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Development of CapCut Assisted Learning Video Media on Blood Circulatory System Material at MAN Tapanuli Selatan

Anggun Winda Sari Harahap[1*], Almira Amir[2], Misahradarsi Dongoran[3]

Biology Tadris Study Program, Faculty of Tarbiyah and Teacher Science, UIN Syekh Ali Hasan Ahmad Addary Padangsidimpuan, North Sumatra, Indonesia
anggun44871@gmail.com

Abstract

The research is motivated by the suboptimal use of video learning media, which does not meet the need for engaging, easily understandable, and relevant learning media that align with the current visual and digital learning habits of students. The learning media used are still not optimal, resulting in low student learning outcomes. This research was conducted with the aim of developing valid, practical, and effective learning video media using the CapCut application on the topic of the human circulatory system for 11th-grade students. The method used in this research is development research (R&D) with the ADDIE model, which includes five stages: analysis, design, development, implementation, and evaluation. The subjects in this study were 30 students from class XI-7 for the 2024/2025 academic year. The data collection instrument was in the form of validation questionnaires from media, material, and language experts. The questionnaire measuring practicality was distributed to biology teachers and students, while the effectiveness was measured using a pretest-posttest. Data were analyzed descriptively using both quantitative and qualitative methods. The research results show that the developed video media has a validity level from media experts of 98.08% (very valid category), material experts of 92.5% (very valid category), and language experts of 100% (very valid category). Additionally, the response from teachers was 89.58% and the response from students was 93.5% (very practical category). The results of the effectiveness test using student test scores showed a pretest percentage of 67.26% and a posttest percentage of 84.6%. To see the improvement in student learning outcomes, the N-Gain was calculated with a percentage of 50.99%, categorized as quite effective. Therefore, this CapCut-based learning video media can be used as an effective alternative media in the Biology learning process, especially on the topic of the human circulatory system.

Keywords: learning media, video, CapCut, circulatory system, Biology.

INTRODUCTION

Education is a basic effort to pass on culture to the next generation. It includes creating an environment and learning process in which students actively develop spiritual and

religious strength, self-control, personality, intelligence, morals, life sciences, general knowledge, and skills needed to participate in society and culture (Rahman, et al., 2022). The education provided must be as good as possible to produce good education and improve the quality of human resources. Technology that is increasingly developing in the current era of globalization inevitably affects the world of education (Dongoran et al., 2024; Firda & Laili, 2023). The world of education must continue to adapt to technological advances to improve the quality of education, especially adjusting the use of technology for the world of education, especially for the learning process. The use of technology can spur more modernized education and loyalty to teachers and students in a more interesting learning process.

Learning is the process of interaction between learners and educators and learning resources in a learning environment. Ideal learning is defined as a learning method that makes it easier for learners to understand what is being taught, develops learners' abilities, knowledge, skills, and attitudes through planned and directed learning activities and can change the learning environment to be more enjoyable and not boring (Hrp, et al., 2022). This process involves various methods, strategies, and media used to achieve the learning objectives that have been set. In the context of education, media can be used directly or indirectly to support the teaching-learning process and increase students' thoughts, feelings, attention, and willingness.

Learning media is very important because it can attract student interest, increase student understanding, and support a variety of different learning approaches (Harahap & Solihin, 2025). In addition, more flexible learning approach is also needed due to the different learning styles of visual, auditory and kinesthetic students. Video media can meet the needs of students for visual and auditory learning styles because it combines visual, audio, and interactivity elements (Lina & Septi, 2021). Video media allows students to be actively involved and makes the material easier to understand. Learning videos are designed with attractive visual and audio elements with the help of the *CapCut* application, so as to increase student interest and motivation to learn. *CapCut* application can help researchers, teachers and even students in video editing and perhaps this application is familiar to ordinary people (Setyadi, et al., 2024). In addition, teachers also do not need to explain the same concepts repeatedly. Teachers can prioritize conversations, questions and answers, or other classroom activities.

Based on the results of the researcher's interview with the biology teacher at MAN Tapanuli Selatan, it was stated that the use of video media from YouTube during teaching

had been carried out even though it was not routine and the results were positive. Students are more interested in the learning process with concrete visualization. In addition, interviews were also conducted with several students at the location and they said it was difficult to visualize a material using a textbook containing images. In addition, there are many terms of biology subjects that students do not know. Even for everyday life, we rarely pronounce the term.

Based on the description above, that there are several problems experienced by the school and the development of interesting learning video media is needed so that the teaching and learning process can run smoothly and optimally. Therefore, the authors conducted research to find out more about "Development of Learning Video Media Assisted by CapCut on Blood Circulatory System Material".

RESEARCH METHODS

The type of research used in this study is development research (R&D). R&D research is a research method that produces a product and tests the effectiveness of the product (Rangkuti, Ahmad Nizar, 2016). The development model used is the ADDIE development model (Analyze, Design, Development, Implementation, Evaluation). This study involved 30 students from class XI-7 at MAN Tapanuli Selatan.

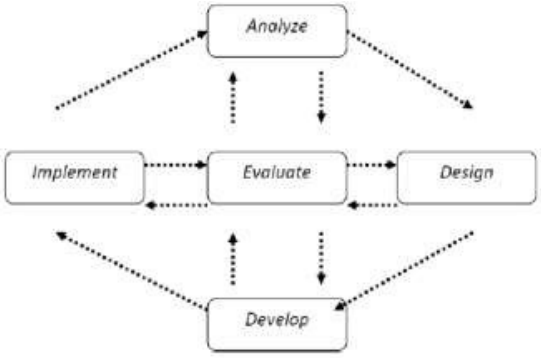

Figure 1. ADDIE Model

Research Instruments

a. Questionnaire

Questionnaire is a data collection method that involves giving respondents a number of written questions or statements to answer. This method is effective if the researcher has a strong understanding of the variables to be measured and the likely responses of respondents (Widodo, et al., 2023).

b. Test

A test is a process for studying or measuring something according to certain rules (Isnawan, Muhamad Galang, 2020). This study uses an *essay test* that structurally and systematically expresses the author's opinion, idea, or analysis of a particular topic.

c. Observation

Observation is one type of data collection method that is often used by research. This method helps researchers know more about the world around them. One of the differences between scientific observation and ordinary observation is that scientific observation involves the application of scientific standards and systematic procedures.

Data Analysis Technique

a. Validity Test

The validity test is conducted to evaluate the ability of the instrument or measuring instrument to measure the expected value. Product trials are conducted to evaluate the product's ability to meet community needs, and product validation is carried out to evaluate product feasibility (Punaji, 2016).

b. Practicality Test

The practicality test determines whether a product is practical or easy to use. By using a questionnaire sheet with a Likert scale, this test can be carried out on teachers and students, and the results can be analyzed and researched.

c. Effectiveness Test

The effectiveness test is conducted to measure whether a program, method, or tool actually achieves the predetermined goals and provides significant results.

RESULTS AND DISCUSSION

1. Analyze

Analysis is the first step in developing this media. The purpose of this stage is to determine the needs of the learning process, understand the characteristics of students, and ensure that the material developed is in accordance with the circumstances of the students.

a. Learner Needs Analysis

The pretest results show that many students do not fully understand the concept of the circulatory system, especially about its complex structure and circulation flow. This condition shows that to improve students' understanding, learning media must be interesting,

visual, and interactive. With 30 students in class XI-7 at MAN Tapanuli Selatan, teachers have the opportunity to develop digital learning media that suits the characteristics and learning styles of their learners, thereby increasing learning engagement and success.

b. Biology Teacher Needs Analysis

The analysis was conducted through interviews with biology teachers. The results of the interview with the grade XI biology teacher at MAN Tapanuli Selatan showed that one of the main obstacles in learning the circulatory system is the difficulty for students to understand the relationship between organ structure and function, especially without sufficient visualization. Teachers also emphasized that media is important to support active and project-based learning, such as the Merdeka Curriculum approach. This media allows students to make visual observations, learn independently, and work together on video-based or other digital projects, which is considered to increase student engagement.

c. Curriculum Analysis

In the Merdeka Curriculum, learning Biology in grade XI emphasizes student-centered learning, with approaches that foster independence of learning, collaboration, creativity, and critical thinking.

Table 1. KD Blood Circulatory System

Basic Competency	Indicator
Understand the relationship between the structure and function of organs in the human circulatory system, as well as the mechanism and its role in maintaining the body's internal balance	1. Analyze blood components (red, white, platelet, and plasma blood cells) and their functions.
	2. Identify types of blood vessels (arteries, veins, capillaries) and explain their function in blood circulation.
	3. Explain the structure and function of the heart as a blood pumping organ.
	4. Explain the large (systemic) and small (pulmonary) circulatory pathways and their relationship in blood circulation.
	5. Analyze the relationship between the circulatory system and the body's internal and external stimuli.
	6. Identify disorders, abnormalities, or diseases of the circulatory system and how to prevent them.

1. Competency Standards

Understand the relationship between the structure and function of organs in the human circulatory system, and their mechanism and roles in maintaining the body's internal balance.

2. Basic Competencies

Explain the function of the circulatory system, describe the components of blood circulation, describe the structure and function of each component of the circulatory system (Table 1).

d. Material Analysis

The circulatory system material taught includes several key concepts, namely:

- Blood components and their functions (such as erythrocytes, leukocytes, platelets, and plasma).
- Types of blood vessels (arteries, veins, and capillaries),
- Structure and function of the heart,
- The process of blood donation and transfusion,
- and diseases or disorders that can occur in the human circulatory system.

All of this material is complex and requires clear visualization to show the relationship between organ structure, blood flow direction, and the function of each part. In order for students to thoroughly understand the relationship between components in the circulatory system, interactive visualizations, flowcharts, and animated simulations are essential.

3. Design

The design stage focused on planning the video content, presentation format, and visual display design. The video is designed with a duration of 2 to 3 minutes so that it is not boring and still effective in conveying the material. Appropriate text, narration voice, visual effects, and educational background music were used in the video design. The storyboard serves as a guide for the flow of the video content and consists of a sequence of visual impressions and story text that will be used.

4. Development

All the designed materials and tools were collected and put into production in the form of a learning video during the development stage. Using the CapCut app, heart images, blood flow animations and story audio were recorded and combined. This app was chosen for its comprehensive and easy-to-use features, including transition effects, moving text, adding sound, and precise video cutting.

Figure 2. Front of the video

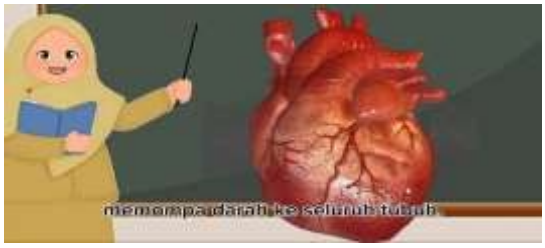

Figure 3. Impressions of the heart

Figure 4. Blood vessel footage

Figure 5. Blood clotting process

Figure 6. Impressions of blood transfusions

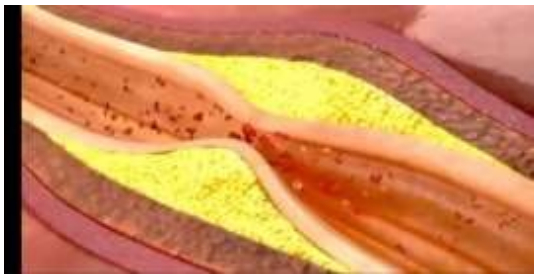

Figure 7. Impressions of plaque buildup

After the media was successfully developed, the next step was to conduct a validity test to assess the feasibility of the media from three main aspects, namely media aspects, material aspects, and language aspects. These three aspects are validated by experts in their respective fields to ensure that the media developed is truly feasible and suitable for use in the learning process.

a. Validity

The experts involved in the validation process of capcut-assisted learning video media on the material of the circulatory system are one lecturer of material experts, namely Rafeah Husni, M.Pd, one lecturer of media and language experts in this study, namely Nur Azizah Putri Hasibuan, M.Pd.

Table 2. Values from Experts

No	Experts	Validity Level (%)	Category
1	Material Expert	92,5%	Very Valid
2	Media Expert	98,08%	Very Valid
3	Language Expert	100%	Very Valid
	Average	**96,86%**	**Very Valid**

Based on table 2 shows that the overall data from media, material and language validators is 96.86% with very valid criteria.

b. Practicality

Practicality questionnaires were given to biology teachers at MAN Tapanuli Selatan, namely Mrs. Anni Kholilah Simamora, S.Pd. The results of the teacher response questionnaire can be seen in the table below:

Table 3. Biology Teacher Response Questionnaire

No	Statement	Score
	A. Content Feasibility Aspect	
1	Suitability of KD with Blood Circulatory System material.	4
2	Video suitability with Blood Circulatory System material.	4
3	The correctness of the substance of the Blood Circulatory System material.	3
	B. Language Aspect	
4	The language used is easy for high school students to understand.	3
5	The language used is in accordance with the Refined Spelling (EYD).	4
6	The language used in the materials is effective and efficient.	3
	C. Presentation Aspect	
7	The material suitability used is relevant to the Learning Objectives.	3
8	Consistent presentation of Blood Circulatory System material.	4
9	The correctness of the material concept in the learning video.	4
	D. Graphical Aspect	
10	Consistent use of fonts.	3
11	Appropriateness of text layout used.	4
12	The suitability of the images and videos with the material content.	4
	Percentage	89,58%
	Category	Very Practical

Practicality questionnaires were distributed to students, namely students at MAN Tapanuli Selatan in class XI-7 with 30 students. The researcher first conveyed the purpose of the research conducted, and presented the learning video media that had been validated by a team of validators. At the end of biology learning, students were given a questionnaire to provide feedback on biology learning video media. The results of the questionnaire can be seen in the table below:

Table 4. Student Response Questionnaire

Aspects	No	Statement	Score
Content / Material	1	The material presented is easy to understand.	111
	2	The example images in the material are clear.	114
Media	3	The suitability of the images and material presented in the learning video.	110
	4	The images presented are easy to understand and appear clear.	112
	5	The suitability of the size and type of font used in the learning video.	108
	6	The animation presented attracts students' attention and interest in the learning process.	114
	7	Students understand the link between the animation presented and the circulatory system material.	111
	8	The size and description of the images in the learning video are in accordance with the circulatory system.	108
	9	The use of sound (voice recording) in the video is clear and easy to understand.	116
Language	10	The language used can be understood by students	112
		Total	1116
		Percentage	93%
		Category	Very Practical

c. Effectiveness Test

The effectiveness test was carried out by testing the learning outcomes of students. The test given is an *essay* with 5 *pretest* questions and 10 *posttest* questions. At the stage of giving *pretests* and *posttests* to students, this is to see the completeness of each student before and after using learning video media. To see whether it is complete or not, it can be seen from the KKM value of biology subjects at the school, and the KKM for biology subjects is 75.

Table 5. Student *Pretest* and *Posttest* Results

No	Student	*Pretest*	*Posttest*	Criteria
1	SP	50	83	Completed
2	HSP	60	80	Completed
3	STI	65	77	Completed
4	AG	85	90	Completed
5	J	70	87	Completed
6	RGH	19	70	Not Completed
7	NR	85	90	Completed
8	APS	70	85	Completed
9	SES	75	88	Completed
10	JA	72	80	Completed
11	AP	75	80	Completed
12	AHPH	85	90	Completed
13	NVS	69	78	Completed
14	AJR	90	100	Completed
15	FRN	90	100	Completed
16	AT	90	97	Completed
17	DA	70	85	Completed
18	N	85	90	Completed
19	I	85	90	Completed
20	RDA	75	87	Completed
21	AS	82	90	Completed
22	VE	90	100	Completed
23	M	19	70	Not Completed
24	FI	19	70	Not Completed
25	PS	65	78	Completed
26	AF	84	89	Completed
27	KAP	20	70	Not Completed
28	YIPS	79	85	Completed
29	HB	85	89	Completed
30	N	20	70	Not Completed
Total		2018	2538	
Percentage		67,26%	84,6%	Moderately Effective

5. Implementation

The *pretest* and *posttest* questions that will be implemented are tested first to the question/test expert. The test questions made by researchers as many as 30 *essay* questions will be tested for validity to assess how valid the question instruments made by researchers

using the *Statistical Program for Social Science* (SPSS). A question is said to be valid if r count> r *table*. The following are the results of the validity of the questions.

Table 6. Valid questions from SPSS

No	Information	No	Description	No	Description
1	Valid	5	Valid	9	Valid
2	Valid	6	Valid	10	Not Valid
3	Invalid	7	Valid	11	Valid
4	Not Valid	8	Invalid	12	Valid
13	Valid	19	Valid	25	Not Valid
14	Valid	20	Valid	26	Not Valid
15	Valid	21	Valid	27	Valid
16	Valid	22	Valid	28	Invalid
17	Valid	23	Valid	29	Not Valid
18	Valid	24	Valid	30	Not valid

After the validity of the question is done, then the next is reliability, to see the reliability of a question instrument, *Cronbach's Alpha* is used. Can be seen in the table below the results of the reliability of a question instrument.

Table 7. Reliability Results

Reliability Statistic

Cronbach's Alpha	*N of Items*
0,850	30

Next is the test of differentiating power where the function is to see the items used to determine the extent to which the questions can distinguish low-ability students from those with high abilities.

Table 8. Distinguishing Power Test

No	*Pearson Correlation*	Description	No	*Pearson Correlation*	Description
1	0,40	Good	12	0,33	Fair
2	0,45	Good	13	0,78	Excellent
3	0,22	Fair	14	0,53	Good
4	0,16	Less Good	15	0,65	Good
5	0,55	Good	16	0,55	Good
6	0,30	Fair	17	0,60	Good
7	0,36	Fair	18	0,70	Excellent
8	0,07	Less Good	19	0,65	Good
9	0,54	Good	20	0,64	Good
10	0,00	Less Good	21	061	Good

11	0,46	Good	22	0,47	Good
23	0,61	Good	27	0,44	Good
24	0,52	Good	28	0,23	Fair
25	0,17	Less Good	29	0,19	Less Good
26	0,16	Not good enough	30	0,23	Fair

In addition to the power difference test, the difficulty test was also carried out. Its function is to determine how easy, moderate, or difficult a question is for students. This analysis is very important to assess the quality of the questions so that they can be used effectively in the learning evaluation process.

Table 9. Test Level of Difficulty

No	Mean	Description	No	Mean	Description
1	0,67	Medium	14	0,50	Medium
2	0,74	Easy	15	0,50	Medium
3	0,67	Medium	16	0,57	Medium
4	0,67	Medium	17	0,57	Medium
5	0,68	Medium	18	0,56	Medium
6	0,65	Medium	19	0,62	Medium
7	0,65	Medium	20	0,62	Medium
8	0,55	Medium	21	0,60	Medium
9	0,62	Medium	22	0,55	Medium
10	0,60	Medium	23	0,59	Medium
11	0,58	Medium	24	0,57	Medium
12	0,49	Medium	25	0,52	Medium
13	0,48	Medium	26	0,58	Medium
27	0,60	Medium	29	0,66	Medium
28	0,56	Medium	30	0,54	Medium

6. Evaluation

The effectiveness of the learning video media developed on human circulatory system material is measured through an increase in student learning outcomes using pretest and *posttest* tests. Furthermore, the increase was analyzed using the N-Gain formula listed in CHAPTER III. The following is a table of *pretest* - *posttest* score results and N-Gain values:

Table 10. Percentage of Test Score and N-Gain Value

Measurement Aspect	Pretest Score	Posttest Score	N-Gain	Category
Student Learning Outcomes	67,26	84,6	50,99%	Effective Enough

In addition, there are inputs and suggestions from the validator team to be used to further improve the development of learning video media in this study. The following are comments/suggestions from the validator team:

Table 11. Evaluation

No	Suggestion	Action
1	There are some words that need to be added to the video, adding animation, *subtitles*, and closing the video.	Already changed as suggested
2	The scope of material in learning is not broad enough, it is necessary to add blood donors, blood transfusions, and diseases/disorders of the circulatory system.	Already changed as suggested

CONCLUSION

In developing Biology learning media, researchers utilize the CapCut application as the main tool for creating videos and animations, assisted by supporting elements such as images, audio, and text. After going through the media validation stage, the learning video developed obtained very valid assessment results from media experts**,** material experts**,** and linguists. In addition, the practicality test was also carried out in the form of a practicality questionnaire distributed to Biology subject teachers**.** In addition, student responses to this media also showed a very practical category**.** The effectiveness test in the form of pretests and posttests was also carried out to see the increase in student learning outcomes getting a percentage of 50.99% with fairly effective criteria. Based on the results, it can be concluded that the learning animation video developed is suitable for use as a learning media in schools**,** especially on the material of the human circulatory system**.**

REFERENCES

Dongoran, M., Nasution, U. A., & Pane, D. A. (2024). Effectiveness of The Use Artificial Intelligence on Biology Student Learning. *Bioedunis Journal*, *03*(02), 205–218. https://doi.org/10.24952/bioedunis.v3i2.13898

Harahap, L. J., & Solihin, S. (2025). Education in the Era of Social Media Trends: Development of Instagram Feed Learning Media Using Canva on Biology Material. *Bioedunis Journal*, *04*(01), 13–26. https://doi.org/10.24952/bioedunis.v4i1.16547

Hrp, N. A., et al. (2022). "*Buku Ajar Belajar Dan Pembelajaran*," Bandung: Widina Bhakti

Persada. Https://doi.org/10.21070/2022/978-623-464-043-4.

Isnawan, M. G. (2020). "*Kuasi Eksperimen*," Nusa Tenggara Barat: Nashir Al-Kutub Indonesia.

Jundu, R., et al. (2020). "Pengembangan Video Pembelajaran Ipa Berbasis Kontekstual Di Manggarai Untuk Belajar Siswa Pada Masa Pandemic Covid-19," *LENSA (Lentera Sains): Jurnal Pendidikan IPA*, 10(2), 63–73. Https://doi.org/10.24929/lensa.v10i2.112.

Nasution, W. R., and Nusyirwan. (2022). Pengaruh Penggunaan Media Audio Visual Terhadap Hasil Belajar Siswa Pada Materi Sistem Ekskresi. *Bioedunis Journal*, Vol. 1(1), 1–8. Https://doi. org/10.30743/ pascal.v7i1.7705.

Punaji, S. (2016). *Metode Penelitian Pendidikan & Pengembangan*, *Edisi ke-4*, Jakarta: Prenadamedia Group.

Rahman, A., et al. (2022) "Pengertian Pendidikan, Ilmu Pendidikan Dan Unsur-Unsur Pendidikan," *Al Urwatul Wutsqa: Kajian Pendidikan Islam*, 2(1), 1–8.

Rahmawati, L., and Gumiandari, S. (2021). "Identifikasi Gaya Belajar (Visual, Auditorial Dan Kinestetik) Mahasiswa Tadris Bahasa Inggris Kelas 3F IAIN Syekh Nurjati Cirebon," *Pedagogik: Jurnal Pendidikan*, 16(1), 54–61. Https:// doi.org/ 10.33084/ pedagogik. v16i1.1876.

Rangkuti, A. N. (2016). *Metode Pendidikan Peneltian Pendekatan Kuantitatif, Kualitatif, PTK, Dan Penelitian Pengembangan*. Bandung: Cita Pustaka Media.

Setyadi, H. A., et al. (2024). "Penggunaan Aplikasi CapCut Untuk Menghasilkan Konten Video Kreatif Bagi Para Santri," *Jurnal Pengabdian Kepada Masyarakat Nusantara (JPkMN)*, 5(2), 1841–1848. Https://ejournal.sisfokomtek.org/index.php/jpkm/ article/ download/ 3171/2202.

Widodo, S., et al. (2023). *Buku Ajar Metodologi Penelitian*. Pangkal Pinang: Cv Science Techno Direct.

Worotitjan, R. E.,Tanor, M. N., and Tumbel, F. M. (2024). Pengembangan Media Pembelajaran Berbasis Video Animasi Pada Materi Sistem Peredaran Darah Manusia Di SMA Negeri 1 Tareran. *Jurnal Pendidikan Tambusa*, 8, 22648–22656.

Yani, F., and Rahmi, L., (2023). Pengembangan Video Pembelajaran Biologi Pada Materi Pokok Sistem Peredaran Darah Untuk Siswa Kelas VIII SMP/MTs Tahun Ajaran 2021/2022. *Journal on Education*, 5(4), 12692–12700. Https://doi.org/10.31004/joe.v5i4.2257.