

# Development of Learning Videos for Students of Class X IPA MAN 1 Pasaman Barat

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Received: February 7, 2023

Revised: May 18, 2023

Accepted: May 25, 2023

Published: May 31, 2023

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DOI: [10.29303/jppipa.v9i5.3124](https://doi.org/10.29303/jppipa.v9i5.3124)

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**Abstract:** This study aims to produce learning videos for Bacteria and Protists using Sparkol Videoscribe software for class X IPA students that are valid, practical, and effective. This research method is research and development (research and development) using the Plomp development model. This development stage consists of three stages, namely the preliminary research phase, the development or prototyping phase, and the assessment phase. The results of this study indicate that the developed learning videos have a validity value of 85.63% with a very valid category based on expert judgment. The practicality assessment by the teacher was 89.13% in the very practical category and the large group evaluation assessment by students obtained a practicality value of 87.69% in the very practical category. The results of the effectiveness test showed that the class that used learning videos had higher average competency values of knowledge, attitudes, and skills, compared to classes that did not use learning videos. It can be concluded that the learning videos that have been developed are in the category of very valid, very practical, and very effective for increasing students' learning competence.

**Keywords:** Bacteria; Learning Competence; Learning Videos; Protist

## Introduction

The rapid development of information and communication technology in the 21st century has led to significant changes in the field of education. Education is a tool used to prepare individuals who are competent and able to compete in an era of rapid technological developments. The use of technology in the learning process is a must to prepare the millennial generation who have the competence according to the demands of the times. The use of this technology can have a positive impact on the quality of education (Mayasari et al., 2023).

One of the efforts that can be made by the world of education is to develop various learning components based on digital technology, such as learning videos. The use of digital technology-based learning media will make it easier for students to understand various material concepts and have a positive impact on improving their learning outcomes (Utami and Atmojo,

2021). In fact, this should be applied to various learning activities, including biology.

Biology learning is a learning activity that provides direct and meaningful learning experiences to develop students' competencies to better understand the natural surroundings (Kurniati et al., 2021). In relation to the learning process, it is expected that biology is not only focused on facts, concepts or principles. However, biology must provide direct experience in developing mastery of knowledge, products, processes, and attitudes (Arlis et al., 2020).

The results of the preliminary studies that have been carried out by researchers encountered several problems that occur in the biology learning process. First, learning biology is a learning process that requires understanding because it has objects of study in the form of macroscopic and microscopic living things, as well as studying all the bioprocesses that occur in living things. This characteristic of learning biology becomes a problem when there is no availability of supporting

## How to Cite:

Razak, A., Taufik, W., Putri, D.H., & Irdawati, I. (2023). Development Development of Learning Videos for Students of Class X IPA MAN 1 Pasaman Barat. *Jurnal Penelitian Pendidikan IPA*, 9(5), 2452-2461. <https://doi.org/10.29303/jppipa.v9i5.3124>

components for a learning process, especially learning media.

Second, the use of learning media currently used by students is less effective when used to explain learning materials whose objects of study are microscopic (bacteria, protists, and so on). This is in line with the results of the researcher's interview with the Biology Teacher who explained that in the learning material for class X IPA there are several materials that require learning media in the form of visualization of microscopic objects. This learning material is difficult to explain to students, and so do students find it difficult to understand it. Learning material for class X IPA belonging to this category is material for viruses, bacteria, protists, and fungi.

Third, less variety of learning media used by teachers. Learning media currently used by teachers to support the biology learning process include presentation slides, textbooks, and so on. These learning media become monotonous and boring if used continuously (there is no variation in learning media). This statement is reinforced by the results of the analysis of the observation questionnaire distributed to 68 students. It was found that only 45.25% of students who were happy with biology subject, while those who were dissatisfied were around 54.75%.

This shows that the number there are quite a lot of students who feel unhappy with learning biology. Then, the percentage of students' interest in the learning media developed by the teacher was around 54.2%, while 46.8% were less interested in the learning media developed by the teacher. This is because the media developed does not vary and is monotonous for students. The results of this analysis prove that this learning media has a very important role in the learning process.

The problems described above have an impact on student learning outcomes. The low interest and attention and the lack of variations in learning media to support the learning process cause student learning outcomes to also be not optimal. This can be seen in Table 1. The following describes the results of the average daily test obtained by students.

**Table 1.** Results of Class X IPA Students Daily Deuteronomy

Class	Number of Students	Average value
X IPA 1	34 Peoples	78.7
X IPA 2	34 Peoples	72.5
X IPA 3	34 Peoples	69.2

Based on Table 1, it can be concluded that the learning outcomes of students are still in the average range which is classified as moderate with minimum completeness criteria, so that improvements and

improvements are needed in the learning process, especially related to the availability of learning supporting facilities and infrastructure such as the development of learning media.

Based on the analysis of the problems that have been stated above, it is necessary to develop learning media that are able to increase students' interest and attention in the learning process, are able to visualize microscopic biology concepts, and are able to increase students' learning competence. One of the learning media that can be developed is learning videos.

Video is an audio-visual learning media that can improve the process of delivering material by educators to students. According to Agustini and Jero (2020) learning videos are appropriate for use supported by several reasons, namely the use of time becomes more efficient, learning opportunities become more active, increases interest and motivation in learning, helps explain microscopic material, and is able to meet all types of individual learning styles. This learning video also makes it easy for teachers to reduce the burden of using the lecture model in learning.

The choice of developing this learning video was also based on the results of preliminary studies that had been carried out by researchers, namely students who liked learning videos by 80%, and did not like them by 20%. Another supporting factor is the availability of internet network access in the form of wifi for students, making it possible to use learning media in the form of videos. Supported by the research results of Khairani et al. (2019) stated that students' opinions were greatly helped by the use of videos both domestically and abroad where a very good average percentage was obtained. While the acquisition of learning outcomes reaches an average of 85.30, which means that learning videos are able to improve student learning outcomes.

The results of the research by Cahyono et al. (2020) stated that the results of the evaluation after watching the learning videos using the sparkol videscribe application showed an increase in learning outcomes by 15%. In line with research by Saman et al. (2019) that classical and individual completeness reaches 55%, which means it provides an increase in student learning outcomes.

Thus, the results of observations in the field, presentation of problems, and various reviews of research results related to the development of learning videos that provide positive results in improving student learning outcomes, researchers are interested in developing valid, practical, and effective learning videos to improve student learning competence.

## Method

The type of research used is research and development or what is known as Research and Development (R&D). This research and development aims to produce a product in the form of learning videos through design, development and evaluation activities as well as product trials. The development model used in this research is the Plomp development model, which consists of three stages, namely the preliminary research phase, the development or prototyping stage, and the assessment phase (Plomp and Nieven, 2013).

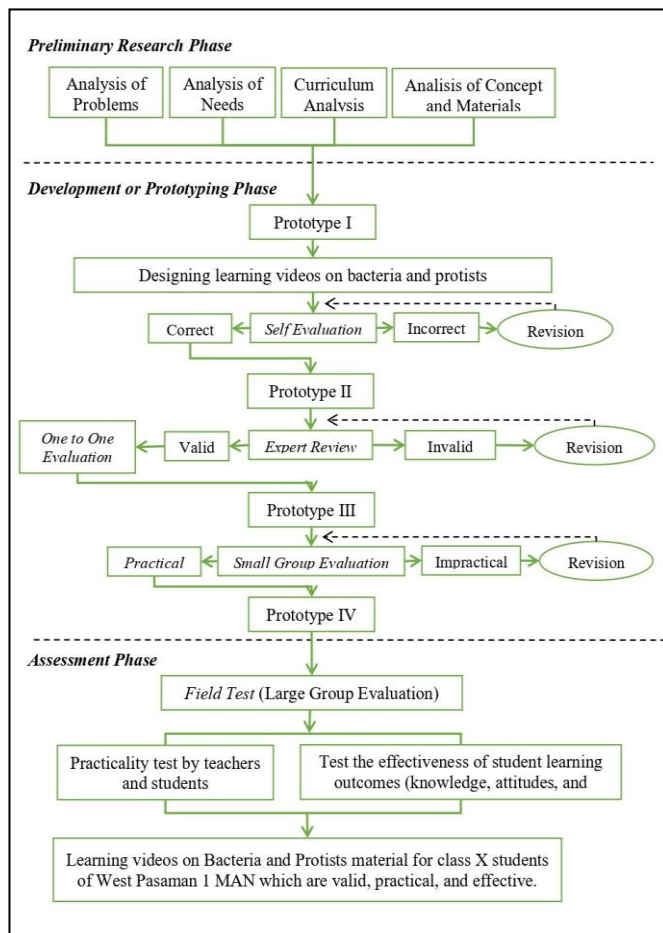


Figure 1. Research Flow (Plomp and Nieven, 2013).

The product development research procedure in the form of learning videos begins with the implementation of a preliminary study for problem analysis, needs analysis, curriculum analysis, and concept analysis. Second, the product design and development stage (prototype I to IV) which involves testing the validity and practicality. Third, the assessment stage is to evaluate the effectiveness of the product in the form of a learning video that has been developed.

The subjects of this study were students of class X IPA in the odd semester of MAN 1 West Pasaman

Academic Year 2022/2023. This subject was divided into two sample classes, namely the experimental class and the control class. The experimental class is a class that uses learning videos, while the control class does not use learning videos (takes place like normal learning activities). The instruments used in this study used several types of instruments, namely interview guide sheets and observation sheets used for the initial investigation stage (preliminary study). The development stage uses self-evaluation sheets, one to one evaluation, and validation sheets. Then, in the assessment stage using product practicality sheets, knowledge competency assessment sheets (25 objective items), attitude competency assessment (attitude observation guide sheet), and skills competency assessment (portfolio assessment).

The analysis technique used in this study was analyzed using descriptive statistics with testing criteria, namely validity, practicality, and effectiveness. The validity and practicality data analysis technique was carried out by scoring each item on the validity and practicality aspects arranged in the form of a Likert scale adapted from Sugiyono (2017). Meanwhile, data analysis techniques on knowledge, attitudes and skills competencies used normality analysis (Kolmogorof-Smirnov test), homogeneity test (Levene test). Then, for knowledge competence it is continued with hypothesis testing using the t test, while attitude and skill competencies use the Mann Whitney test.

## Result and Discussion

### Validity of Learning Videos

Validity is the level of validity or accuracy of data obtained on research objects with actual data. This product validation aims to determine the level of validity or validity of the product being developed, both from the media, language and material aspects (Sugiyono, 2017). Testing the validity of the learning video begins with the design and development stage of prototype I on Bacteria and Protists material. The development of instructional videos refers to the results of initial investigative activities namely problem analysis, needs analysis, curriculum analysis, and concept analysis.

This learning video is made using the main application, namely Sparkol Videocribe. The learning video components developed consist of several components, namely opening, stimulus (in the form of reciting verses from the holy Qur'an), basic competencies, learning objectives, learning materials, short quizzes, and closing. The initial appearance of the product in the form of a learning video can be seen in Figure 2.



Figure 2. Initial Display of Learning Videos

The development of learning videos on prototype I was then evaluated using a self-evaluation sheet to see the completeness of the components that had been loaded in the product. The results of this self-evaluation activity stated that the learning videos developed had met the assessment criteria, namely the completeness of components, language, and presentation. According to Irwan et al. (2019) stated that this self-evaluation activity is very important to do in order to find out aspects of the completeness of the components of a product, language, and presentation before then entering the next evaluation stage (prototype II).

The results of the self-evaluation improvement resulted in the development of prototype II. The development of prototype II is carried out by conducting further studies on the development results of Portotype I, namely validating experts (expert review) and one-to-one evaluation. The results of validity testing by experts (expert review) can be seen in Table 2.

Table 2. Results of Learning Video Validity Analysis

Assessment component	Validity Value (%)	Validity Criteria
Construct Aspect	85.41	Very Valid
Content Aspect	83.33	Very Valid
Graphical Aspect	86.11	Very Valid
Language Aspect	87.5	Very Valid
Amount	342.5	
Average	85.63	Very Valid

Based on the results of the validity test that has been carried out, it can be concluded that the validity criterion (validity) of the product in the form of a learning video developed is 85.63% with a very valid category. Therefore, the learning videos that have been developed can be used for testing the next stage.

The validity of the product in the form of a learning video that has been developed is declared valid if it has fulfilled several eligibility aspects, namely the construct aspect, the content aspect, the graphic aspect, and the language aspect. This is in line with the opinion of Sugiyono (2017) that product validity indicates the level of validity or validity of the product being developed,

both from the media, language and material aspects. This is in line with Rahayu and Kuswanto (2020) opinion that evaluating the validity of a development product is carried out by taking into account several aspects, namely aspects of construct quality, language, content, and graphics.

Construct Aspect

The results of evaluating the validity of the learning video from the construct aspect obtained a validity value of 85.41% with a very valid category. The components of evaluating the validity of the learning video in terms of the construct aspect have several items or assessment points, namely the learning media developed is a learning video for students in class X Science, learning videos for students in class X Science can be operated properly, the substance of the material in the learning video is well made, and learning videos for class X science students improve cognitive, affective, and psychomotor learning outcomes in the learning process. In line with the research results of Saman et al. (2019) that this learning video provides an increase in student learning outcomes.

Content Aspect

The results of evaluating the validity of learning videos on the content aspect were 83.33% with a very valid category. Assessment of the validity of this aspect of the content consists of three items or assessment points, namely the suitability of the material, the suitability of the concept, and the suitability of the visualization. Testing the validity of the content aspect plays a role in analyzing the feasibility or relevance of the content of the product being developed and is usually carried out by experts or experts (validators). Content validity also assesses the validity of a concept that has been presented in a learning video product (Hendryadi, 2017).

Graphical Aspect

The results of evaluating the validity of the learning video on the graphical aspect obtained a result of 86.11% with a very valid category. The validity assessment of this graphical aspect has several assessment points, namely the suitability of the images in the video, the suitability of music audio, the suitability of audio sound, the suitability of animation, the suitability of writing, and the suitability of designs. The criteria for evaluating this graphic aspect are usually related to writing, images, and the appearance of a product (Trianto, 2012).

The development of this learning video has met the criteria for graphical aspects so as to obtain very valid results. This proves that all learning video components, such as images, audio, animation, writing, and design are in accordance with their proportions, so they can be



used for further testing. This graphical aspect is very important in developing a product, namely helping to produce proportional learning video products (Ramdani, 2020).

*Language Aspect*

This validity assessment is also seen from the aspect of the language used in the product being developed. The results of evaluating the validity of the learning video on this aspect of language obtained a value of 87.5% in the very valid category. The validity assessment in terms of language contains two points or items, namely from the rules of good language writing and communicative (easy to understand) language writing. Based on the results of this validity assessment, it can be seen that the learning video product that has been developed is in accordance with the rules of good Indonesian writing and is delivered using communicative language. This linguistic element is important to be used as an aspect of validity because appropriate and adequate linguistic elements are able to motivate students in learning (Safitri and Hartati, 2016).

Assessment activities on prototype II were also carried out through one to one evaluation. The results of the one-to-one evaluation analysis for students can be described as follows. First, the completeness of the components that have been contained in the developed learning videos are in the complete category. Second, the language used in the learning videos is communicative (easy to understand), straightforward, clear, and in accordance with EYD. Third, the presentation of the developed learning videos is in accordance with the media criteria in the demands of the curriculum, which are communicative and IT-based. Fourth, the graphical aspects of the learning videos are interesting and appropriate (aspects of writing, images, animation, and audio). The next activity is to revise according to the suggestions given by experts and review the results of the assessment in a one-to-one evaluation.

*Practicality of Learning Videos*

The practicality of learning videos in this study plays a role in providing an overview of the ease of use of learning videos by teachers and students in the learning process. The implementation of the learning video assessment was carried out in several stages, starting from the practicality evaluation phase in small groups consisting of 6 students, then continued with practicality assessment in large groups (field tests) involving 34 students, and practicality assessment by the Biology Teacher.

We can see the evaluation of this practicality aspect from several components of the assessment, namely ease of use, time efficiency, and the benefits of the learning videos that have been developed. The results of

practicality testing on the small group can be seen in Table 3.

**Table 3.** Results of Practicality Analysis of Learning Videos in Small Groups

Assessment Component	Practicality Value (%)	Practicality Criteria
Ease of Use	90.10	Very Practical
Time Efficiency	85.42	Very Practical
Benefit	90.47	Very Practical
Amount	265.99	
Average	88.66	Very Practical

Based on Table 3, it can be seen that the results of testing the practicality of video learning in small groups (small group) is 88.66% with very practical criteria. The results of this analysis indicate that there are no problems in the small group practicality assessment, so that it can be continued with the practicality assessment in the large group (field test).

The large group practicality test (field test) aims to see the practicality of the products developed in the learning process that take place in actual conditions (Subari et al., 2023). The practicality assessment of learning videos in large groups (field tests) was carried out by involving 34 students. This practicality aspect assessment uses several aspects of assessment, including ease of use, time efficiency, and benefits (Fransisca, 2018). The results of the practical data analysis of the Field Test learning videos can be seen in Table 4.

**Table 4.** Results of Data Analysis of Learning Video Practicality (*Field Test*)

Assessment Component	Practicality Value (%)	Practicality Criteria
Ease of Use	87.87	Very Practical
Time Efficiency	86.03	Very Practical
Benefit	89.18	Very Practical
Amount	263.08	
Average	87.69	Very Practical

Based on Table 4, it can be seen that the assessment was carried out by students on the learning videos that have been developed, which shows an average value of 87.69 in the very practical category. This shows that the learning videos developed are very practical for participants to use. students in biology learning process activities.

Practicality testing by the teacher was obtained from the practicality assessment instrument sheet of learning videos filled out by the teacher. This practicality assessment by the teacher aims to determine the level of ease of use or practicality of learning videos that have been developed and implemented in learning activities. The results of the analysis of the practicality of the

learning video data by the teacher can be seen in Table 5.

**Table 5.** Results of Data Analysis of Learning Video Practicalities for Teachers

Assessment Component	Practicality Value (%)	Practicality Criteria
Ease of Use	90.62	Very Practical
Time Efficiency	87.50	Very Practical
Benefit	89.28	Very Practical
Amount	267.4	
Average	89.13	Very Practical

Based on the results of practicality data analysis by the teacher in the table above, it can be seen that the practicality value of the learning videos that have been developed is 89.13% in the very practical category. The results of the practicality assessment by the teacher stated that the learning videos that had been developed were very practical to be used by teachers in implementing learning activities.

Analysis of practicality testing by teachers and field tests on the use of learning videos that have been developed can be seen that all aspects of practicality have been fulfilled. According to Frasnisca (2018) that the practicality aspect is assessed from several perspectives, namely ease of use, time efficiency, and benefits. The aspect of ease of use in testing the practicality of this learning video is seen in terms of its use (in terms of language and understanding provided), can be run on existing software and hardware (youtube or Google Drive), helps the effectiveness of the learning process, the video presentation components are in accordance with the proportions, interesting to use, and helps students in carrying out independent learning wherever and whenever. Razak (2022) supports that this convenience is due to the presentation of material in easy-to-understand language and proportional font size. The research results of Rahmah and Arwin (2021) also prove that the development of video learning media obtains a level of practicality with an average score of 93.65 % very practical category.

This aspect of time efficiency shows the level of efficiency in using learning videos according to the time set for carrying out learning activities. The practicality value of learning videos in terms of time efficiency is 86.03% and 87.50% (very practical). This proves that the use of this learning video helps the efficiency of the learning process and does not require a long time for teachers and students, so that it can be said that this learning video has efficient usage time. Supported by Zakirman and Hidayati (2017) which states that the time efficiency of using the developed product describes the time of using a product, which must be short, precise, effective, and efficient.

This aspect of benefits is seen from the usefulness of video in helping students to understand learning material. The practicality of this aspect of benefits can be seen from the use of videos to help students understand the material, helping teachers to provide explanations, providing visualization and audio to increase understanding of the material being studied, as well as animations to increase students' interest in learning. Supported by the opinion of Hidayat et. al. (2021) that the benefit aspect aims to evaluate the impact provided by learning media (video) on its development goals. The main purpose of making biology learning videos on bacteria and protists is to overcome students' difficulties in understanding microscopic study objects and to help students learn independently.

#### *Effectiveness of Learning Videos*

Assessment of the effectiveness of this learning video aims to see and analyze how far the effectiveness of a product that has been developed. Analysis of product effectiveness testing data is carried out by looking at the level of achievement of student learning outcomes. The test was carried out by looking at the comparison of learning outcomes achieved in the two sample classes, namely the experimental class and the control class. Testing the effectiveness of this learning video is carried out by analyzing its impact on the three competency domains that must be achieved by students. The three competency domains analyzed in this study are cognitive (knowledge), affective (attitude), and psychomotor (skills).

The results of the effectiveness test were carried out in two sample classes, namely class X IPA 3 as the experimental class and class X IPA 2 as the control class. The results of this effectiveness test were carried out to see the effectiveness of learning videos on student learning outcomes, which include the cognitive, affective, and psychomotor domains of students. In addition, this trial also aims to determine the feasibility of learning videos that have been developed as media as well as learning resources for students. Data on the results of this effectiveness test were obtained through observing the three domains of student competency achievement (cognitive, affective, and psychomotor).

Observation of the effectiveness of learning videos in the realm of knowledge was obtained through the provision of test questions in the form of multiple choices totaling 25 items. Affective domain learning outcomes were obtained from observing students' attitudes during the learning process by using an attitude observation sheet consisting of 4 observed aspects of attitude, namely discipline, responsibility, curiosity, and cooperation. The results of learning the psychomotor domain (skills) are obtained from the evaluation of reports made in groups by students. The

average results of evaluating the effectiveness of students can be seen in Table 6.

**Table 6.** Average Result of Effectiveness Assessment

Competency Assessment	Class	Average	Information
Knowledge	Experimental	81.41	Very effective
	Control	77.06	
Attitudes	Experimental	85.23	Very effective
	Control	80.82	
Skills	Experimental	87.35	Very effective
	Control	83.52	

Based on Table 6, it can be seen that the experimental class, namely the class that uses learning videos, has a very effective level of effectiveness for improving student learning outcomes in the cognitive, affective, and psychomotor domains. This is evidenced by the difference in average learning outcomes in the control class and the experimental class.

*Knowledge Competence*

Knowledge competency is a competency that includes all activities related to the brain. This knowledge competency relates to various abilities, namely thinking, memorizing, understanding, applying, analyzing, synthesizing, and evaluating. Analysis of the effectiveness of learning videos in the realm of knowledge is carried out by carrying out tests at the end of the learning meeting.

The test was carried out in the form of a written test with multiple choice questions totaling 25 items which had been tested for validity, reliability, level of difficulty, and differentiability. This test was given to both sample classes, namely the experimental class and the control class. Both learning outcomes from this sample class will be tested hypotheses. However, previously the two results of the knowledge competence data of these students were first carried out a normality test and a homogeneity test.

The normality test results were carried out using the Kolmogorov-Smirnov test, while the homogeneity test was carried out using the Levene test. This test was carried out using the SPSS version 25 application and obtained results in the form of a significance value. The results of testing the knowledge competency hypothesis can be seen in Table 7.

**Table 7.** Results of Hypothesis Testing Data on Knowledge Competency Learning Outcomes

Class	Average	Significance Value	Information
Experimental	81.41	0.038	H <sub>0</sub> Rejected
Control	77.06		

Based on Table 7, we can see that the results of testing the hypothesis of cognitive learning outcomes in both sample classes have a significance value of 0.038. This shows that the significance value is <0.05 which means H<sub>0</sub> is rejected. Thus, it can be seen that classes that use learning videos have a positive influence on knowledge competence (cognitive domain), compared to classes that do not use learning videos.

Thus, it can be concluded that the developed learning videos have a positive influence on students' knowledge competence. This is supported by the research results of Sofyan et al. (2019) which stated that sparkol videoscribe-based learning videos can improve student learning outcomes. In line with the research of Jannah et al. (2019) which also stated that the development of sparkol videoscribe-based learning videos can have a significant influence on student learning outcomes.

*Attitude Competence*

Attitude competence is the ability of students to behave and behave in accordance with the demands or expected competency achievements. Attitude competence observed in this study there are several aspects, namely discipline, responsibility, curiosity, and cooperation. Observation of these aspects of the assessment was carried out by the researcher along with two other observers when the learning took place. In this case the researchers did not conduct trials directly in the field due to the possibility of bias in the research results due to differences in teaching teachers. Therefore, here the researcher only plays a role in providing direction to the teacher regarding the trial of learning videos in class and observing the attitude competencies that occur in each student during the learning activities.

This attitude competency assessment was carried out using an observation sheet (observation questionnaire) which was assessed by three observers. In general, it is known that the average attitude competence learning outcomes of the experimental class are higher than the control class. The two learning outcomes of this sample class were then tested for hypotheses using SPSS 25 software. The results of testing the attitude competency hypothesis can be seen in Table 8.

**Table 8.** Hypothesis Testing Results Data on Attitude Competency Learning Outcomes

Class	Average	Significance Value	Information
Experimental	85.23	0.041	H <sub>0</sub> Rejected
Control	80.82		

Based on Table 8, it is known that the significance value of the control class and the experimental class is

0.008, which means  $<0.05$ . This shows that  $H_0$  is rejected, which means that classes that use learning videos have a positive influence on the domain of attitudes (affective) of students, compared to classes that do not use learning videos.

### Competency Skills

Skill competence is the ability of students to carry out practices in accordance with the theory obtained in learning in the form of skills (skills) and the ability to act. The types of learning outcomes in the psychomotor domain are related to the skills or ability to act after receiving certain learning experiences. These learning outcomes are an advanced stage of affective learning outcomes which are only visible in the tendencies of students to behave (Sudjana, 2013).

The activity of analyzing the effectiveness of learning videos on skill competencies is obtained through an assessment of the investigative reports presented by students. The skill competence values of these students were then analyzed using the Mann Whitney test. The average student skill competency learning outcomes and the significance value of the Mann Whitney test can be seen in Table 9.

**Table 9.** Results of Hypothesis Testing Data on Skills Competency Learning Outcomes

Class	Average	Significance Value	Information
Experimental	87.35	0.008	$H_0$ Rejected
Control	83.52		

Based on Table 9, it can be seen that the Mann Whitney test results obtained a significance value of 0.008, which means  $<0.05$ . This means that  $H_0$  is rejected, which means that classes that use learning videos have a positive influence on the psychomotor domain, compared to classes that do not use learning videos. This shows that the learning videos that have been developed have a positive influence on improving student learning outcomes in the psychomotor domain.

The use of learning videos is also very supportive for fostering attitudes and skills in students (Khairani et al., 2019). In line with research Sofyan et al. (2019) that the use of learning videos can improve the learning outcomes of students' skills. Supported by Yendrita et al. (2019) which states that learning videos really support the ability of students' skills in learning biology.

### Conclusion

Based on the results of the development research that has been carried out, it can be concluded that the learning video on bacteria and protists using the Sparkol Videoscribe software that has been developed has a

validity value of 85.63% (very valid category) based on judgment by experts, has a practicality value. 89.13% and 87.69 in the very practical category based on practicality assessments by the teacher, and field tests, and have a very effective effectiveness score based on the assessment of student learning outcomes on knowledge, attitudes and skills competencies.

### Acknowledgments

During the implementation of this research the authors received a lot of help, guidance, direction, contributions of thoughts, ideas and encouragement from various parties. Therefore, the author would like to thank Dr. Abdulrahman, M.Pd. and Mr Dr. Darmansyah, S.T., M.Pd as the validator. Furthermore, the head of MAN 1 West Pasaman Mr. Drs. Jufri who has given the opportunity and permission to carry out this research. Then, to Mrs. Dra. Khalida and Mrs. Elva Rozana, S.Pd.I. who have guided and provided input to researchers for the smooth running of this research, as well as all students of class X IPA who have helped smooth this research.

### Author Contributions

This research involved contributions from various authors for several aspects, namely aspects of conceptualization, methodology, software, validation, investigation, resources, data curation, writing the preparation of the original draft, visualization, supervision, and funding acquisition. Aspects of conceptualization, methodology, data curation, and supervision involved all the authors in this article, namely Abdul Razak, Wirda Taufik, Irdawati, Dwi Hilda Putri. Meanwhile, the software aspect involves the contribution of Abdul Razak and Wirda Taufik; validation aspect, Dwi Hilda Putri, Irdawati; investigative aspect, Wirda Taufik; Resources: Students and Teachers of MAN 1 West Pasaman; wrote the original draft preparation, visualization, Wirda Taufik; supervision, Abdul Razak; funding acquisition, Wirda Taufik.

### Funding

This research did not receive external funding or was self-funded by the authors.

### Conflicts of Interest

The author declares no conflict of interest. The author ensures that no circumstances or personal interests whatsoever influence the representation or interpretation of the reported research results.

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