



# Science Learning with VideoScribe-Based Learning Video for Elementary School Students

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## ABSTRAK

Masih banyak guru yang belum mampu menciptakan suasana belajar yang menyenangkan bagi siswa. Selain itu kurangnya media pembelajaran membuat siswa kesulitan dalam memahami materi pelajaran. Penelitian ini bertujuan untuk mengembangkan video pembelajaran menggunakan aplikasi videoscribe untuk memudahkan siswa dalam belajar. Jenis penelitian ini adalah penelitian pengembangan dengan model yang digunakan yaitu 4D. Subjek pada penelitian ini yaitu 1 ahli isi mata pelajaran, 1 ahli desain pembelajaran, 1 ahli media pembelajaran, 2 orang untuk uji coba perorangan. Teknik yang digunakan dalam mengumpulkan data pada penelitian ini adalah observasi, wawancara, dan kuesioner. Instrument yang digunakan dalam mengumpulkan data yaitu kuesioner. Uji validitas instrument ini dilakukan dengan menggunakan rumus Gregory. Metode dan teknik analisis data yang digunakan pada penelitian pengembangan ini yaitu menggunakan teknik analisis statistik deskriptif kualitatif dan statistik deskriptif kuantitatif. Hasil penelitian mendapat skor 1,00 dengan koefisien keberterimaan produk sangat tinggi. Jadi dapat disimpulkan bahwa media yang dikembangkan layak diterapkan dalam pembelajaran. Implikasi penelitian ini yaitu media yang dikembangkan dapat memudahkan siswa dalam memahami materi pelajaran IPA.

## ABSTRACT

There are still many teachers who do not manage to create a fun learning environment for students. Moreover, the lack of learning media makes it difficult for students to understand the learning material. This study aims to develop a learning video using the VideoScribe app to facilitate students' learning. Development research was employed in this study, while 4-D was used as the research model. One selected subject content expert, one selected learning design expert, one preferred learning media expert, and two chosen people for the individual trial became the subject of this study. Observation, interviews, and questionnaires had been utilized to collect the data. A questionnaire was the instrument used to gather the data. The validity of the study instrument was evaluated with the Gregory formula. The data were analyzed using qualitative descriptive statistics and quantitative descriptive statistics methods. The results showed that this study got a score of 1.00 with a very high product acceptability coefficient. It could be concluded that the developed media was feasible to be applied in learning. This study implied that the learning video made students more easily understand science subject matter.

## 1. INTRODUCTION

The development of science and technology in education affects the learning development to become more qualified. Therefore, teachers are required to master Information and Communication Technology (ICT). ICT skills must also be accompanied by an understanding that ICT can be utilized to obtain positive learning outcomes (Arrosagaray et al., 2019; Dwi et al., 2013; Nursmasu, 2017). Every teacher must be able to use technology to support the learning process. Teachers are also required to use technology-based learning media in the learning process, especially during this pandemic (Batubara & Batubara, 2020; Hanik, 2020). Learning during the pandemic is done at home so that in the learning process, teachers must be creative and innovative so that the learning process takes place optimally. Natural Sciences (IPA) is one of the subjects taught at the elementary school level. Science is a subject that discusses and learns about nature and all life or the symptoms that occur in it (Sedana et al., 2013; Suari,

2018). Studying science will develop curiosity, a positive attitude, and awareness about the interplay of relationships between science, the environment, technology, and society (Anjelina Putri et al., 2018; Carlucy et al., 2018). Therefore, through science learning, it is expected that students can have a scientific attitude that exists in a researcher, namely honest, brave, responsible, curious, tenacious and persistent, open, able to distinguish opinions and facts and care about the environment. Therefore, for science learning objectives to be achieved, teachers must choose the right strategies, models, and media and create a learning atmosphere that can increase students' motivation to learn (Budiartini et al., 2013; Mustofa & Syafi'ah, 2018).

However, the reality of online learning raises several problems; namely, the content of the material delivered in online learning may not necessarily be understood by students (Asmuni, 2020; Harahap et al., 2021). Online learning facilities and infrastructure are inadequate in some schools (Rigianti, 2020). Access to the internet and networks in each region is not well-reached, thus hampering online learning (Mauludy, 2020). Based on the results of interviews in the field during the teaching practice program for fifth-grade students at Bunutin Elementary School, there are problems when doing online learning: 1) delivering material to students only by using photos of material sent to the *WhatsApp* group class 2) teachers only take materials from *YouTube* to make it easier in delivering material that results in students not understanding what is being conveyed, 3) teachers do not use media that are concrete and less innovative. In addition, the results of the midterm examination (UTS) on science subjects for fifth-grade students at Bunutin Elementary School as a sample showed that there were still some students who scored below the minimum criteria of mastery learning (KKM). The number of fifth-grade students at Bunutin Elementary School was 17 students, and the students' minimum score of mastery learning was seven. A total of 11 students were still below the KKM and six students who had already reached the KKM. Students' science learning outcomes were still in the low category and need to be improved. It can be concluded that learning that occurs in schools is maximal so that it has a low impact on science learning outcomes. The solution to overcome the problems above is to do concrete and innovative learning, one of which is to use video as the learning medium.

Learning video media are teaching aids or means that contain learning messages. Video is an audio-visual medium and has an element of motion that will attract attention and motivate students in carrying out learning activities (Taqiya et al., 2019; Yuanta, 2019). Video can summarize many events in a long time in a shorter and more precise way, accompanied by pictures and sounds that can be used again and again. Video has the advantage of being able to help understand learning messages more meaningfully without being bound by other teaching materials (Imamah, 2012; Yendrita & Syafitri, 2019). With the motion and animation elements that video has, learning video can attract students' attention longer when compared to other learning media. Another advantage of video learning is that it overcomes the limitations of space and time, can be repeated, the message conveyed in the video is easy to remember, can train students' imagination, and foster student interest in learning (Andriyani & Suniasih, 2021; Febriani, 2017; Utari, 2016). In addition, this learning media also has a weakness; namely, the video is not suitable for topics where the study is detailed regarding a single visual that is involved and a fixed speed so that it cannot always be displayed in groups, some students may be left behind (Krishna et al., 2015; Naharir et al., 2019). Based on the weaknesses, the learning video that must be developed needs to pay attention to the material's characteristics to be used and the characteristics of students. The video learning media in this study will be based on the video scribe application.

Several studies related to learning videos based on the VideoScribe application, such as previous studies, found that products in the form of learning videos assisted by the Sparkol VideoScribe application were suitable to use (Fadillah & Bilda, 2019b). Other studies also state that learning videos can make it easier for students to understand learning materials so that they are feasible to apply (Novita, Sukmanasa, 2019; Sudiarta & Sandra, 2016; Yuniarni et al., 2020). In addition, the VideoScribe learning video is feasible to be applied to elementary school thematic learning (Badariah, 2021; Muskania et al., 2019). Videoscribe learning media can increase the character of tolerance in students (Afifah, 2019). Another study also found that learning videos can make it easier for students to understand learning materials (Pamungkas et al., 2018). There is no in-depth research that focuses on scientific material regarding how the body processes clean air. This study aims to develop a science learning video on how the body processes air using the VideoScribe application for fifth-grade elementary school students. The video developed can be used by teachers as a learning media that can facilitate student learning independently. In addition, this VideoScribe-based learning video can help students understand the subject matter to improve science learning outcomes for elementary school students.

## 2. METHOD

This type of research is development research. The model used as a reference in this learning media development research is the 4-D model, which consists of 4D; defining, designing, developing, and disseminating. The selection of this model has been based on the consideration that this model is straightforward to understand, has a systematic flow, and is very clear. The subjects in this study were one selected subject matter expert, one selected learning design expert, one preferred learning media expert, and two chosen people for individual trials. The VideoScribe development design is presented in figure 1. The techniques used in collecting data in this study were observation, interviews, and questionnaires. Observations and interviews are used to find out the problems that occur in schools. The questionnaire method is carried out by giving several questions to respondents regarding the learning media that will be developed. The instrument used in collecting research data is a questionnaire. The grid of data collection instruments to determine the validity of the developed learning video is presented in Tables 1, 2, and 3.

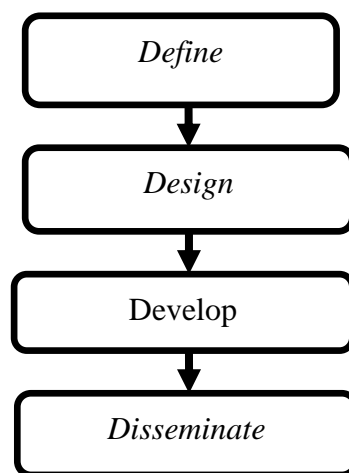


Figure 1. Desain Pengembangan

Table 1. Instrument Grid for Material Expert Test

No.	Aspect	Indicator	Total item	Item number
1	<i>Utility</i>	The use of the learning video to help teachers manage the learning process	1	1
		The use of the learning video to help students understand the learning material	1	2
		The use of the learning video to facilitate teacher and students' interactions in the learning process	1	3
		The efficiency in the use of the learning video	1	4
		The suitability of the learning video with the level of students' development	1	5
2	<i>Feasibility</i>	The ease of using media	1	6
		Attractive colors, backgrounds, images, and animations	1	7
		Shooting accuracy	1	8
3	<i>Accuracy</i>	Voice clarity	1	9
		Text size accuracy	1	10
		The accuracy of the distribution and coherence of the material	1	11
		The suitability of the learning video with learning objectives	1	12
		The accuracy in the use of media with online and offline learning	2	13,14
		The suitability of the learning video with the learning material	1	15

**Table 2.** Instrument Grid for Learning Media Expert Test

No	Aspect	Indicator
1.	Visual quality	1. The attractiveness of the cover 2. The suitability of cover visualization to the content in the media 3. The attractiveness of the graphics displayed 4. The attractiveness of the animation/image shown
2.	Camera angle capture with image composition	The accuracy of the point of view on the video
3.	Voice clarity (Narration, Sound Effects, and Music)	1. Narrator's voice clarity 2. Compatibility with sound effects 3. Regularity with background music
4.	Video presentation suitability	1. The suitability of the video with the characteristics of students 2. The suitability of the video with the purpose of learning 3. The ideal duration with goals
5.	Creative in pouring ideas and creativity	1. The attraction of creativity in delivering messages 2. The flexibility in terms of providing time, place, students, and teaching materials

**Table 3.** Instrument Grid for Learning Design Expert Test

No.	Aspect	Indicator	Total item	Item number
1	<i>Utility</i>	The use of the learning video to help teachers carry out a meaningful learning	1	1
		The use of the learning video to help students understand learning materials	1	2
		The use of the learning video to facilitate teacher and students' interaction in the learning process	1	3
		The use of media with online and offline learning	1	4
		The efficiency in the use of the learning video	1	5
		The suitability of the learning video with students' development level	1	6
2	<i>Feasibility</i>	The ease of using media	1	7
		The attractiveness of the display in the form of colors, backgrounds, images, and animations	1	8
		The ease of language used.	1	9
		Voice clarity	1	10
		The text size accuracy	1	11
3	<i>Accuracy</i>	The learning video design accuracy	1	12
		The accuracy in the distribution and coherence of the material	1	13
		The suitability of the learning video with learning objectives	1	14
		The suitability of the learning video with the learning material	1	15

An instrument can be said to be good if it meets the requirements of content validity. The arranged Instruments can be valid, and content validity tests can be carried out by judges who have mastered the studied variables. The validity of this instrument was tested using the Gregory formula. Data analysis methods and techniques used in this study were qualitative descriptive statistics and quantitative descriptive statistics. Qualitative descriptive statistical analysis is used in processing the results of reviews, suggestions, inputs made by experts or judges on the developed learning media. Quantitative descriptive statistical analysis was used to process data in the form of numbers obtained from the provision of assessment sheets for the developed learning media instruments to learning media experts,

learning design experts, science content experts, and teachers. In making decisions regarding media development, the references in Table 4.

**Table 4.** Conversion of Achievement Levels with a 5 Scale

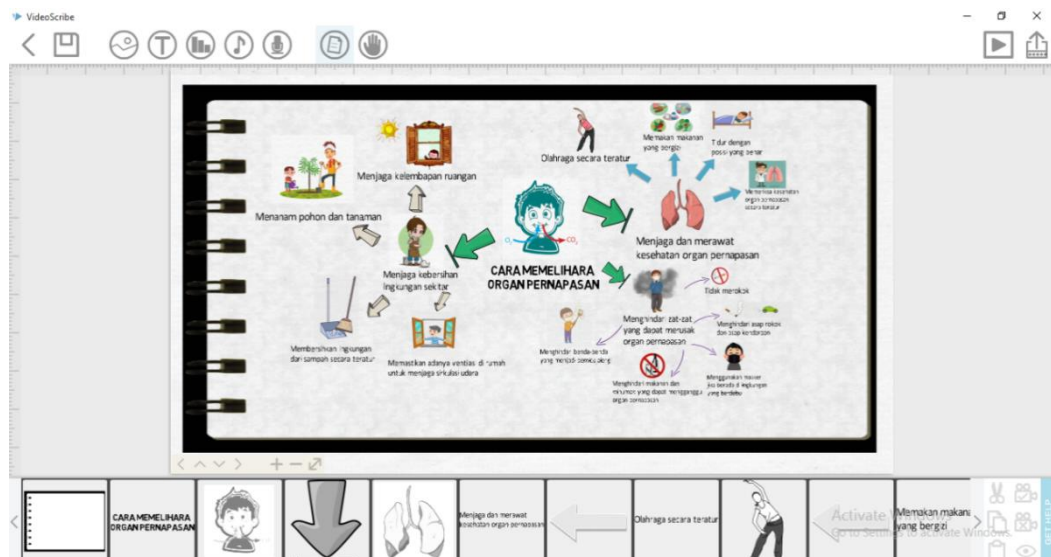
Achievement level (%)	Qualification	Description
90-100	Very good	No need to be revised
75-89	Good	Need to be revised slightly
65-74	Average	Need to be revised sufficiently
55-64	Deficient	Many things need to be revised
0-54	Very deficient	Need to repeat in making the product

(Tegeh & Kirna, 2010)

### 3. RESULT AND DISCUSSION

#### Result

The development of a learning video using the VideoScribe application on how the body processes clean air in fifth-grade Bunutin elementary school students through several procedures: define, design, develop, and disseminate. The first stage, which is defining stage, was carried out by analyzing needs. Based on interviews with fifth-grade teachers at Bunutin Elementary School, it was found that the source of student learning was only through books given at school. Teachers did not provide media to support learning to be less enthusiastic and unmotivated in the learning process. It was a problem that needed to be addressed. The next step was to determine the standard competencies and learning indicators needed to be better understood by students based on the learning needs analysis. The goal is that the developed media can help the teachers teach students according to the demands of competence in learning. The next stage is the designing stage. The thing that must be done is to make a design plan (storyboard) and design the learning video component using the *VideoScribe* application. As for the implementation of the design phase of this learning video's product development began with data collection (material), which was carried out through teacher books and student books, especially on how the body processes clean air. Next is the creation of the Storyboard learning video using the *VideoScribe* application. The storyboard of the learning video on this science content contained a science learning scenario on how the body processes clean air; the storyboard is more clearly presented in figure 1.



**Figure 1.** Designing the topic of How the Body Processes Clean Air.

The next stage is development. At this stage, the parts and layouts that have been designed are then developed, compiled, and combined with learning video media using the Videoscribe application that can be used in the learning process. The learning videos that were developed were then assessed to determine the level of acceptance. The learning video validity test was carried out by four experts

consisting of two lecturers and two teachers. The data processing results using the 2x4 cross-tabulation Gregory formula from 4 experts showed that the learning video with the *VideoScribe* application on how the body processes clean air got a score of 1.00 with a very high product coefficient. Next are some suggestions. Suggestions and the results of the revision can be seen in Table 5.

**Tabel 5.** Suggestions and Revision Results

No.	Comments and Suggestions	Revision
1	Need to add identity for which class	Adding identity for which class in the beginning of the video
2	Need to add the standard competences	Adding the standard competences
3	Need to add indicators of learning in the video	Adding the indicators of learning in the video
4	Need to mention the learning objectives in the video	Mentioning the learning objectives in the video
5	Need to add pictures of land mammals and aquatic mammals	Adding pictures of land mammals and aquatic mammals

## Discussion

Based on the results of each stage of the product testing, it can be concluded that the learning video on the topic of how the body processes clean air for the fifth-grade students in Bunutin Elementary School is feasible to be used as a support during the learning process. **First**, the VideoScribe-based video media got outstanding qualifications and deserved to be applied because the developed media could motivate students in learning. Students need this media because it can facilitate student learning. Good learning media can facilitate student learning to improve student's learning outcomes (Gunawan et al., 2017; Puspitorini et al., 2014; Sunismi, 2015). This learning video is designed to facilitate audio and visual learning so that students who have audio or visual learning styles will be facilitated in learning (Isdayanti, 2020; Paramita et al., 2016; Wiastuti et al., 2014). Good learning media can facilitate all students learning styles so that it is easier for students to understand the material presented in the media. The development of learning video is feasible to use in terms of aspects of material presentation, attracting students' learning interest, increasing students' attention, motivating, and voice clarity. In addition, from accuracy, clarity of method, interest or attention, and impact on students (Asnur & Ambiyar, 2018; Muskania et al., 2019; Sarnoko et al., 2016). It is following the theory which states that learning media is everything that is used to channel messages from senders and recipients so that they can stimulate students' thoughts, concerns, feelings and interests (Asnur & Ambiyar, 2018; Kurniawan et al., 2017; Tegeh et al., 2019). Some of the factors that influence students' learning outcomes come from outside, such as the use of tools in teaching and learning activities.

**Second**, VideoScribe-based video media gets outstanding qualifications and is feasible because the media makes it easier for students to understand the subject matter. In terms of visual quality, voice clarity, video presentation suitability, and the use of creative ideas are very good, making it easier for students to understand the material presented in the video (Christian & Ariani, 2018; Imamah, 2012; Rose et al., 2016). In addition, the material presented in this learning video is under the learning objectives, and the examples provided in the video media support the clarity of the material, making it easier for students to understand the subject matter (Muskania et al., 2019; Taqiya et al., 2019). **Third**, VideoScribe-based video media get outstanding qualifications and deserve to be applied because the media developed can improve the learning experience for students. Sparkol VideoScribe can increase students' enthusiasm for learning because this learning media can provide a fun and efficient learning experience (Silmi & Rachmadyanti, 2018; Sutrisno et al., 2013). The developed learning video contains the stages of the flow, namely the cover, the title of the learning video, the name of the video maker, the standard competencies and indicators of achievement of the learning video competence, the storyline of the learning video used to make it easier for students to learn. Another study also states that students enjoy the learning process more that involves media and components of images, colours and motion (Rose et al., 2016; Wuryanti, 2016). Based on this, the video was developed by combining several components to produce learning media that can attract interest in learning and add to the learning experience for students. The advantages of this Videoscribe-based video media are that this video can display abstract learning materials into concrete, the video media developed can reach large numbers of students in one viewing and can make students learn independently with their visual and audio skills by each student.

The findings of previous studies regarding learning videos also stated that videos could increase students' enthusiasm in learning (Fadillah & Bilda, 2019; Widiyasanti & Ayriza, 2018). Other relevant study also states that learning videos can make it easier for students to understand learning materials so

that they are feasible to apply in the learning process (Novita, Sukmanasa, 2019; Sudiarta & Sandra, 2016; Yuniarni et al., 2020). In addition, the VideoScribe learning media is feasible to be applied to elementary school thematic learning (Badariah, 2021; Muskania et al., 2019). Videoscribe learning media can increase the character of tolerance in students (Afifah, 2019). Then other study findings stated that the learning videos developed were categorized as good and feasible according to the assessment of experts (Pamungkas et al., 2018). It can be concluded that learning video media can help students in learning. The implication of this study is that the media that has been developed in the form of VideoScribe-based video media can be used by teachers as student learning facilities. The developed video can also make it easier for students to understand the learning material so that it has an impact on increasing students' learning outcomes.

#### 4. CONCLUSION

Based on the results of data analysis, the media that has been developed, namely VideoScribe-based learning videos, get a very high category. It can be concluded that the VideoScribe-based learning media is feasible to use in the learning process because it can help students understand the material on how the body processes clean air efficiently.

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