

## The Development of Animated Video Learning Media based Sparkol Videoscribe for Understanding Students' Concept

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**Abstract:** *The purpose of this study was to determine the feasibility of animated videos as well as to study reading of literature for the senior high school students in Bengkulu City. The method of this study was research and development (R&D) using the ADDIE model. The results of this study implied that the material feasibility test showed 88.75% material competency aspects, 77.85% concept understanding aspects, 85.71% material suitability aspects, 91.25% language aspects with an average of 84.77% which indicated perfectly feasible. Media feasibility test revealed 82.5% appropriateness aspects, 86% display aspect, 87.5% usage aspect, 73.33% advantage aspect, with an average acquisition of 82.5% which indicated highly excellence, small-scale readability test obtained 79.05% that was very good category. It can be concluded that the development of animated video learning media based sparkol videoscribe for understanding students' concept was worthy to be tested. The animated videos are expected to attract users in both classroom and off-classroom self-study.*

**Keywords:** *Learning Media; Animated Videos; Understanding Concepts; Sparkol Videoscribe*

## INTRODUCTION

The development of technology and information in the 21st century profoundly affected life in all communities, either the general public or students (Uzpen et al. 2019). Technology is not only used by users as a medium of communication, but can also be used as a learning medium (Andriani, Sultan, and Rufaida 2021). The teachers must have the skills to utilize technology in learning activities (Amelia et al. 2021). Education has a very large role as a center of excellence to prepare human character for global challenges (Mustoip 2018).

Education is a component in society which consists of several awakening and interrelated factors. These factors form a pattern of interaction in each educational activity which determines success and failure to achieve learning which is a number of important factors in learning activities is believed

to be able to trigger a pleasant learning atmosphere for the students (Fadillah and Bilda 2019).

Based on observations and interviews at the senior high school students in Bengkulu City, it is known that teachers have implemented the use of media in the learning process, but have not implemented it optimally where the development of technology and communication is currently developing. They said that they want to use learning media that utilized technology and media in the learning process and made it easier for them to teach in class and also could minimize the limited time allocation. The students are also less interested in the learning media used by the teacher, therefore, it is several students to respond the teacher during the learning process, where physics learning itself is quite good, but students show lack of understanding of concepts about material provided. For self-study, the students depend on explanations and practice questions given by the teacher, this is obstacle for the students in learning independently and the students have their time to study or review the lesson. In addition, it is also known that senior high school in Bengkulu city already has an projector, meanwhile the teachers do not use it properly.

Based on the data of students' need analysis, it was found that 81.98% of students needed learning media that could be used independently, 84.02% of students needed learning media that were simple and interesting, 81.44% of students agreed if learning media with animated videos is more joyful. It is supported by the regulation of school that allow carrying smartphones which is used for purposes. One of the materials considered difficult for senior high school students in Bengkulu City is Dynamic Fluid material. Teacher explains that understanding of the concept of fluid dynamics is low which the expectation appears. There are learning media to help students in the learning process that can add understanding of students' concepts.

Learning media are a component in communication which supports within conveying a message. The media itself is also used as an aid in the learning process which is able to provide learning motivation and increase conceptual understanding of the information for the students (Swantyka Ilham Prahesti, Himmah Taulany 2021).

The utilize of learning media in Indonesian schools tends to provide slide show or PowerPoint media, picture media, and physics books. The utilize of instructional media affects the students to be lazy and get bored quickly to participate in the ongoing learning process (Uzpen et al. 2019). At present, there are many learning media that are needed by an educator, such as audio-visual media, which is a type of media contains sound elements, and image elements for example video recordings, various sizes of films, sound slides, and so on.

These medias are claimed better and more interesting (Purba A Rame, Sukarman Purba 2020). One of learning medias in term of audio-visual media is animated video (Pamungkas, Asih, and Yandari 2018).

Animated videos are moving images equipped with sound to convey material so that is better understood by students (Tarida and Indriyani 2020). Animated videos have benefits for students which are help students understand the material, increase students' involvement in the learning process and enhance students' understanding of learning (Batubara 2020). Animated videos also prevent students in getting bored, because they can provide humorous learning atmosphere, accommodate the main aspects of learning material elements, and add students' understanding of concepts (Hanif 2020).

Understanding the concept is one of the abilities that must be mastered by students which understanding the concept is the basis for formulating principles. Conceptual understanding refers to students' ability to understand scientifically, both theory and its application in daily life. The students who understand the concept will be able to solve problems in various forms of completion. Understanding of physics concepts is obtained from theoretical and empirical understanding through experimental activities, so that students can record and transfer some information to be used in problem solving, analyzing, and applying it in daily life (Yusuf and Hasan n.d.). According to Anderson and Krathwohl (2010) in the journal (Rofiah 2015) there are seven indicators in conceptual understanding, namely interpreting, exemplifying, classifying, inferring, comparing, explaining, summarizing.

From these problems, it is hoped that educators can choose effective and meaningful media that is interested in learning process. One of effective media is animated videos that help students understand the material. Animated videos can be created manually or applications or software. Nowadays, technological developments in the field of education are starting to emerge that there is a lot of software created to help make videos, both ordinary videos and learning videos. One of the many such software is Sparkol Videoscribe. Videoscribe is a software used by teachers and students to create animated whiteboards to increase interest and retention in learning. Videoscribe is an online application with multimedia nuances and can be in the form of photos, images, text, music, and backgrounds that can be chosen as desired (Bhakti, Astuti, and Rahmawati 2020). Sparkol videoscribe able to focus students' attention during learning activities so that the messages can be conveyed more effectively, repetition can be done, clarifying abstract and realistic matters, as well as messages delivered quickly and more easily remembered, and able to combine text, pictures, audio, music, and pictures in one unit that learning goals can be achieved (Hasanah Indah Siti Nor, Abu Yazid Adnan Quthny 2022).

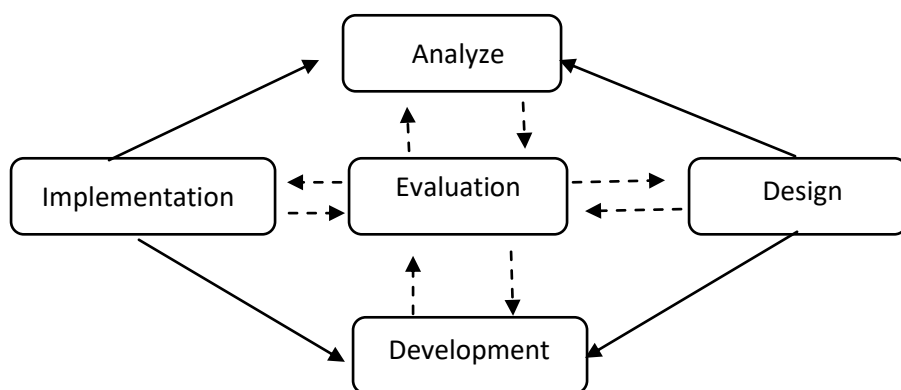
The existence of Sparkol videoscribe means to focus on the limitations of learning activities that more efficient as well as successful, facilitating knowledge, not only thw material but also the explanation which is poorly understood by students (Eka, Widiari, and Astawan 2021). The advantages of using videoscribe can make learning media effective, practical as well as interesting to help students' self-study and grow memory levels, (Pratiwi, Latifah, and Mustari 2019).

Based on several previous studies, the application of Sparkol videoscribe is suitable to utilize in the learning process and video-based learning media as evidenced by research conducted by (Haidir Muhammad, Farkha Farida, and Mulhayatiah 2021). In the research conducted (Nur and Anggaryani 2022) with sparkol videoscribe can increase student motivation. The difference between this research and the previous researches is located to the dynamic fluid material that improves understanding of students' concepts.

Based on the background above, the researcher decides to conduct this study entitle “The Development of Animated Video Learning Media based Sparkol Videoscribe for Understanding Students' Concept”.

## RESEARCH METHODS

The research method used in this study was Research and Development (R&D) which used ADDIE model (Analyze, Design, Development, Implementation, Evaluate).



**Figure 1. The ADDIE Model (Alnajdi 2018)**

The research was conducted at SMAN 10 Bengkulu City, MAN 1 Bengkulu City and MAN 2 Bengkulu City. The samples in this study were 97 students in class XI IPA and 3 physics teachers. The sampling technique used was sampling purposive that is technique sampling with certain considerations.

The instruments of this study were observation, interview, questionnaire sheets which is analysis the student’s needs (Eliza et al. 2022), validation questionnaire (materials and media) (Firdayanti and Setyasto 2020), and a student perception questionnaire. The data collection technique used a Likert scale to avoid double meaning of data (Sondakh and V., Stanss L. H. Lopian 2022). The responses are given a score as shown in table 1.

Table 1. Likert Scale for Assessment (Pratiwi 2021)

Interpretation	Score
Very agree	4
Agree	3
No agree	2
Very no agree	1

Then count percentage of the statement items using the formula

$$\text{Percentage} = \frac{\sum \text{Jumlah skor}}{\text{Skor Maksimal}} \times 100 \% \quad (1)$$

After getting percentage score that used formula (1), then measure the interpretation of the Likert scale. The interpretation of the score can be seen in table 2.

Table 2. Interpretation Likert Scale (Harmi 2022)

Percentage (%)	Information
0% - 25 %	Strongly disagree
26 % - 50 %	Don't agree
51 % - 75 %	Agree
76 % - 100%	Strongly agree

In the product validation stage, the data used quantitative and qualitative data analysis. Qualitative data analysis is used to process data in the form of validator comments and suggestions, while quantitative data analysis is obtained from questionnaire results. The eligibility presentation is obtained from equation (1) with the eligibility criteria based on table 3.

Table 3. Eligibility criteria (Karina, Yulita, and Ramdhani 2019)

Percentage (%)	Information
81% - 100%	Very worth it
71% - 80%	Worth it
40% - 60%	Not feasible
0% - 39%	Very unworthy

From table 3, the animated video is said to be suitable for use if the presentation obtained  $\geq 71\%$  of all aspects used. The next stage is perception students with interpretations in table 4.

Table 4. Criteria perception students (Pratama and Risdianto n.d.)

Percentage (%)	Information
76 % - 100%	Very good
51 % - 75 %	Well
26 % - 50 %	Less
0% - 25 %	Very less

## RESULTS AND DISCUSSION

The product produced in this study was in the form of a video animation based Sparkol videoscribe on dynamic fluid material for the second grade of senior high school. This study used the ADDIE method with 5 stages namely Analyze, Design, Development, Implementation and Evaluation.

### Analyze

In the analyze stage, the researcher conducted an analysis by coming to the school where the research conducted and observed, interviewed and interpreted analysis the needs of students and subject teachers. The information generated at the analysis stages were: 1) the curriculum used in high school in Bengkulu City was the 2013 curriculum; 2) The media used was the application Whatsapp and e-learning; 3) The teaching media used were printed books, applications Powerpoint, and youtube; 4) The learning problems faced were students' lack of understanding of physics concepts in dynamic fluid material and students also feel bored in learning activities. From the results of the questionnaire for high school students in Bengkulu City, it was 73.87% based on table 2 with an interpretation that strongly agreed with the development of animated video learning media, and from the results of the questionnaire the needs of teachers were obtained 75.39% with an interpretation that agreed, then

it was obtained from 3 schools Bengkulu City agreed to the development of animated video learning media.

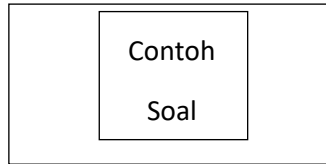
### Design

At the design stage, the researcher designed the concept of learning media that would be developed based on the needs of the students. From the results of the needs questionnaire, the researcher selected Sparkol-based animated videos. Videoscribe, charcoal videoscribe application existed interesting features. The first step taken was to make a video script consisting of an opening, learning objectives, material, sample questions, quizzes and closing, then the researcher made an audio video recording that was adjusted to the writing and pictures that had been made. Writing, pictures, animation, audio can be made as attractive as possible, then the video was downloaded in MOV format. The design results contained in table 5 the design of animated video learning media.

Table 5. The Design Of Animated Video Learning Media

No	The Design
1	
2	
3	

4



Characteristics of video animation developed in assisted electronic form Flipbook which can be accessed via cellphone or computer. Flipbook is software/software that is used to make the display of books or other teaching materials into a digital book that can be downloaded or for free via internet access. (Sugianto et al. 2013).

### Development

At the level of development, the researcher began to realize the design of the animated video referring to table 5 of the media design.

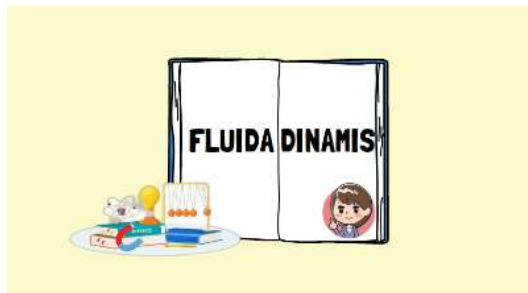


Figure 2. The main page of the animated video



Figure 3. KI-KD-IPK





Figure 4. Learning Objectives



Figure 5. Learning Materials

This animated video is packaged in the form of an assisted module flipbook that there is an animated video link that can be accessed.



Figure 6. Animated video module

After carrying out the process of developing an animated video, it is followed by expert validation to see the feasibility of the animated video being developed. Validation was carried out by 5 validators with expert judgment and material. In validating the feasibility of the material, 4 aspects were used, namely material competency, conceptual understanding, material suitability, and language (Ashyar 2012). The results of acquisition of validation based on table 6 obtained material competency 88.75%, conceptual understanding 77.85%,

material suitability 85.71%, language 91.25%, with an average of 84.75%. The percentage referred to table 3 regarding the eligibility criteria.

Table 6. Results of Material Feasibility by Experts

Aspects	Percentage	Category
Material competency	88,75%	Very worth it
Conceptual understanding	77,85%	Worth it
Material suitability	85,71%	Very worth it
Language	91,25%	Very worth it
Average	84,77%	Very worth it

In validating the eligibility of the media used 4 aspects namely suitability (Ashyar 2012), appearance (Arsyad 2014), usage, advantages, (Ashyar 2012). The results of the feasibility validation based on table 7, the suitability aspect is 82.5%, the display is 86%, the use is 87.5%, the advantage is 73.33% with an average of 82.5%, which percentage referred to table 3 eligibility criteria.

Table 7. Media Qualifications

Aspects	Percentage	Category
Suitability	82,5%	Very worth it
Appearance	86%	Very worth it
Usage	87,5%	Very worth it
Advantages	73,33%	Worth it
Average	82,5%	Very worth it

Based on table 6 and table 7, it was found that the category material validation was very feasible 84.77% and 82.5% media validation with the very fesiabile category. But each material and language expert provided suggestions for improving animated video media before being implemented to students. Based on the criticisms and suggestions, the parts that need to be improved on the animated video, the order of display should be KI-KD-IPK-Learning objectives, learning objectives are made based on ABCD, the evaluation is made even more interactive, descriptions of aspects understanding of mathematical concepts and explanations related to daily life.

### Implementation

After carrying out media development based on material and media validation by the validator and suggestions, then a readability test was carried out involving 59 high school students in Bengkulu City. In the readability test stage, the researcher carried out a small-scale animation video readability test using a student perception questionnaire which contained 4 aspects, namely presentation, understanding, interest, attention (Idrus, Andayani, and Rahmawati

2020). The results in table 8 of student perceptions, the presentation aspect is 81%, understanding 80%, the interest is 76%, attention is 79% average is 79% which percentage referred to table 4 of student perception criteria.

Table 8. Student Perception

Aspects	Percentage	Keterangan
Presentation	81%	Very good
Understanding	80%	Very good
Interest	76%	Very good
Attention	79%	Very good
Average	79%	Very good

Based on student perceptions of 59 high school students in Bengkulu City, the students mentioned that animated video learning media were easy to understand therefore, the presentation used was attractive and the learning media was equipped with pictures and bright color choices so that students were interested in using animated video media.

### **Evaluation**

The fifth stage is evaluation, at the needs analysis stage, many students are absent. This caused the number of students participating in this study to be less. When carrying out the readability test, there were a few obstacles, namely there were 5 students who did not have the internet, this made it difficult for students to access animated videos, so the researchers overcame this by hotspot and displays via projector. On the other hand, the students looked active and happy with animated video. During the readability test process, there were some students which would be nice if this media could be accessed offline to make it easier for them to use. The rest of the students gave a good response to the sparkol-based animation videoscript. Students' point of view emphasized that sparkol based animated video was easy to utilize.

### **CONCLUSION**

Based on the results and discussion that has been done, in the analysis stage, namely analyzing the needs of students and teachers for learning media; at this design stage several stages were carried out, namely designing the opening, main page, KI-KD-IPK, learning objectives, learning materials, sample questions, quizzes, and closing; At the development stage, the realization of the animated video design is carried out, after development next feasibility test by 5 validators, material feasibility test obtained with an average of 84.77% very feasible category. The media feasibility test was obtained with an average

acquisition of 82.5% in the very feasible category; on stages implementation a small-scale readability test was carried out, obtaining 79% in the very good category; at the evaluation stage, it was found that the development of animated video learning media based sparkol videoscribe for understanding students' concept is very feasible for product trials. The advantages of animated videos are expected to attract users in conducting self-study inside and outside the classroom.■

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