

Development of Video Tutorial Practicum of Human Blood Circulation to Support Biological Learning in The Covid-19 Pandemic Time

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Development of Video Tutorial Practicum of Human Blood Circulation to Support Biological Learning in The Covid-19 Pandemic Time

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Abstract

Developing Practicum Tutorial Video For High School Students On The Human Blood Circulation In The Eleventh Graders Of Science Class To Support Biology Learning In The Covid-19 Pandemic Time. The government requires educators to use technol¹²-based e-learning such as a practicum tutorial video for students. The purpose of this study was to d¹⁵op a tutorial video for a practicum on human blood circulation material for high school students in the eleventh grade of IPA class in order to support Biology learning during the Covid-19 pandemic. This was a research and development using the ADDIE model having five stages, namely: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. The instrument of the study used a ¹⁵stionnaire and test. The questionnaire was used as the measurement of learning media in the form of a tutorial video, and the test was used as a cognitive (knowledge) measurement. Based on the results, the video tutorial practicum had a good score of 3 tested by media and mate⁴¹ experts, a score of 3.66 in the very good category assessed by the teachers, an average score of 2.96 with the results in the good category assessed by the students. Thus, the developed practicum tutorial video is feasible as the learning medium on human blood circulation material for practicum activity during the Covid-19 pandemic.

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INTRODUCTION

Nowadays, the Indonesian government requires teachers and students to be able to quickly adapt to changing technological developments. The developments can surely bring an impact that can be felt in every aspect of human life. Education aspect is one aspect of life that has been affected (Dewi A. A., 2018). The educational aspect will greatly facilitate learning. Therefore, learning through the use of technology using computers / devices, Smartphone and the internet will provide independent learning. This learning are known as e⁴³arning (Elvarita, Iriani, & Handoyo, 2020). E-learning is learning that is carried out without face-to-face among students and teachers. The existence of e-learning learning will greatly help remote learning activities which generally only occur when a teacher gives an assignment. However, currently teachers and students have to keep their distance because of the Corona virus (Covid-19) which is spreading through the air. Therefore, remote learning will be a solution for providing effective learning (Kosasih, 2015).

The Covid-19 pandemic has caused the changes of continuity of education, for example the short-term impact that take place in cities and in villages. Learning at home can especially disrupt the productivity of parents. The Minister of Education and Culture has decided that all learning activities both at school and at college should be carried out at home. The Minister of

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Education issued circular letter number 3 of 2020 concerning the prevention of Corona Virus Disease (Covid-19), stating that schools and colleges were closed (Kemendikbud, 2020). The existence of remote learning is an option to provide effective learning with technological media (Yuliani, Adriadi, & Safitri, 2020) Technology media can be in the form of an animation, video links to social networks, such as Face book, Twitter, YouTube, Google Classroom, and so on (Noesgaard, Signe, & Orngreen, 2013). This process is a learning tool policy as an effort to increase knowledge and skills for students (Aji, 2020)

According to (Harlen, 2002) it is stated that the essence of learning is how teachers provide teaching in accordance with the nature of learning. This is relevant to the opinion of (Tomo, 2003) stating that teachers' understanding is a process of learning outcomes. The process of learning science in schools is vital and is expected to have the potential to make a relative contribution to the process and outcomes of learning science in schools. (Carin, 1997) states that science (biology) essentially contains 4 elements, namely: processes (scientific processes), products (scientific knowledge), attitudes (scientific attitudes), and technology. Therefore mastery of science is very important. SAIP or Science a Process Approach states that a scientific process-oriented learning approach involves intellectual, manual, and social skills. These skills are science process skills KPS. KPS includes a series of manual activities (hands on) such as: observation, classification, measurement, calculation, prediction, communication, question, inference, variables controls, problem formulation, hypotheses, design experiments, conducting investigations / experiments (Rustaman, 2005).

Science learning cannot be separated from practicum activities that teach students through investigative observation of a problem. The learning system was originally based on face-to-face in the classroom, but it can be replaced with a learning system that is integrated through the internet network (Molinda, 2005). According to (Mulyati, 2003) Biology learning tends to: a. Biology concepts taught to students must be relevant and useful for students to live in society and to continue to college. b. Mastery of the concept of biology is achieved by a process approach so that teaching is more determined by the process not by the product. Meanwhile, Biology itself has unique characteristics so that in its learning it requires certain learning techniques. The learning material of blood circulation is the selected learning material which becomes one of the creation of indirect learning media. The circulation system functions to transport oxygen and nutrients throughout the body, to transport metabolic waste to the excretory organs, and to regulate body temperature. The material provided is in the form of material from each sub-material of blood circulation including: blood cell type, counting red blood cell, testing ABO blood type, blood pressure and pulse frequency which are divided into each learning media.

One of the indirect learning media used is the video tutorial media practicum. According to (Riyana, 2007), the video tutorial for practicum is a series of live images containing learning messages displayed by a teacher. This learning allows students understand the learning material. According to (Smaldino, Lowther, & Russell, 2011), there are some advantages of learning practicum video tutorials such as to add students' cognitive, affective, motoric, and interpersonal skills. Learning through these media help students re-design or discover the steps starting from observations that have never been done. According to (Aryani, Alifia, & Gundo, 2014), they state that there is an increase in cognitive, psychomotor abilities and students' learning activities in each cycle by using the instructional video tutorial media. (Istiqomah & Redjeki, 2016) state that the learning achievement of students taught using video tutorial media are better than students taught without using video tutorial media, namely with a score range of 75-89 with a high category.

Based on this fact, effective learning needs to be applied to students in order to improve student competence during the Covid-19 pandemic. During the covid-19 period according (Khusnah, 2020) that practicum cannot run optimally as face-to-face learning. So that the

formulation of the problem in this study is how to develop video tutorials for class XI students in science class to support biology learning during the Covid-19 pandemic.

METHODS

The research was conducted in the form of the development of instructional media using video tutorials. Research results are expected in the form of practicum video tutorials that can help students to easily understand the concept of learning science. The science learning is about human blood circulation with sub material consisting of Blood Cell Types, Counting the number of red blood cells, testing ABO blood type, Blood Pressure, and Pulse Frequency in the form of practicum video tutorials conducted in the eleventh grade of science class.

This study is a type of Research and Development (R&D), which aims to develop a new product or to improve an existing product. (Ali, 2012), suggests that the term product can be interpreted as hardware or software, such as interactive learning models, guidance models and so on. Educational development research includes the development process, product validation, and product testing. Through development research, researchers seek to develop a product that is effectively used in learning. The experimental design used in this study is a quasi experimental design using the one group pretest-posttest design method with a pretest-posttest plan. The method used was a pre-experimental research method with one group pretest-post-test design. Research using this design requires only one group without a comparison group during the implementation of the research. "Through this research design, treatment results can be known more accurately and researchers can compare the results of treatment with the conditions before being treated" (Sugiyono, 2012).

This research activity was carried out in the odd semester of the 2020/2021 academic year, from August to December 2020. This is done because it is in accordance with the material to be taught. This research was carried out at SMA Islam Ta'alumul Huda Bumiayu. This school is selected because it is relatively close to the researcher's house. In addition, this place has met the requirements for research on the development of learning media. The population in this study was all students of SMA Islam Ta'alumul Huda, Bumiayu Regency. The sampling technique used purposive sampling. Purposive sampling technique is the sampling based on the objectives and direct considerations of the researcher. In purposive sampling, the groups were selected based on previously known as characteristics of the population. This technique is used to achieve certain goals in accordance with the interests and considerations of the researcher. The samples in this study were class XI IPA 1 as the experimental class and class XI IPA 2 as the control class.

The validation Design of this research product went through several stages, namely: The supervisor approved initial product, then expert lecturers and media expert lecturers validated it, and finally they gave comments and suggestions. Then, these are used for revision I. Then, the results of revision I were validated back by material expert lecturers and learning resource expert lecturers. It was done to get feasible results to be tested on users, namely Biology teachers as learning practitioners and students of grade XI of high school. Data from material experts, learning resource experts, biology teachers and students were then processed to obtain information about the weaknesses of this learning resources of educational practicum tutorial videos so that they can be revised again to be a better learning resource and feasible for use in learning biology.

Validators and Trial Subjects Validators in this study were material experts and learning resource experts on biology. While the trial subjects in this study were biology teachers as practitioners of biology learning and students of the eleventh graders of science class Subject were selected on since the school applies the 2013 curriculum and has computer laboratory facilities. According to (Lufri, 2017) the learning media produced in this study are in the form of video tutorial development for practicum for the eleventh graders of science class. This research procedure adapts the ADDIE development model by Dick and Carry. This development model consists of five stages including analysis, design, development,

implementation, and evaluation that have been previously described. However, this research is limited to the implementation stage only. Researchers modify the development model according to the needs (Endang, 2013). Based on the source, the following five stages must be carried out in the ADDIE development model research:

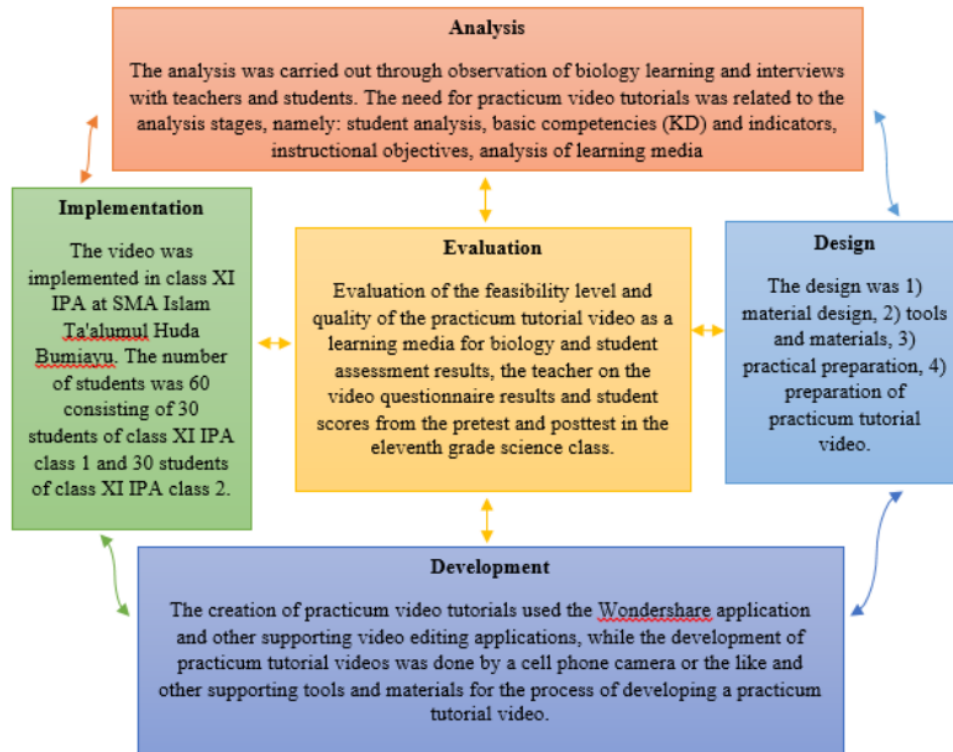


Figure 1 ADDIE Model Chart (Molenda & Januszewski, 2008)

The steps of the data analysis are as follows:

1. Changing the results of the qualitative questionnaire to be quantitative with a Likert scale (four scales).
2. Determining the average score on each statement item based on the assessment criteria guidelines as follows:

Table 1 Guideline for Assessment Criteria for Practicum tutorial videos

Interval Score	Criteria
$Mi + 1,5 Sbi < X$	Very Good
$Mi + 1,5 Sbi < X \leq Mi + 1,5 Sbi$	Good
$Mi - 1,5 Sbi < X \leq Mi + 1,5 Sbi$	Fair
$Mi - 1,5 Sbi < X \leq Mi + 1,5 Sbi$	Deficient
$X \leq Mi - 1,5 Sbi$	Poor

Source: (Risnani & Adita, 2018)

Information ¹⁰

X: mean of actual score

Mi: ideal mean

Sbi: ideal standard deviation

Mi: $\frac{1}{2} \times$ (highest ideal score + lowest ideal score)

Sbi: $1/6 \times (\text{highest ideal score} - \text{lowest ideal score})$

Furthermore, data analysis tests were needed to find out the effect of practicum tutorial videos as learning media of Biology on Human Blood Circulation obtained from students' learning achievement. Thus the data obtained from the results of student learning were analyzed using N-Gain test using the following formula:

$$N - \text{Gain} = \frac{\text{score PostTest} - \text{Score PreTest}}{\text{Score Maksimal Ideal} - \text{Score PreTest}} \dots\dots (\text{Masykur, 2020})$$

Based on this formula, the assessment category used as a guideline for the N-Gain index value is:

Table 2 Category Guidelines for N-Gain Assessment

Index Value	Category
N-Gain > 0,70	High
0,30 < N-Gain ≤ 0,70	Medium
N-Gain ≤ 0,30	Low

Source: (Dewi, Suryantara, Abdurrahman, & Ertikanto, 2017)

RESULTS AND DISCUSSION

The Practicum Tutorial Video is a learning media designed to deliver practicum material easier since it cannot be implemented to the Covid-19 pandemic. The video tutorial for practicum becomes a learning medium for students in the eleventh graders of science class to make them easier to understand the material, especially in the material of human blood circulation. The results of using learning media based on practicum tutorial videos implemented through the ADDIE model can be described as follows:

1. Analyze

a. Students' Analysis

Students at Ta'alumul Huda Bumiayu Islamic High School have been already accustomed to using information technology-based equipment as a learning tool. This is also supported by the availability of Wi-Fi and computers as a means to support students' learning. The results of direct interviews with students showed that students were accustomed to using smart phones and laptops not only to learn but also to watch videos and films. It is also known that during the last times, the learning related to practicum only used Microsoft PowerPoint media and material through share links via Whatsapp meaning that no one has not used the learning through technology media for practicum.

b. Analysis of KD and Indicators

Basic Competency (KD) and indicators developed for creating practicum tutorial videos are based on KD 4.6 syllabus of Biology subjects on human blood circulation material for eleventh grade of science class. The development of learning indicators is carried out to achieve learning objectives in accordance with KD, namely:

c. Instructional Objectives Analysis

In this stage, the learning objectives were developed according to the KD 4.6 learning indicators for human blood circulation practicum material for eleventh grade of science class as follows:

Table 3 Learning Indicator

No	Indicator
1	Knowing experiments through video tutorials on making blood smears in humans.
2	Knowing the experiment through a video tutorial on counting red blood cells in humans.

- 3 Knowing the experiment through a video tutorial on determining the ABO blood group test in humans.
- 4 Knowing the experiment through a video tutorial about measuring blood pressure in humans using a tensimeter (sphygmomanometer).
- 5 Knowing the experiment through video tutorials on the frequency of blood flow by knowing the presence of the pulse in young children, adolescents, adults, elderlies, both males and females and with its activity phase.

Table 4 Learning Objectives

No	Instructional Objectives
1	Students can understand the experiments through video tutorials about making blood smears in humans correctly.
2	Students can understand the experiments through video tutorials about counting the number of red blood cells in humans correctly.
3	Students can understand the experiments through video tutorials on determining the ABO blood group test in humans.
4	Students can understand the experiments through video tutorials about measuring blood pressure in humans using a tensimeter (sphygmomanometer)..
5	Students can understand the experiments through video tutorials on the frequency of blood flow by knowing the pulse in young children, adolescents, adults, parents, both boys and girls and by the activity phase.

d. Learning Media Analysis

The results of direct observations and interviews with teachers and students on biology learning, show that the learning activities of human blood circulation material for the eleventh graders of science class Islam Ta'alumul Huda Bumiayu still used lecture-based learning using Micros⁵¹ PowerPoint media and sometimes only using textbooks and sources from Internet. based on the results of interviews with students, it shows that only pictures with some explanation by Power point (PPT) are only the media used to deliver the materials. In addition, practicum video tutorial media has never been used as the learning media. This happened due to the limitations of teachers and facilities to use and to develop the practicum video tutorials. Therefore, it can be said that the use of ³³ practicum video tutorials is a new thing to be used as a learning medium.

Based on the results on the analysis of students in using learning media, it shows that they could not usually understand the material presented. This is because the practicum material that is usually done can no longer be implemented. Therefore, the use of practicum video tutorials due to the Covid-19 pandemic is a solution for students to make them understand the subject matter being taught and to make a more effective learning so that they ¹⁴ learn it anytime and anywhere. The use of learning media for practicum tutorial videos during the Covid-19 pandemic makes the students understand learning material easier, especially about human blood²² circulation material. In the study of (Azhar, 2014) it is stated that one of the main functions of learning media is as a teaching aid that also affects the climate, conditions and learning environment, so that the learning given can be conveyed.

According⁷ to (Sadiman, 2012) educational media have the following uses:

1. To clarify the presentation of the message so that it is not too verbalistic (in the form of mere written or spoken words).
2. To overcome the limitations of space, time⁷ and sensory power, such as:
 - a. ⁹ small objects that can be helped with a micro projector, film frame, film, or image.
 - b. Too slow or too fast Images that can be helped by time-lapse or high-speed photography.
 - c. The past events that occurred in the past that can be solved by displaying it again.

3. To overcome students' passive attitudes, especially with the use of appropriate and varied educational media. These such media are expected to increase students' motivation / enthusiasm for learning, to increase their creativity, and to allow them to learn by their own according to their abilities and interests.
4. To provide the same stimulant, to liken the experience, and to rise to the same perception. With the unique characteristics and different experiences that each student has, of course the teacher experiences difficulties when all of them must be resolved by themselves. Therefore, this problem can be overcome by using educational media.

2. Design

a. Materials Design

In this stage, a concept map material through indicators and instructional purposes in the human blood circulatory material was made. The sub-chapters in the material consist of 5 topics, namely types of blood cells, counting the number of Red Blood Cells, ABO Blood Group testing, blood pressure and Pulse Frequency.

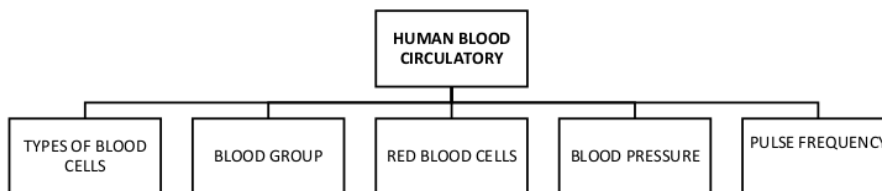


Figure 2. Material Design

b. Designing Video

The video design was arranged based on the material and character of the students, namely the students of the eleventh graders of science class Islam Ta'alumul Huda Bumiayu. Video design includes an attractive background, material and sound. The provided development model uses practicum learning videos along with practicum guides which are prepared based on needs analysis data. According to (Riyana, 2007), in general, there are three main activities in producing video program development, namely the pre-production, production, and post-production stages, which are described in the following chart:

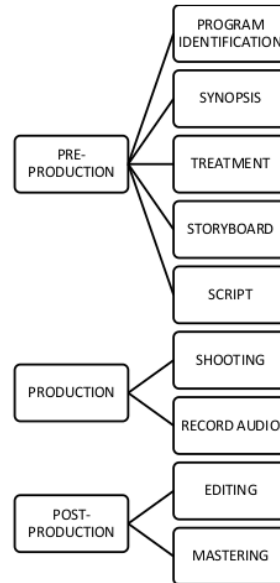


Figure 3 Media Design

1. Pre-production

a. Program identification

Before script writing activities, program identification is carried out first. Program identification is an activity of several analyzes carried out on video production activities which include identification of needs, materials, situations, ideas explorations, etc. The contents of the program identification include: title, goals, objectives, and subject matter translated into the Media Program Outline (GBPM) format (Gina, 2014).

b. Synopsis

Synopsis means a summary story used to convey a brief message from a written work or film. Synopsis is used to provide a brief, concise and clear description of the theme of the material to be produced. It aims to capture the message and concept that will be videoed easily. In writing, sentences are not described in long sentences but are packaged in simple sentences and can cover the theme and flow of the video (Gina, 2014).

c. Treatment

Treatment is slightly different from a synopsis. Treatment provides a more detailed picture. Synopsis provides a very short summary of the story while the treatment provides a descriptive picture of the filmed storyline. Treatment starts from the first appearance of the image to the end of the story which is told chronologically. However, there is no description of the technique of taking pictures in the treatment (Gina, 2014).

d. Storyboard

The next step is to create a storyboard. The storyboard is used to describe the series of events that will be recorded in the video. The description of the series of events will be put into sketches / photos to see if the series of events is in accordance with the story plot of the video. The depiction in this storyboard is not done in detail, but rather an overview of the events to be recorded. In the storyboard, the overview was made by sheet containing one scene and setting. But for the beginners, two to three scenes can be made per sheet (Gina, 2014).

e. Script / video script

After creating the Storyboard then it is continued by making a video script / script. This script is obtained from the experimental results with the outlined storyboard in the correct order of scripts. The script writing format for this video program is almost similar to a storyboard where the script is made in the form of a two-column page. In making the script, it is equipped with the term shooting in the field (Gina, 2014).

2. Production

The production stage is the stage of realizing all the steps in the pre-production stage. The production stage contains shooting and audio recording activities according to the demands of the script. After all preparations are complete, video shooting and sound recording can be done. One of the processes should be carefully observed was the moments of taking pictures because the taken shoot or scene must be recorded and adjusted to the shooting script / script that has been made (Gina, 2014).

3. Post-production

The post-production stage is the final stage in video production before the video is presented / distributed. In this post-production process, video editing software and adequate tools are needed to carry out the editing and mastering processes. Editing is the activity of editing a scene in a video such as cutting a scene, adding video clips, inserting transitions, adjusting lighting with a software to make it more attractive and worthy for publication. The editing process includes mixing activities, namely the process of combining or synchronizing video and audio including recorded narrative sound and music illustrations. Meanwhile, mastering is the process of inserting a file into a VCD or DVD master piece as a finalization / final stage in making a video. However, due to the pandemic, activities were carried out using Google Classroom and Google Drive (Gina, 2014).

According to (Ihsan, Fitri, & Marlina, 2019) the stage of making video tutorial media is carried out through two design stages, namely designing the storyboard and designing the interface or display design on the computer. Because the video tutorial will be displayed on the computer as an interface between the media and the user, it is important to design the display on the computer to make the media more interactive. In addition, the choice of video format and resolution must also be adjusted so that it can be played or displayed on a computer or laptop with a built-in video player program with low specifications. So that by doing the design stages of making a video, the video tutorial for the practicum will make students understand about the practicum material for human blood circulation. This statement is in accordance with the government program (Kemendikbud, 2020) which states this statement is in accordance with the government program. That the use of information and communication technology in education, one of which is the use of learning media, the use of learning media is needed to increase the efficiency and effectiveness of the learning process.

3. Development

The following is a video display of a practicum tutorial that has been developed with a video design consisting of types of blood cells, counting the number of red blood cells, ABO blood group test, blood pressure and pulse frequency:



Figure 4 Experiment 1 Types of Blood Cells



Figure 5 Experiment 2 Counting the number of red blood cells



Figure 6 Experiment 3 ABO blood group test



Figure 7 Experiment 4: Blood Pressure



Figure 8 Experiment 5: Pulse Frequency

The video tutorial for practicum is a very interesting video because the background of the material is arranged along with the explanatory video. It describes in more detail explanation on how to understand the material, especially in the topic of blood circulation that has been adjusted to the Basic Competence (KD) and indicators. There are five sub materials provided in the video tutorial for practicum, namely the types of blood cells, counting the number of red blood cells, ABO blood group test, blood pressure and pulse frequency. Each material in the practicum tutorial video has ⁴⁸ different level of understanding. Therefore this video is provided with an understanding of the material first, so that students will easily understand the practicum tutorial video. In research according to (Putri, 2016) the advantages of practicum tutorial videos, video media is suitable for subject matter that describes a certain process, a demonstration flow, a concept or describes something. According to (Ihsan, Fitri, & Marlina, 2019), he stated that the video tutorial media had a clear narrative and background music that was not too loud so that it did not interfere with the visual presentation and the narrator. A video will be more interesting and meaningful if it offers sound, supportive and precise image movements.

From the results of the analysis of the practicum tutorial video conducted by ²¹ students, it can be seen that students have never received a practicum so that they have lack understanding of the material, especially blood circulation. Therefore, at SMA Islam Ta'alumul Huda Bumiayu, a practicum video tutorial was developed to make students understand the material easily, especially about blood circulation. Research conducted by (Azhar, 2014) states that video can describe an object moving together with natural sounds or appropriate sounds. Video as media is generally used for entertainment, documentation and educational purposes. Videos can present information, describe processes, explain complex concepts, teach skills, shorten or lengthen time, and influence attitudes.

(Azhar, 2014) argues that the benefits / uses of learning media in the student learning process are as follows: (1) Learning will attract more students' attention so that it can foster students' motivation, (2) learning materials will have clearer meaning so that students can master it better and achieve learning goals, (3) teaching methods become more varied so that students do not get bored easily and teachers do not run out of energy, and (4) students do more activities such as observing, working, demonstrating, acting out, etc. This practicum tutorial video has been developed and validated by material experts and media experts. The results of the validation assessment can be seen in the following figure:

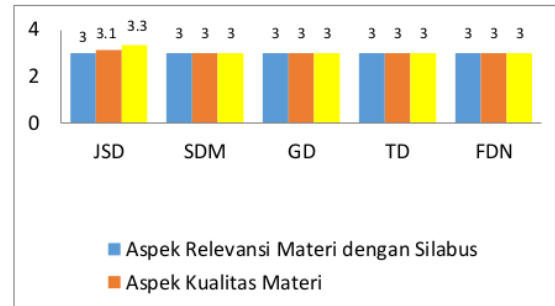


Figure 9 Graph of Experts' Responses on the Material

From the results of validation by material expert³⁹ in the feasibility test of the video tutorials on the JSD (Blood Cell Type), it is seen that it obtained a score of 3 (Good) on the Relevance Aspects of the Material with the Syllabus, a score of 3.1 (Good) on the Aspects of Material Quality and a score of 3.3 (Good) on the Language and Typography Aspects. Meanwhile in the tutorial of SDM (Counting the number of Red Blood cell⁴⁷), GD (ABO Blood Group Test), TD (Blood Pressure), and FDN (Pulse Frequency), it obtained an average score of 3 meaning that the media are feasible for use and good in those categories.

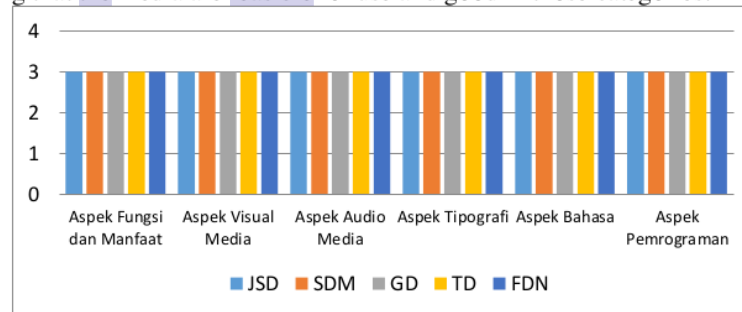


Figure 10 Graph of Media Expert's Responses

Results of Validation by media experts shows that the video tutorial for practicum on JSD (Blood Cell Type), SDM (Calculating the number of red blood cells), GD (ABO blood type test), TD (Blood Pressure), and FDN material (Pulse Frequency) obtains the average score of 3 in each aspect meaning that that the media is feasible for use and good in these categories.

Assessment by material experts for practicum tutorial videos with blood circulation material gets an average score in the good category. Based on the assessment by material experts, the practicum tutorial video is feasible for use as the learning media. The development of the video tutorial for practicum is said to be feasible because it is in accordance with the basic competency material³ and it can also achieve the indicators in the blood circulation material. This is expected to be able to help students understand the basic concepts in human blood circulation material. In the feasibility test by material experts, comments on practicum video tutorials were given to students, including the range of narrative to be improved. The comments and suggestions were then used as a reference for improving the practicum tutorial video. It is intended that the practicum video tutorial is in accordance with the basic competencies contained in the class XI on human blood circulation. The assessment of the two experts was very strengthening to proceed to the next stage because the results of both material and media experts were the same in good categories and were feasible for use in the implementation stage. Research conducted by (Gina, 2014) on examination by the material experts states that the aspect of material has been relevant with the syllabus so that they can achieve the objectives of practicum learning. Then on the aspects of the functions and benefits,

it shows that the data validation of the readability and usefulness of the media can be used continuously so that the video tutorial for practicum can be continued to the implementation stage.

The next stage is the feasibility test by media experts with an average in the good category. Media experts have also suggested some ideas to improve the feasibility of practicum tutorial videos in their implementation for students so that they become more interesting and easier to understand. Comments and suggestions by media experts that have been validated are then implemented in learning activities.

4. Implementation

Practicum tutorial video (35) implemented in eleventh grade of science class of Islamic SMA Ta'alumul Huda Bumiayu with a total number of 60 students and biology teachers. The results of the assessment of the practicum tutorial video by the teacher are seen in the following picture:

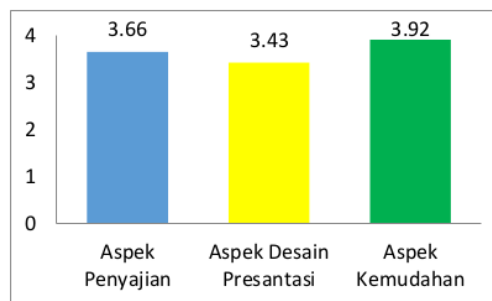


Figure 11 Teachers' Response Graph

Assessment of the practicum tutorial video gets an average score of 3.67 (Very Good) with some detail information as follows: it gets an average score of 3.66 (Very Good) in the presentation aspect, an average score is 3.43 (Very Good) in the presentation design aspect and an average score of 3.92 (Very Good) in the aspect of convenience. Furthermore, below is the assessment of students' responses:

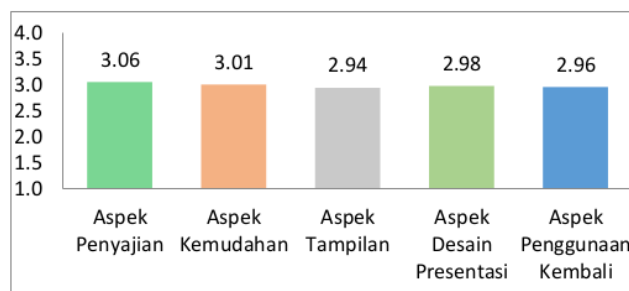


Figure 12 Graph of Students' Responses

From this graph, it can be seen the assessment of the practicum tutorial video which got an average score of 2.99 (Good). Here are the details of the results: an average score of 3.06 (Good) in the presentation aspect, an average score of 3, 01 (Good) in the aspect of ease of getting, an average score of 2.94 (Good) in the display aspect, an average score of 2.98 (Good) on the presentation design aspect got, an average score of 2.96 (Good) on the reuse aspect. Then after completing the test, it can be seen that the cognitive affected on students from the results of their pretest-posttest as follows:

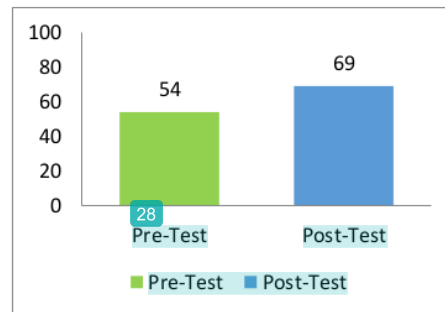


Figure 13 Graph of N-Gain Test

Overall assessment using the N-gain test results obtained a value of 0.32 in the moderate category (Table 2) The implementation of this video on learning circulatory material shows an increase in students' learning achievement from the results of their post tests. Before using the practicum tutorial video, the learning achievement of their pretest got an average score of 54. Then, after using the practicum tutorial video as the learning media, students experienced an increase in their post test score with an average score of 69.

The implementation stage of the practicum tutorial video was given to teachers and students of SMA Islam Ta 'Alumul Huda Bumiayu as a media for learning biology about blood circulation for eleventh grade of science class. Furthermore, the teacher and students were evaluated using a questionnaire. Based on the results of the assessment, the teacher's assessment, on average, it obtained a very good category. This can be seen from the students' learning achievement and the description of this video which are interesting and useful since it can explain the material and practicum activities clearly and precisely. This research that was conducted by the teacher not only provided an assessment but also provided commentary suggestions relating to the feasibility of this tutorial videos. Based on this assessment, the teacher said that this video is feasible for use as the learning media because it really helps the teacher in delivering practicum material that can be learned at any time.

Based on the results of the implementation of the practicum video tutorials, it is found that this video affected on the students' learning process and learning activities. In the results of the assessment carried out by students it was in good category. This shows that the video tutorial for practicum gave an effect on students' learning activities. According to (Gina, 2014) she states that the use of video as the media of learning media can provide motivation and more varieties for students. Therefore, the practicum tutorial video with an assessment in the medium category can improve students' understanding and motivation in learning independently. In the research, according to (Putri, 2016) the results of the observation of learning practicum tutorial videos got a percentage of 77.58% and it was in the good category. The results of the previous practicum tutorial video assessment were not much different from the results obtained by researchers, which were in the good category. possibly this was due to the audio in the video practical tutorial that was given disturbing the narrator in delivering the material. I (Ihsan, Fitri, & Marlina, 2019) also stated that the material is an important part of the stimulus that can affect student learning. through the video tutorial media practicum the needs of students in understanding depending on the way the presenter or narrator is conveyed in the media. The results of research conducted by Ihsan fall into the good category, the same results obtained with previous studies.

29 Students' learning achievement were carried out by conducting tests with the results of the students' pretest and post test scores in the N-Gain calculation in the moderate category, which means that there was an increase in students' scores from before being given the practicum tutorial video to after being given the practicum tutorial video. They got better average score than the previous score. This shows that the video tutorial for practicum helps students understand the material on human blood circulation material.

5. Evaluation

6 This stage is the final stage of the 46 research being developed. Based on the data obtained, the evaluation was based on the media experts, material experts, teachers and students in the form of an assessment questionnaire on practicum tutorial videos about human blood circulation. The purpose of the evaluation was to analyze the development of practicum 12 video tutorials in the eleventh graders of science class to support biology learning during the Covid-19 pandemic.

CONCLUSION

Based on the results of research conducted at SMA Islam Ta'alumul Huda Bumiayu in class XI IPA with human blood circulation material using learning media of practicum video tutorials, it shows that this video has good average score after being tested by media experts and material experts. Furthermore, not only the teacher but also the students gave very good average results in every sub-material carried out by each practicum tutorial 19 video. So, it can be concluded that this developed practicum tutorial video is feasible for use as a learning medium for practicum material during the Covid-19 pandemic. Based on the results of the implementation, it indicates that the practicum video tutorial is able to increase students' understanding of learning materials lab during the Covid-19 Pandemic.

SUGGESTIONS

Based on these results, it is suggested for further development of the video tutorials on practicum to better the media so that it can improve the students' understanding the material of blood circulation. It also suggested to have further technology use for practicum learning, especially during the Covid-19 pandemic. Further testing is needed to determine the feasibility of practicum tutorial videos as more effective learning media.

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