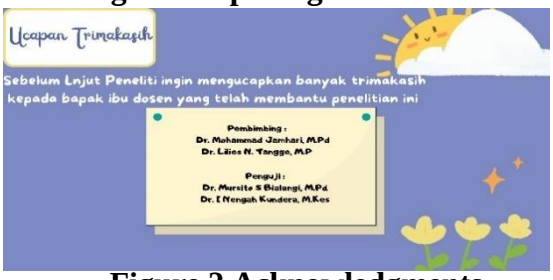

Figure 2 Acknowledgments

Figure 3 Material Cover

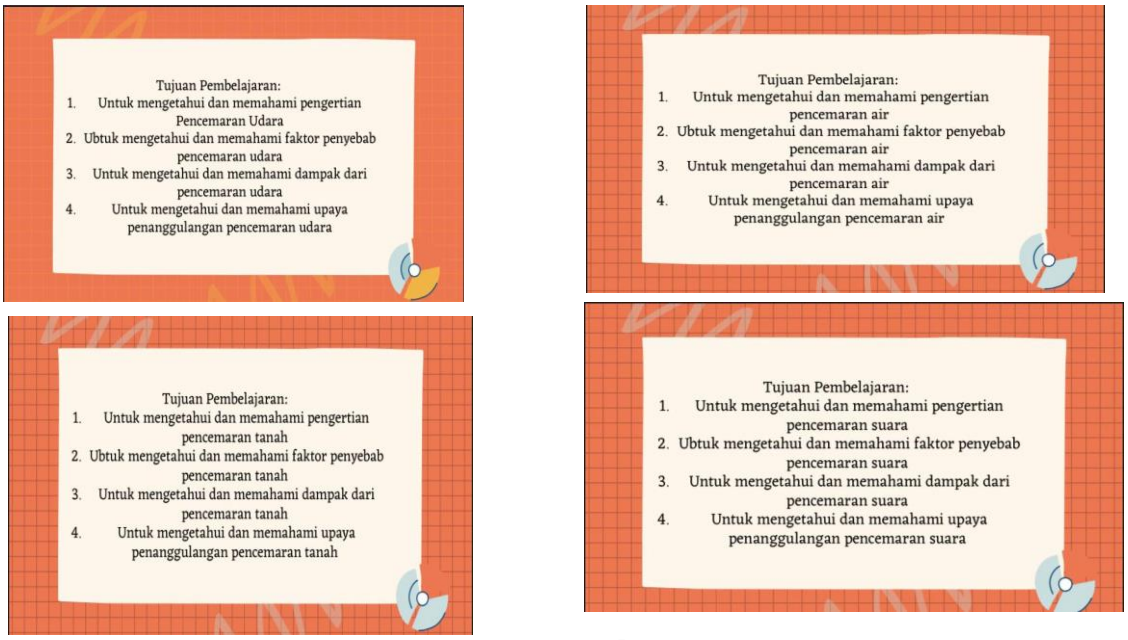

Figure 4 Learning Objectives

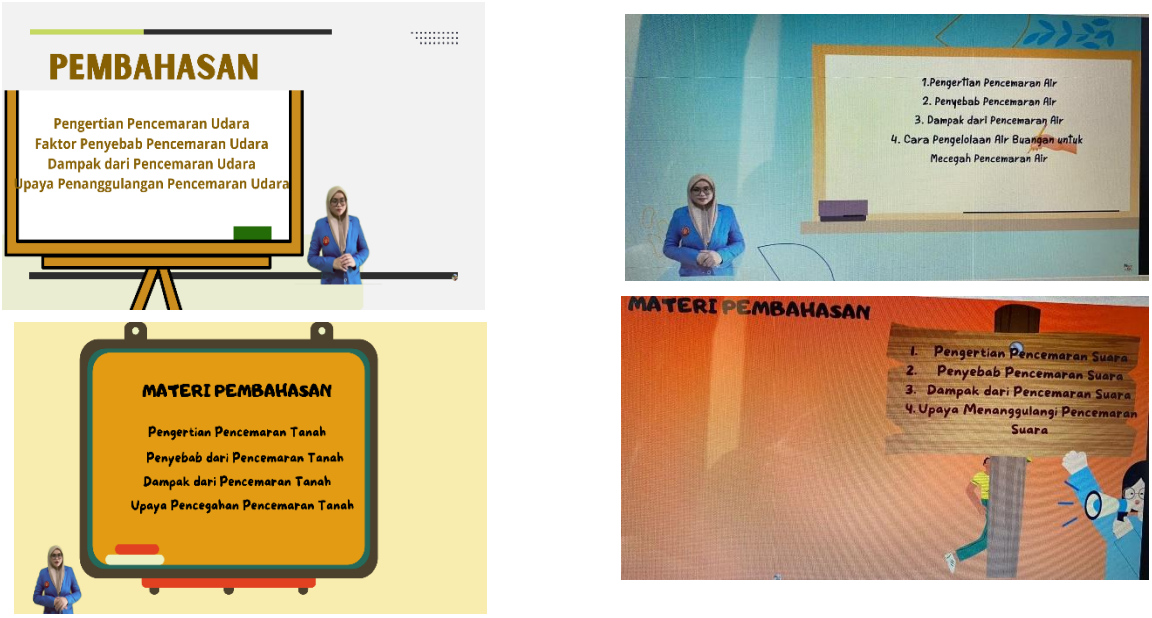

Figure 5 Sub Discussion

2) Contents Section

Figure 6 Material

Figure 7 Quiz

3) Concluding Part

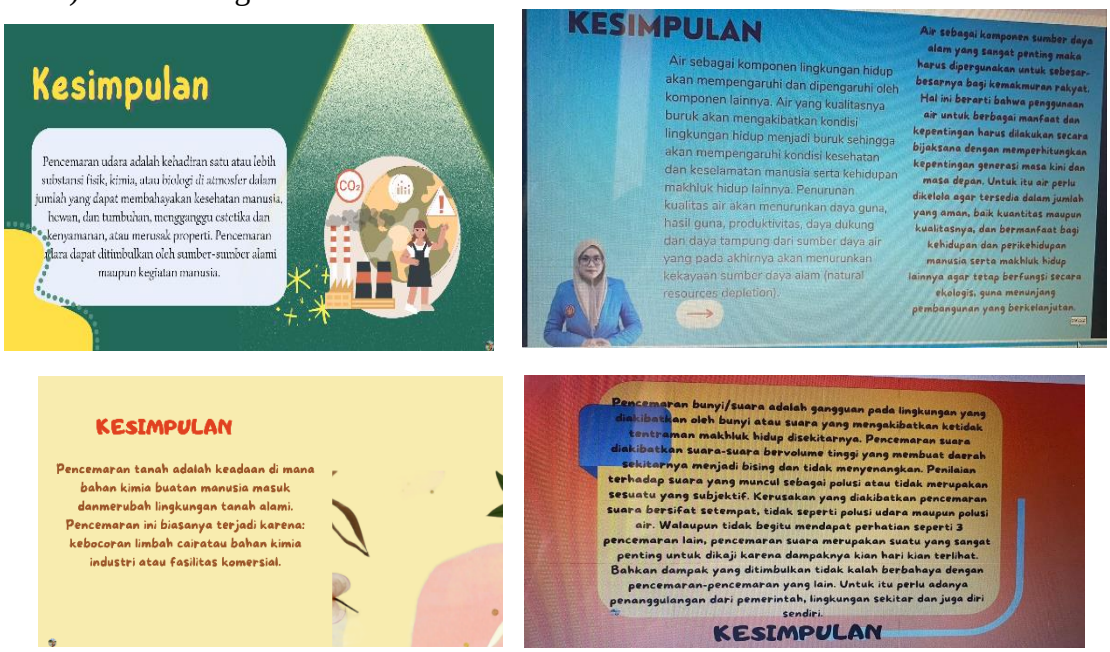

Figure 8 Conclusion

The display of the content above is designed in the form of digital format by adjusting the media feature software to be developed. The type of software chosen to develop media is the Canva application. The Canva application was chosen as development software because there is a size of media format used in the form of a format of 1920 x 1080 piks, this application is used to edit content as desired.

b. Validation by experts The results of learning media validation in this development research are in the form of suggestions or input by experts and then followed up by researchers with improvements. The purpose of validation is to find out whether or not the product that has been developed is valid. At this stage the validator provides an assessment as well as input and suggestions for the improvement of learning media devices and instruments that the researcher has compiled, after that the researcher makes improvements according to the input suggestions given by the validator so that the developed product can continue the next stage of testing. The validation results are then averaged and the results are adjusted to the predetermined category. The following is the validation of the media that has been created:

1) Data from Canva application-based motion audio-visual media validation by content experts

Validation of Canva application-based motion audio-visual media by content experts was carried out by 2 experts who are experts on aspects of environmental pollution material content. Data from the validation of Canva application-based motion audio-visual media by content experts can be seen in Table 4. Table 4. Results of Canva App-Based Motion Audio Visual Media Validation by Content Experts

1) Data from Validation of Creative Thinking Ability

Validation of the ability to think creatively was carried out by 2 experts. Data from the validation of creative thinking skills by experts can be seen in Table 3.5.

Table 5 Results of Validation of Students' Creative Thinking Ability

Instruments	Validation Results		Percentage (%)	Category
	Validator 1	Validator 2		
About the Ability to Think Creatively	100	100	100	Highly Valid
Overall Validation Average			**100**	**Highly Valid**

Table 5 shows the validation results of creative thinking skills in biology learning which obtained percentage results of 100% which can be categorized as very valid.

2) Data from Canva application-based motion audio-visual media validation by content experts

Validation of Canva application-based motion audio-visual media by content experts was carried out by 2 experts who are experts on aspects of environmental pollution material content. Data from the validation of Canva application-based motion audio-visual media by content experts can be seen in Table 3.6.

Table 6 Canva App-Based Motion Audio Visual Media Validation Results by Content Experts

Instruments	Valued Aspects	Validation Results		Percentage (%)	Category
		Validator 1	Validator 2		
Canva App-Based Motion Audio Visual Media	Content Expert	90 %	82 %	86	Highly Valid

The results of the validation of motion audio-visual media by content experts get a percentage result of 86% and are categorized as very valid.

2) Data from Canva application-based motion audio-visual media validation by design experts

The validation of canva application-based motion audio-visual media by design experts was carried out by 2 experts who are experts on aspects of canva-based motion audio-visual media. Data from the validation of Canva application-based motion audio-visual media by design experts can be seen in Table 3.7.

Table 7 Results of Canva App-Based Motion Audio Visual Media Validation by Design Experts

Instruments	Valued Aspects	Validation Results		Percentage (%)	Category
		Validator 1	Validator 2		
Canva App-Based Motion Audio Visual Media	Desaian Expert	89,33 %	82,66 %	86	Highly Valid

Table 7 is the result of validation of motion audio-visual media by design experts who get a percentage result of 86% and is categorized as very valid.

3) Data from Canva application-based motion audio-visual media validation by development experts

Validation of canva application-based motion audio-visual media by development experts is carried out by 2 experts who are experts on aspects of canva-

based motion audio-visual media. Data from the validation of Canva application-based motion audio-visual media by development experts can be seen in Table 3.8.

Table 8 Results of Canva App-Based Motion Audio Visual Media Validation by Development Experts

Instruments	Valued Aspects	Validation Results		Percentage (%)	Category
		Validator 1	Validator 2		
Canva App-Based Motion Audio Visual Media	Development Expert	86 %	84 %	85	Highly Valid

The results of the validation of motion audio-visual media by development experts get a percentage result of 85% and are categorized as very valid.

c. Limited Trial

A limited trial was conducted by asking for an assessment of Canva application-based motion audio-visual media products to grade X C students at SMAN 1 North Parigi. The results of a limited test of canva application-based motion audio-visual media on biology learning at SMAN 1 North Parigi can be seen in Table 7.

Table 4 Results of Limited Test of Canva Application-Based Motion Audio Visual Media in Biology Learning at SMAN 1 North Parigi

No Respondent	Score	Max Score	Percentage	Criterion
1	43	50	86	Very interesting
2	42	50	84	Pull
3	45	50	90	Very interesting
4	40	50	80	Pull
5	45	50	90	Very interesting
6	41	50	82	Pull
7	43	50	86	Very interesting
8	43	50	86	Very interesting
9	43	50	86	Very interesting
10	45	50	90	Very interesting
Sum	**430**	**500**	**86**	**Very interesting**

Table 9 is a limited test result of canva application-based motion audio-visual media in biology learning at SMAN 1 North Parigi obtained a percentage result of 86% and can be categorized as very interesting if used in biology learning.

d. Practicality Test

Assessment of the practicality of canva application-based motion audio-visual media is given to teachers in the field of Biology which aims to determine the level of ease of content of teaching media and the suitability of digital media in learning Biology of environmental pollution materials by referring to the assessment of (Puspita et al., 2017). Data on the results of practical assessment by Biology Teachers can be seen in Table 3.10.

Table 10 Results of Teacher Assessment of the Practicality of Canva-Based Motion Audio Visual Media

No	Valued Aspects	Score
1	Learning using Canva application-based motion audio-visual media on environmental pollution material is very interesting	3
2	Learning using Canva application-based motion audio-visual media on environmental pollution material is very interesting	3
3	The presentation of material in Canva application-based motion audio-visual media about environmental pollution is systematically arranged	4
4	Sentences / grammar on canva application-based motion audio-visual media are easy to understand	3
5	The colors presented in the Canva application-based motion audio-visual media are appropriate and contrasting	4
6	The type of font used is appropriate and easy to read	3
7	Practice questions on learning media can foster students' creative thinking skills	4
8	Canva application-based motion audio-visual media can be learned by students independently or in groups	4
9	Learning images and animations presented in Canva application-based motion audio-visual media on environmental pollution materials are appropriate and interesting	3
10	Canva application-based motion audio-visual media on environmental pollution materials are easy to use anywhere	4
	Sum	35
	Max Score	40
	Percentage	87,5 %
	Criterion	**Very Practical**

Table 10 is the result of an assessment of media practicality which obtained a percentage value of 87.5% which can be categorized as very practical if used in biology learning.

e. Dissemination

The dissemination stage was carried out by testing the effectiveness of Canva application-based motion audio-visual media on students' creative thinking skills in biology learning. Student Creative Thinking Ability Test Results:

Data on students' creative thinking skills were obtained from the test results of grade X A and X B students using 4 points of creative thinking skills questions given to students to determine the improvement of students' creative thinking skills after implementing motion audio-visual media based on the Canva application. Theresults of the analysis of students' creative thinking skills can be seen in Table 11 and Table 12.

Table 11 Results of Analysis of Creative Thinking Ability of Class X A and X B Students

No	Student Name	Value of Creative Thinking Ability	
		X A	X B
1	Student 1	63	88
2	Student 2	50	81
3	Student 3	94	88
4	Student 4	69	88
5	Student 5	81	81
6	Student 6	75	75
7	Student 7	75	88
8	Student 8	75	75
9	Student 9	56	88
10	Students 10	75	94
11	Students 11	69	94
12	Students 12	63	88
13	Students 13	81	81
14	Students 14	56	75
15	Students 15	63	94
16	Students 16	69	81
17	Students 17	56	88
18	Students 18	50	81
19	Students 19	63	75
20	Students 20	75	63
21	Students 21	81	75
22	Students 22	75	88
23	Students 23	81	100
24	Students 24	100	100
Average		**70,6**	**84,4**

Table 11 shows the value of creative thinking ability of students in grades X A and X B have different ability values. Class X A obtained an average score of 70.6 while class X B obtained an average score of 84.4 for data on the results of students' creative thinking skills.

Table 12 Effect Size Test Results of Creative Thinking Ability

Name	Average	Standard Deviation	Effect Size Value	Interpretation
Experimental Class Pre-Test (X B)	63,542	19,571	1.37	Very Large
Post-Test Experimental Class (X B)	84,375	8,653		
Pre-Test Control (X A)	63,542	19,571	0.42	Keep
Post-Test Control Class (X A)	70,573	12,432		

Table 12 is the result of the effect size test for the problem of creative thinking ability in class X A obtained an average pre-test value of 63.542 with a standard deviation value of 19.571 and a post-test of 70.573 and a standard deviation value of 12.432 with an effect size value of 0.42 medium category while class X B obtained an average pre-test score of 63.542 and standard deviation of 19.571 while the post-test mean value of

84.375 and standard deviation value of 8.653 then the effect size value of class X B is 1.37 which can be categorized as very large for the complete analysis can be seen in appendix 35.

Discussion:

The research conducted aims to develop canva application-based motion audio-visual media to improve students' creative thinking skills that are valid, practical and effective in biology learning at SMAN 1 North Parigi.

Canva application-based motion audio-visual media and research instruments before being implemented in biology learning are carried out validity tests to produce valid products and instruments. Validation / feasibility test, serves to find out whether or not a product is valid with certain criteria. Canva application-based motion audio-visual media is declared very valid development and suitable for use in biology learning.

Research instruments consisting of test instruments for students' creative thinking skills and questionnaires on students' science communication skills were also tested for validity and categorized as very valid. The validation of the creative thinking ability test instrument obtained an average percentage value of 100% and the validation of the student science communication ability questionnaire instrument obtained an average percentage value of 95.1%, in the validation of the student science communication ability questionnaire, the validator lecturer gave several suggestions to be used as revision material in the form of sentence preparation must be adjusted and the correct use of EYD.

(Nurafni, Pujiastuti, & Mutaqin, 2020) explained that the developed product must pass the validation or assessment stage by experts to provide an assessment of the development product and suggestions for improvement and to design teaching materials that have been changed based on expert advice and will be tested to students.

Canva application-based motion audio-visual media on environmental pollution materials are included in the very valid category. This is in accordance with the results of the analysis of motion audio-visual media based on the Canva application showing percentage results with an average value of 86%. The validator lecturer also provided several suggestions related to Canva application-based motion audio-visual media on environmental pollution material as revision material for researchers in the form of color suitability, text size, and image size.

A limited trial will be held on November 15, 2023 involving 10 students at SMAN 1 North Parigi selected from low, medium and high abilities, this ability selection was carried out by biology teachers at SMAN 1 North Parigi. The flow of limited trial implementation consists of 3 stages, namely: introduction of motion audio-visual media based on the canva application, trial of motion audio-visual media based on the canva application and filling out a limited trial questionnaire. The results of limited trials show that the Canva application-based motion audio-visual media that is being developed is included in the very interesting category with a percentage value of 86%. This proves that Canva application-based motion audio-visual media is very interesting to use in the learning process. This means that the design of the learning media is liked by students both in terms of completeness of content and appearance, so that it can be used in schools where trials are tested. This is in line with the research of Satriani et al., (2023), in their research on the development of android-based economic learning media with a codular platform on introductory material in economics for grade X students at SMAN 1 Balung Jember Regency, stated that the developed economic learning media is interesting with a limited percentage of trials is 86% with very interesting criteria.

The analysis of the questionnaire on the implementation of this learning media was assessed by observers, namely biology teachers, obtained an average percentage of 87.5% with very practical criteria. This shows that Canva application-based motion audio-visual media is very practical to use in biology learning. Hidayat, et al., (2021), in their research on "The Practicality of Calculus Learning Videos for Physics in the Online Learning Process during the Covid-19 Pandemic". states that learning videos are very practical to use and facilitate future learning.

Effectiveness tests were conducted to determine the effectiveness of the developed media on improving students' creative thinking and science communication skills. This effectiveness test is carried out after all meetings have been completed. The effectiveness test is seen from the results of the pre-test and post-test and the effect size of Cohen where the average pre-test score of class X A for creative thinking skills obtained by students is 63,542 and the average post-test score obtained by students is 70,573, while class X B obtained an average pre-test score of 63,542 and the average post-test score which is 84,375, this shows that the value of creative thinking ability of class X B is higher than class X A.

The results of the test of students' creative thinking and science communication skills from the two classes showed differences due to the use of different learning media, where class X A uses powerpoint while X B uses motion audio-visual media based on the Canva application, so it can be concluded that the better the learning media used, the better the results will be obtained.

The results of the creative thinking ability test from the two classes show differences due to the use of different learning media, where class X MIPA A uses powerpoint while X MIPA B uses motion audio-visual media based on the Canva application so it can be concluded that the better the learning media used, the better the results will be obtained.

The average value of effect size cohen obtained for the ability to think creatively class X A is 0.42 with medium criteria while class X B obtained an effect size value of 1.37 with very large criteria, this shows that canva application-based motion audio-visual media is effectively used on environmental pollution materials to improve the creative thinking ability of grade X students at SMAN 1 North Parigi

Canva application-based animated video media on style and motion material can increase motivation and learning achievement and is suitable for use in the learning process and this learning animation video has a significant influence on student learning outcomes. Hapsari &; Zulherman, (2021).

The results of this study also support empirical evidence from previous research researched by Anggriani, et al., (2022), with the research title "Development of Biology Creative Video-Based Teaching Materials on Excretory System Materials for Class XI High School Students". This research was conducted at SMAN 2 Mataram. Based on the results of data analysis, the feasibility assessment was carried out with material and media validation tests by validators. Material expert validation is carried out by 2 validators, media validation is carried out by 1 validator. Material expert validation was carried out in 2 stages, stage 1 obtained a value of 0.86 with a high category, stage 2 obtained a value of 0.91 with a high category. Media expert validation obtained a score of 0.93 in the high category. The practicality assessment conducted by 10 students at SMAN 2 Mataram obtained a score of 99.25 percent in the high category, so that teaching materials based on biology creative videos on excretory system material are suitable for use in the learning process.

Motion audio-visual media will be the presentation of a learning technique to students that becomes more complete and optimal. This media is said to be a combination of audio and visual media or commonly called complete media. This motion audio-visual learning media can display images and sounds at the same time, which contains learning messages.

This is in accordance with the statement of Kimiati & Prasetyo (2019), that the use of audiovisual media in biology learning gets a good response from students. This means that the use of audiovisual media is interesting for students and is able to help students understand the material.

In addition to audiovisual media, there are other factors that affect the ability to think creatively and communicate science. This is because the ability to think creatively and also science communication is not only influenced by learning media factors, but there are factors outside the media that influence, one of which is self-condition (Dalilan & Sofyan, 2022).

The advantage of using Canva application-based motion audio-visual media is that teaching materials will become clearer in meaning so that they can be better understood by students, and allow students to master learning. In addition, the teaching and learning process will become more varied and learning will attract students' attention so as to improve students' creative thinking and science communication skills.

Conclusion

The development of motion audio-visual media based on the Canva application can be done using a 4D model, namely from Define, Design, Develop, and Disseminate, and also conduct validation tests, limited trials, practical tests on the media that has been created.

Canva application-based motion audio-visual media developed is effectively used in biology learning to improve students' creative thinking skills as seen from the average value of the Cohen effect size obtained which is 1.37 with very large criteria.

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