



Enabling Students' Active Participation to Learn Human Digestive System with Learning Videos

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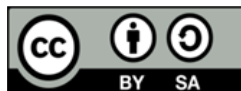
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ABSTRAK

Kurangnya pemanfaatan media pembelajaran oleh gurudalam pembelajaran daring membuat pelaksanaan pembelajaran aring terkesan monoton sehingga membuat siswa tidak termotivasi dalam mengikuti pembelajaran. Penelitian ini bertujuan untuk menghasilkan prototype media video pembelajaran IPA pada topik sistem pencernaan manusia Kelas V SD yang teruji validitasnya. Model pengembangan yang digunakan pada penelitian ini adalah model ADDIE. Subjek pada penelitian ini adalah ahli yang terdiri atas 2 ahli media, dan 2 ahli materi, serta 9 orang siswa yang terdiri atas 3 orang siswa uji perseorangan dan 6 orang siswa uji kelompok kecil. Metode pengumpulan data pada penelitian ini adalah metode kuesioner/angket untuk mengukur validitas media video pembelajaran. Data dianalisis secara deskripsi dengan menghitung mean untuk mengetahui skor rata-rata validitas media video pembelajaran. Penelitian ini menghasilkan prototype media video pembelajaran yang telah dinyatakan valid berdasarkan penilaian yang dilakukan oleh ahli desain, ahli materi, ahli media, uji perorangan, dan uji kelompok kecil dengan rata-rata berdada pada rentang $3,25 < X < 4,00$ dengan kualifikasi sangat baik. Berdasarkan hasil tersebut, maka media video pembelajaran dinyatakan layak digunakan dalam pembelajaran IPA khususnya pada topik sistem pencernaan manusia kelas V SD.

ABSTRACT

Teachers' lack of use of learning media in online learning makes online learning seem monotonous so that students are not motivated to take part in learning. This study aims to produce a science learning video media prototype on the human digestive system in fifth-grade elementary school tested for validity. The development model used in this study is the ADDIE model. This study consisted of two media experts and two material experts, nine students, three individual test students, and six small group test students. The data collection method in this study was a questionnaire/questionnaire method to measure the validity of the learning video media. The data were analyzed descriptively by calculating the mean to find out the average score of the validity of the learning video media. This research resulted in a prototype of instructional video media that has been declared valid based on assessments made by design experts, materials experts, media experts, individual tests, and small group tests with an average of $3.25 < X < 4.00$ with qualifications very good. Based on these results, the learning video media is declared suitable for science learning, especially on the human digestive system in fifth-grade elementary school.

1. INTRODUCTION

Online learning is a learning system carried out with the help of technology and internet networks (Chang et al., 2021; Rigianti, 2020). In the current situation where there is a covid 19 pandemic that makes online learning must be carried out (Jogezai et al., 2021; Purwanto et al., 2020). Changes in the learning process require teachers to prepare and implement learning in any condition (Ayuni et al., 2020; Wahyono et al., 2020). In online learning, teachers must carry out online learning following face-to-face learning or offline learning (Syarifudin, 2020). In addition, students' implementation of online learning is less liked because they feel they will understand the material better if they are taught directly by the

teacher (Mustakim, 2020). The teacher must design online learning to achieve the same learning objectives as face-to-face learning and attract students' interest in online learning. Online learning that can answer the goals and problems that have been mentioned, online learning requires learning media (Elianur, 2020). In general, learning media can be interpreted as an object or tool used to help explain the material and help students understand the learning material (Kurniawati & Nita, 2018; Saputra et al., 2018). The purpose of the learning media is to help teachers deliver learning materials, and students understand learning materials (Putri, 2017). Online learning media is expected to have a big impact on students so that students are motivated and can make it easier for them to understand the material (Bahasoan et al., 2020; Kuswanto & Radiansah, 2018). From the impact of learning media in online learning, online learning needs the help of learning media to make students motivated and make it easier for students to understand the material. Thus, teachers need to use learning media in online learning.

However, most teachers do online learning without learning media (Munirah, Alim Bahri, 2019; Syahputra & Maulida, 2019). Based on field observations, the same results were obtained, where teachers in implementing online learning did not use media in learning. In online learning, most teachers only use handbooks in carrying out learning. It is caused by the lack of teacher ability in designing effective learning media to be used in online learning. It will have an impact on the achievement of learning objectives (Robi'in & Pujiyono, 2019). Based on the observations, teachers who do not use media in online learning make students less enthusiastic or less motivated to participate in learning. Learning that only uses books will make students feel bored (Panjaitan et al., 2020), so it is necessary to develop learning media to increase students' motivation and interest in learning (Sirait & Apriyani, 2021). Learning media development in online learning will make the online learning process more interesting to impact students (Dewi, 2017). The lack of media utilization resulting from the lack of teacher ability in designing media so that students are less enthusiastic in online learning is the need to develop media that can be used in online learning (Nurhayati, 2020). Online learning media can usually be accessed via mobile phones and utilize websites for their use (Elianur, 2020). The learning media in online learning is hoped to help students participate in learning (Anugrahana, 2020). Based on this, the learning media that can be used in online learning and can help students participate in online learning is multimedia media (Lestari, 2020). One example of multimedia learning media is video learning media (Imamah, 2012). Video media can display material in images or animations and is equipped with audio to complement what is delivered in the video (Fadhli, 2015). One type of video that can be used in learning is the learning video media.

Learning video media is one type of audiovisual media that can display material in animation and is added with audio to explain the material (Gusliati et al., 2019; Luhulima et al., 2017). Video media that is able to display moving images and sound is a special attraction, because students are able to absorb messages or information using more than one sense (Setyasto & Wijayama, 2017). Learning video media can provide more effective information to students about the material provided, without the limitations of space and time and can be seen and heard more clearly by students (Muliani & Wibawa, 2019; Yuniarni et al., 2019). Learning video media has enormous benefits in achieving learning objectives (Permatasari et al., 2019) because learning video media can help describe learning materials or abstract concepts in learning (Pamungkas et al., 2018). The existence of video media can improve student learning outcomes (Ambara et al., 2018; Fatmawati et al., 2018; Wisada et al., 2019; Yunita & Wijayanti, 2017), can improve writing skills (Ranabumi et al., 2017). So, the existence of learning video media has a positive impact on learning. There have been many studies on learning videos that have been carried out, such as research which states that the video media developed is effective in being used in the learning process so that it has an impact on the achievement of learning objectives (Yuanta, 2017). The research states that the development of video media can increase student motivation (Agustini & Ngarti, 2020). Based on this, it can be believed that learning video media can answer the above problems. This research is very important because learning videos containing interesting animations can increase students' curiosity about the teacher's videos. Learning videos developed with a PowerPoint contain science content material on the fifth-grade human digestive system in elementary school, which consists of the parts of the human digestive system, the functions of the parts of the human digestive system, and the human digestive system process. This development research is expected to benefit teachers in determining good online learning media and for students to understand the material in online learning. This development research aims to produce a science learning video media prototype on the human digestive system for fifth-grade elementary school, which has good validity. With this science learning video media prototype, students will not feel bored learning video media containing text, animation, pictures, and videos. In addition, the existence of a prototype of science learning video media can help teachers convey material in learning better and interestingly to students.

2. METHOD

This development research used the ADDIE model (Analyze, Design, Development, Implementation, Evaluation) (Ismail et al., 2018). This model was based on the consideration that this model was developed systematically and based on the theoretical foundation of learning design. This model is structured programmatically with systematic sequences of activities to solve learning problems related to learning resources that follow the needs and characteristics of learning. The subjects of this development research were two media experts and two material experts, nine students, three individual test students, and six small group test students. The data collection method used in this development research is the questionnaire method. This method is done by providing written statements or questions to be answered by the respondent. The answers given are also accompanied by suggestions and input from the respondents. The data collection instrument used in this study was a questionnaire. Questionnaires were used to assess the validity of the developed learning video media. In this study, a questionnaire was used to collect review data from content experts in study or subjects, learning media experts, learning design experts, students during individual and small group trials (Agung, 2017). The assessment instrument was used to test the validity of the developed learning video media. Media assessment refers to aspects of validity that include format, content, language, practicality, and effectiveness (Yamasari, 2010). The five aspects are made in the form of an instrument based on the criteria for each aspect: (1) the criteria for the format aspect include color, writing, letters, and layout; (2) the criteria for content aspects include the suitability of the material with the indicators, the ability of the media to explain the material, the completeness of the material, and the attractiveness of the material in the media; (3) the criteria for language aspects include language use, language standards, sentence effectiveness, and word use; (4) criteria for practical aspects related to the use of media; and (5) the criteria for effective aspects are also related to the use of media. The following is a grid of assessment instruments used in this study.

Table 1. Design expert instrument

Aspect	Indicator
Media	The suitability of the video with the characteristics of students The suitability of the title with the learning video Goal clarity Clarity of the material with instructional videos
Competence	Learning objectives according to the ABCD format The suitability of learning objectives with learning indicators
Method	The suitability of perception/illustration with the material Clarity of included cases/events
Material	The accuracy of the presentation of the material Facilitate students' understanding of the material Increase students' attention to learning Videos motivate students' interest in learning
Evaluation	The suitability of the questions presented is following the material presented

Table 2. Material Expert Instrument

Aspect	Indicator
Material	Clarity of learning materials Learning videos with learning objectives according to the indicators The learning objectives are following the ABCD format The suitability of learning videos with learning materials The accuracy of the distribution and coherence of the material Clarity of cases/events included
language	Language compatibility with Indonesian rules The sentences used are easy to understand The communicative nature of the language used Language level with student's cognitive

Table 3. Media Expert Instruments

Aspect	Indicator
Visual	Image clarity Image layout suitability Attractive colors, backgrounds, images, and animations Image motion speed
Audio	Lighting accuracy Narrative voice clarity Clarity of intonation Compatibility of background music or background
Typography	Text type selection Text size accuracy
Presentation	Interesting Time duration Clarity of material flow

Table 4. Learning Video Instruments Individual Test and Small Group Test

Aspect	Indicator
Media	The suitability of the video with the characteristics of students The suitability of the title with the learning video Design clarity
Competence	Clarity of material discussion with learning videos Learning objectives according to the ABCD format The suitability of learning objectives with learning indicators
Method	The suitability of perception/illustration with the material Clarity of included cases/events
Material	The accuracy of the presentation of the material Facilitate students' understanding of the material Increase students' attention to learning Videos motivate students' interest in learning
Material Assessment	The suitability of the questions presented is following the material presented Clarity of learning materials
language	Learning videos with learning objectives according to the indicators The learning objectives are following the ABCD format The suitability of learning videos with learning materials The accuracy of the distribution and coherence of the material Clarity of cases/events included
Visual	Language compatibility with Indonesian rules The sentences used are easy to understand and understand The communicative nature of the language used Language level with student's cognitive
Audio	Image clarity Image layout suitability Attractive colors, backgrounds, images, and animations Image motion speed Lighting accuracy Narrative voice clarity
Typography	Clarity of intonation Compatibility of background music or background Text type selection Text size accuracy
Media	Interesting Time duration Clarity of material flow

The instrument compiled is tested for its content validity to determine the feasibility of the instrument used. The content validity test of the instrument is carried out through expert judgments or

people who are experts in their fields. The content validity test was carried out using the Gregory formula. To determine the coefficient of content validity, the assessments from the two experts on the learning video media instrument used 2 x 2 cross-tabulation consist of columns A, B, C, and D used. After calculating the content validity using the Gregory formula. It obtained a content validity score that reflects the entire item of the instrument. The instrument validation criteria are presented in the following table.

Table 5 Instrument Validation Criteria

Coefficient	Validity
0,80–1,00	Very high content validity
0,60–0,79	High content validity
0,40–0,59	Medium content validity
0,20–0,39	Low content validity
0,00–0,19	Content validity is very low

The instruments that have been compiled tested for reliability to determine if an instrument is used repeatedly to measure the same thing. The results are relatively consistent. To calculate the percentage of agreements between the two raters whose data is only “yes” or “no”, the formula proposed by Borich is used (Apriani et al., 2020). After obtaining the instrument’s reliability, the reliability test results are converted to the standard percentage agreement table. The criteria for the degree of reliability can be seen in the following table.

Table 6. Instrument Reliability Criteria

Agreement Percentage %	Reliability Standard
R > 75 %	Very good
40% < R < 75%	Good
R < 40%	Less

This development research's data analysis methods and techniques are qualitative descriptive statistical analysis techniques and quantitative descriptive statistical analysis. Qualitative descriptive statistical analysis methods are input, responses, suggestions, and criticism from experts in the questionnaire. Qualitative descriptive statistical analysis was used to process data from the results of assessors or reviews from experts on learning video media developed by providing a learning video assessment sheet. The results of the expert review were analyzed by classifying qualitative data. The quantitative analysis method was used to describe the average score of each media and science learning expert related to the learning media developed in this study. The average score obtained is converted using a five-scale conversion guideline to determine the validity of the developed learning video media. The five-scale conversion guidelines used can be seen in the table.

Table 7. Five-scale Conversion Guidelines

Score range	Classification/Predicate
3,25 < \bar{x} < 4,00	Very good
2,75 < \bar{x} < 3,25	Good
2,25 < \bar{x} < 2,75	Enough
1,75 < \bar{x} < 2,25	Bad
1,00 < \bar{x} < 1,75	Very Bad

3. RESULT AND DISCUSSION

Result

The analysis phase (analyze) of the activities carried out is observations made to determine the needs or problems teachers and students face during the teaching and learning process. At this stage, an analysis of student characteristics was carried out. In online learning, students were less enthusiastic, and students had difficulty understanding learning materials caused by the inability of teachers to prepare learning media so that learning media were needed. At this stage, competency analysis is also carried out to determine the competency achievements that students must achieve after learning. In the analysis stage competency, it is known that two basic competency points must be achieved in the human digestive system. They explain the function of the digestive organs and their functions in humans and present

works on the concept of organs and functions of the human digestive system. At the analysis stage, an analysis of facilities and facilities was also carried out, which was intended to determine the supporting facilities used in the learning process using instructional video media, which was carried out using observation and interviews with fifth-grade teachers. Based on observations, schools have facilities, whiteboard boards in each class, one projector, 1 LCD.

The planning stage (design) is carried out to make a prototype (design) of learning video media. Several stages are carried out at this stage, determining basic competencies and indicators of competency achievement, aiming to find out the material to be included in the learning video. The results obtained from the curriculum analysis become a benchmark in determining the basic competencies and indicators of competency achievement in this development research. Based on the analysis results, learning video media will be developed by containing science material, the human digestive system, with material coverage of the human digestive system's concept of organs and functions. The next stage is to design the learning video content by making a storyboard to make it easier to understand the flow of the material explained in the learning video that will be developed. At this stage, lesson plans are also made to direct learning activities to students by using learning video media. With the Lesson Plan, the learning steps will be arranged systematically. At this stage, a product will be produced in the form of a learning video. Product creation is done by collecting materials in making learning videos, for example, downloading pictures, recording sounds, animations of numbers and students, and background images on each slide.

Furthermore, the background image on each slide is developed through Microsoft PowerPoint. One person does a voice-over with the help of a voice recorder using a mobile phone. All the materials that have been collected are combined through Microsoft PowerPoint. At this stage, the preparation of the learning video assessment instrument was also carried out. After the design is complete, consult with the supervisor to obtain comments to improve the design. The learning video assessment instrument is tested for content validity and reliability. The results obtained in the instrument content validity test have a coefficient of 0.82 with a very high content validity category. The results of the instrument reliability test showed that the instrument design experts obtained 87% results, the media expert instruments obtained 81% results, the material expert instruments obtained 83% results, and individual and small group test instruments obtained 84% results. The following are the results of the development of learning media that have been carried out. The results of the development of learning media that have been carried out are shown in Figures 2, 3, 4, 5 and 6.



Figure 2. Initial view of the learning video



Figure 3. Display of subject matter



Figure 4. Display of learning objectives

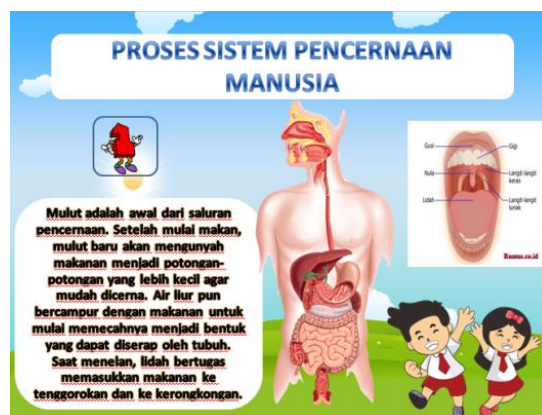


Figure 5. Material display



Figure 6. cover display

The development stage is the last in this research. At this stage, the product that has been made is guided by a supervisor. It tested the validity of the learning video media to determine the validity of the developed media. Experts carried out the product trials, two learning design experts, two material experts, two learning media experts, and nine students for individual and small group tests. The results of the validity of the design experts obtained an average score of 3.58 with very good qualifications. The validity of the meter expert obtained an average score of 3.80 with very good qualifications. The validity of the media experts obtained an average score of 3.73 with very good qualifications. The validity of the individual test results obtained an average score of 3.96 with very good qualifications. The results of the validity of the small group test obtained an average score of 3.85 with very good qualifications.

Discussion

The product produced in this development research is a learning video media. Learning video media is developed by following the stages of the ADDIE development model. The resulting learning video media has been declared valid based on the assessment results by experts, including media experts, design experts, material experts, and individual and small group test students. The learning video media developed considers several things: (1) the type of material to be presented, (2) the duration of time, which is associated with students' memory and concentration abilities, which is limited to 15-20 minutes, (3) the format of the video presentation, (4) technical provisions both from camera effects, shooting, lighting techniques, editing, and sound, communicative and interesting presentations, (5) use of music and sound effects (Cheppy, 2017). They were conducted by observation at the analysis stage to determine the needs, characteristics of students, competencies, and good media. The problem is that there is a lack of learning media in learning, which causes students to be less interested in participating in learning. It is difficult to understand the subject matter. Less media use can result in monotonous learning, so students are less motivated (Oktavia & Agustin, 2019; Puspitarini et al., 2019). The lack of learning media will also impact the learning process, which becomes ineffective (Maulah et al., 2020; Wahyuningsih, 2016). Thus, the lack of learning media will impact the learning process that is less effective and on students who are less motivated to participate in learning. In addition, at this stage, it is known that the availability of facilities and infrastructure in schools is quite adequate when using instructional media such as videos in the learning process. Students are less enthusiastic about online learning because the teacher only provides material without explanation (Onanuga et al., 2021; Utomo et al., 2019). The results obtained are used as a reference in this development research and used in designing media.

The next stage is planning, which is the media design stage based on the analysis results. The development of learning videos is carried out with the help of storyboards. In storyboards, learning videos are developed using pictures that can attract students' interest. Using images that can attract students' interest, the developed video media will answer the problems found at the analysis stage, the students' lack of interest in learning. (Istuningsih et al., 2018; Saputri et al., 2018). In addition, the learning video media is designed using PowerPoint. The use of PowerPoint is because the application has ease of use. At the development stage, it is known that the learning videos that have been developed can be declared suitable for use, especially in science learning on the topic of the human digestive system. The feasibility of the developed learning video can be seen from the development process that adapts to the characteristics of elementary school students. The use of learning media that follows the characteristics of students in learning can help students understand abstract material and improve student learning outcomes and achievements (Ekayani, 2017; Novita et al., 2019). It is in line with Piaget's theory, which states that

elementary school children are at a concrete operational stage, indicating that children will understand if they are taught concrete or real objects (AD, 2018; Bujuri, 2018). Concrete objects that can be used are learning video media that have been developed. The feasibility of the learning video media developed can also be seen from the visual and audio aspects presented by the learning video. The learning video media displays animations that can be interesting and make students feel happy in learning (Alannasir, 2016; Wahyuni et al., 2018). It will also impact increasing student interest in learning to impact student learning outcomes, which can increase (Hakim & Windayana, 2016; Kartika et al., 2019). The learning video that was developed contains audio that can clarify the content of the material described in the video and contains music that can make the student's learning atmosphere less tense or more relaxed. With the help of material explanations through audio presented in learning videos, it can make it easier for students to understand the material's content (Novita & Novianty, 2020; Yusantika et al., 2018). In addition, the presence of music in learning that can contain the feeling of learning to be relaxed will have an impact on students who do not feel pressured to participate in learning so that the expected learning outcomes can be achieved properly (Arta et al., 2020; Santoso, 2018).

The results obtained are relevant to other research results which state that the use of instructional video media will make learning effective because learning videos are equipped with visualization effects that students like and audio that can help students understand the content of the video (Nanda et al., 2017; Tafonao, 2018). The learning video media developed can increase students' interest in learning and make students feel happy in participating in learning by using learning videos (Arif et al., 2019). Using learning video media in learning can improve student learning outcomes (Suryansah & Suwarjo, 2016). Thus, learning video media is a good solution to the lack of student motivation in learning and online learning less effective. Using instructional video media that has been declared suitable for use in learning can make learning effective. The learning video media displays animations that can be interesting and make students feel happy in learning. This research implies that teachers can use the media in helping to add insight into learning on the human digestive system that can be used flexibly. Learning video media can be used on smartphones, laptops, and computers at home or school (Sufirmansyah et al., 2021). The use of learning video media does not only affect the teacher but also affects the students. Using this media in the learning process, students will not feel bored because the learning video media contains text, animation, pictures, and videos. Therefore, a fun learning process with the help of interesting media will have implications for students' results, interest, and motivation in learning (Mills et al., 2019).

Based on the relevant results obtained and relevant research results, the learning video media developed has many advantages. The advantage of learning video media that has been developed is that learning video media can provide a new learning experience for students because the material from the teacher can be explained directly. Using videos will make it easier for students to understand the material because it can be delivered directly. Students can replay it to understand the material more clearly (Xu & Zhou, 2020). In addition, the advantages of developing instructional video media have animations that students like. Having these animations will make students interested in participating in learning (Delil, 2017). Besides, there is a weakness in this study. The material presented in this learning video media is limited to science content with the fifth-grade human digestive system. Based on this, it is hoped that the same research will develop learning video media but with a wider scope of material.

4. CONCLUSION

This development research produces learning video media products that have been declared valid based on assessments by experts, including media experts, design experts, material experts, and individual and small group test students. The learning video developed can be declared suitable for use, especially in learning science on the human digestive system.

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