The Effect of Using Animation Video Media Through Problem-Based Learning Settings on Learning Outcomes for Making Fashion Patterns

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Keywords

Abstract

This study aims to determine the effect of using animated video media through problem-based learning settings on learning outcomes to make fashion patterns. The type of research used is a quasi-experimental design with a non-equivalent control group design. Variables consist of independent variables and dependent variables. The independent variables are the use of animated video media with problem-based learning model settings and the use of PowerPoint media with problem-based learning model settings. The dependent variable is the result of learning to make fashion patterns. The population of this study was all students of class X Fashion Design for the 2021/2022 academic year in Buleleng Regency, which consisted of 34 people at SMK Negeri 2 Singaraja and SMK Negeri 1 Seririt. The sampling technique uses saturated sampling that is using the entire population. Data were collected by using multiple choice and rubric test techniques. The multiple-choice test instrument has been tested with item validity tests, reliability tests, item difficulty tests, and different power tests. The skill assessment rubric is tested with expert validation. Prerequisites for data analysis in the form of a homogeneity test and normality test. While the analysis of hypothesis testing was carried out using the t-test. The results showed that there was a significant difference in learning outcome to make patterns between students who studied using animated videos through problem-based learning settings and students who studied using PowerPoint media with problem-based learning settings. So it can be concluded that the use of animation media with problem-based learning settings influences learning outcomes to make fashion patterns for Vocational High School students.

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Contents

1 Introduction

Government Regulation Number 19 of 2005 concerning National Education Standards states that learning must take place interactively, inspiring, fun, and challenging, motivating students to participate actively, and providing sufficient space for the initiative, creativity, and independence following talents, interests, and developments of physical and psychological learners. To achieve the criteria for the learning process, the means that can help are appropriate learning media. The use of media in the learning process will be able to generate new desires and interests, generate motivation and stimulation of learning activities, and bring psychological effects on students.

Teachers are required to be creative and innovative in doing learning and one of them is by changing the methods, methods, and media so that learning is no longer monotonous and conservative (Iswara et al., 2021; Liansari & Azizah, 2021). There are many methods and learning strategies that can be used by teachers. Teachers are also required to make an innovation or a learning development to further increase students' interest and motivation in learning. Teachers in improving the quality of learning by using learning media so that students can increase the achievement of learning objectives. By using appropriate learning media, teachers can assist students in mastering the subject matter provided (Ghory & Ghafory, 2021; Szymkowiak et al., 2021). The need for learning media for students is not only able to overcome the limitations of their experience. The media can also produce uniformity of observations, arouse desire, and learning activities, instil correct, concrete, and realistic basic concepts related to their understanding, and provide a comprehensive experience. Teachers are expected to have the ability to utilize modern technology as a medium to assist the teaching and learning process and improve the quality of learning (Agustien et al., 2018; Sudarsana et al., 2019).

Pattern Making is a class X subject at the Vocational High School (SMK) for the Fashion Design expertise program. This subject learns the basics of pattern making and breaking fashion patterns. The material studied includes making the basic pattern of an adult woman's body according to body size with a practical system, making the basic pattern of an adult woman's body according to body size with a practical system, children's clothing patterns, distinguishing various kinds of children's clothing according to the occasion, basic skirt patterns, distinguishing various types of clothing. kinds of skirts according to the shape of the skirt, planning the use of tools and materials and making the basic pattern of the skirt according to the design. In the 2013 curriculum, the subject of Pattern Making aims to provide basic knowledge about making patterns of clothing. If students are competent in pattern making, then students can move on to the next competency section. The subject of Pattern Making is the initial stage of the process of making a dress. Pattern-making consists of several processes, namely taking measurements, drawing patterns, breaking patterns, and designing materials (Raz et al., 2006; Carpenter et al., 1991).

Based on the results of observations on the subject of Pattern Making in Class X at State Vocational Schools in Buleleng Regency, shows that student learning outcomes are still low. This can be seen from the results of the score of 70% of the 42 students who have not reached the KKM with a score of 80. Learning is considered successful if 80% of the students achieve the minimum completeness criteria score (KKM SMKN in Buleleng). Many factors cause low student learning outcomes that were found after observation. Many students are not responsive so they are slow and have difficulty doing assignments. Some students did not look well prepared because they did not bring complete equipment for drawing patterns. In addition to factors from students, it is also caused by a lack of media and less variety of learning models used. Teachers in learning use media in the form of PowerPoint and teaching materials in the form of modules. The subject matter is delivered using lecture, question and answer methods and practicum (Murtonen et al., 2017; Bakkenes et al., 2010). Less use of media in learning affects the learning process and affects student learning outcomes. Learning outcomes in the form of pattern-making skills are not something that can be taught through descriptions or explanations alone. Students do not acquire pattern-making skills just by sitting, listening to the teacher's explanations and noting what they hear (Atifah, 2022).

Learning outcomes are often used as a measure to find out how far someone has mastered the material that has been taught. Julhadi (2021), states that learning outcomes are certain competencies or abilities both cognitive, affective and psychomotor that are achieved or mastered by students after participating in the teaching and learning process. The learning domain can be categorized as a cognitive domain (knowledge), psychomotor domain (skills) and affective domain (attitude) (Anderson et al., 2001; Hoque, 2016).

If such a situation is allowed to drag on, then the quality of student learning will be concerning and learning outcomes and learning activities will be low, this will make students bored with pattern-making lessons and consider this lesson a difficult lesson. Pattern-making is a knowledge and skill that must be mastered by those who work in the field of clothing, especially pattern construction (Hidayah & Yasnidawati, 2019). So here it is necessary to increase the professional ability of teachers to manage the learning process that can stimulate student learning activities and can maximize student learning outcomes.

Based on this, it is necessary to immediately improve learning to improve student learning outcomes by using innovative and appropriate learning media so that students easily understand the material and can also learn independently. Currently, the development of learning media is increasingly innovative with the existence of interactive learning media based on information technology. The use of information technology is an effective and efficient way of conveying information. Media refers to anything that carries information between a source and a receiver (Smaldino et al., 2012). The six basic categories of media are text, audio-visual, video, engineer and people (Smaldino et al., 2012). Media is an intermediary or tool that is used to help achieve goals in learning and learning.

Learning media is an intermediary that can support the learning and teaching process to be better and perfect by clarifying the meaning of delivering messages and clarifying the meaning of the messages conveyed. The material, objectives, methods and conditions of students with learning media are things that must be considered and become the center of attention of teachers in the selection and use of media that are following the learning process carried out in the classroom. This is also related to the effectiveness and efficiency in achieving learning outcomes (Chang, 2016; Celik et al., 2011). Learning media must also be adapted to the characteristics of students, because not all learning media are suitable for all situations, especially for students, the level of student education, to attract students' interest, and so on (Asrial et al., 2020). The media chosen should be able to motivate students in learning so that there is a stronger interest in learning independently and actively (Mandalika & Syahril, 2020).

One of the learning media that has three main elements is learning video media. Video media is a tool used by teachers to stimulate students' feelings, thoughts and desires by displaying audiovisual ideas, ideas, messages and information (Wisada et al., 2019; Sudarma & Sukmana, 2022). Video is a very effective medium to help the learning process. Video is rich in information and complete because it reaches students directly (Daryanto, 2013). Videos add a new dimension to history learning. Because videos can present moving images and sound to students. Video's ability to visualize material is very effective in helping educators deliver dynamic material.

The use of instructional video media can stimulate students' motivation to learn because there is student's curiosity about the videos displayed so they can increase students' understanding of the material provided (Lytvyn et al., 2021). The majority of educators consider that learning video media is effective during the COVID-

19 pandemic, which can help educators to teach difficult materials and materials that require practical activities. The use of learning videos during the COVID-19 pandemic is very important (Wibawa & Muhidin, 2021; Utami et al., 2021). The use of video media is also favoured by students because it can help students learn at home, and motivate students to learn. Video media also stimulates educators in finding or making creative videos and can help students while studying during the COVID-19 pandemic (Herani, 2021). The results of the study Mu'minah (2021), state that video-based learning media can be used in the online learning process and is a utilization of learning technology according to the times with efforts to improve the quality of education.

This video media packaging is combined with animation. Animation is an activity to animate and move stationary objects. A stationary object is given a boost of strength, enthusiasm and emotion to come alive and move or just seem alive. So animation is a still object that is projected into a moving image that seems to live according to the character made from several sets of images that change regularly and alternately according to the design so that the video displayed is more varied with attractive and colorful images that can increase power attract student learning. Learning using animated video media is effectively applied to learning students' persuasive text-writing skills. Video media is effective in increasing knowledge of COVID-19 prevention after travelling (Rahmah et al., 2021). Learning video media is effective during the COVID-19 pandemic because it makes it easier for educators to teach material and makes it easier for students to understand learning material (Ridha et al., 2021). Animated video learning media can be used as an alternative option that can be used to make it easier for teachers to deliver learning materials and help children better understand the learning materials delivered by teachers (Cipta & Pamungkas, 2019). The use of animated video learning media can increase interest in learning mathematics and this can be seen from the high enthusiasm of students when learning activities take place (Masuri & Budiyono, 2020).

Animated video media was chosen because animated videos have several advantages, according to Rusman (2017), namely: (1) giving messages that can be received more evenly by students, (2) very good for explaining a process, (3) overcoming space limitations and time, (4) more realistic, can be repeated and stopped as needed, (5) gives a deep impression that can affect student attitudes. The use of animated video media of practical system archetypes in the fashion pattern construction course to improve learning outcomes of making patterns for students of Ganesha Education University.

In addition to using animated videos in the learning process, teacher skills are also needed in using learning models that are following the characteristics of the subjects and materials. One of the appropriate learning models used in Pattern Making subjects is the Problem Based Learning Model (PBM). The PBM approach is an innovative teaching and learning method, that stands to provide greater challenge and motivation by utilizing realistic scenarios to engage and interact with students by building on their prior knowledge, increasing their understanding of basic concepts, and shaping the acquired knowledge to build structures complex yet complex and well-integrated knowledge source.

The knowledge structure created helps in learning, as it integrates and concretizes theoretical knowledge with its clinical relevance. Furthermore, carefully crafted problems can promote active and deep learning (as students interact with learning materials and link concepts to everyday activities), and improve comprehension, knowledge retention, and the development of lifelong learning skills (Virk, 2022). The results showed that there was an increase in students' mathematics learning outcomes after using problem-based learning in learning (Malmia et al., 2019). The PBM model affects learning outcomes, responses and also student motivation (Timor et al., 2021). Student learning outcomes using problem-based learning models are significantly higher than student learning outcomes using direct learning models (Reinsini et al., 2021). There is a significant effect of the application of problem-based learning models on student learning outcomes. (Putra et al., 2022). PBM improves students' critical thinking skills (Dayu et al., 2022). PBM stands out as one of the most effective and radical methods of pedagogical innovation. While the implementation of PBM means a great opportunity to achieve better educational performance (Santos et al., 2022). Pattern-making skills increase after using the learning model (Atifah, 2022).

Based on the descriptions that have been disclosed that it is very important to design and implement a lesson that can improve student learning outcomes. So it is necessary to research the effect of using animated video media through problem-based learning settings on learning outcomes of Fashion Pattern Making.

2 Materials and Methods

The type of research used in this research is quasi-experimental. Quasi-experimental research is a way to test cause and effect, in which treatment is given to certain subjects to find out the effect. The design of this study was a non-equivalent control group design. The research design is shown in Table 1.

Table 1
Research design

Class	Pretest	Treatment	Posttest
Experiment	O_1	X_1	O_2
Control	O_3	X_2	O_4

The variables in this study consisted of independent variables in the form of using animated video media with problem-based learning model settings and using PowerPoint media with problem-based learning model settings. The dependent variable is the result of learning to make fashion patterns.

This research was conducted in a state vocational high school which has a fashion program in Buleleng Regency. The population of this study were all students of class X fashion at SMK Negeri 2 Singaraja and SMK Negeri 1 Seririt, totalling 34 people. The sampling technique uses saturated sampling. The sample in this study were all students of Fashion Design Expertise at SMK Negeri 2 Singaraja and SMK Negeri 1 Seririt for the academic year 2021/2022, totalling 15 people and 19 people. The learning implementation is carried out for 4 weeks starting from August 24, 2021, to September 13, 2021.

Collecting data using a test technique in the form of multiple choice as many as 20 questions to measure learning outcomes in the form of knowledge and 5 rubrics for assessing pattern-making skills. The multiple-choice test instrument has been tested with item validity tests, reliability tests, item difficulty tests, and different power tests. The validity test uses the product moment correlation formula while the reliability of the questions is measured using the KR-20 formula. The difficulty level of the questions was analyzed using a difficulty index. The discriminatory power of the questions is determined by calculating the difference in the proportion of correct answers between two groups of students. The skill assessment rubric is tested with expert validation.

Before animated videos are applied to students, animated videos are validated by experts in their respective fields. The validators were asked to assess the animated video that was developed based on the criteria of content, appearance and language by filling out the validation questionnaire sheet that had been provided. Animated video assessment is carried out by experts by responding with very valid, valid, moderately valid, invalid and very valid criteria. For data analysis validation of animated videos and student responses, the same calculation is used, namely using descriptive statistics of rating results. The results of the development of animated videos are as follows: learning material experts with a score of 96.5, learning media experts with a score of 96.67, student trials with a score of 95.56, and teacher trials with a score of 92 are included in the very good category so that this basic system animation video learning media is practically feasible to use in pattern-making learning in SMK and students can further improve their learning outcomes and study independently (Angendari & Mayuni, 2022).

The prerequisite for data analysis is a homogeneity test using the Kolmogorov-Smirnov test and the Shapiro-Wilk test. A homogeneity test was carried out to obtain the assumption that the two sample classes had the same initial conditions. The normality test was conducted to determine the distribution of test result data from the two sample classes. Normality test with Levene's Test of Equality of Error Variances. Hypothesis test analysis was conducted using a t-test. Hypothesis testing was conducted to determine the difference in learning outcomes to make fashion patterns between groups of students who studied with animated video media through PBM settings and groups of students who studied with PowerPoint media through PBM settings.

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3 Results and Discussions

3.1 Results

The general description of the research results describes the frequency distribution, comparison of the mean (mean), and standard deviation (SD) of the use of animated video media and PowerPoint media through problem-based learning settings given to each treatment group. The object of this research is the difference in learning outcomes to make fashion patterns as a result of treatment between the use of animated video media and PowerPoint media through problem-based learning settings. This study used a two-group treatment design. In the group using animated video media through problem-based learning settings, 15 subjects were assigned as units of analysis and the use of PowerPoint media through problem-based learning settings was 19 subjects so the overall unit of analysis was 34. Student data were given the use of animated video media through problem-based learning settings and the use of PowerPoint media through problem-based learning settings for each unit of analysis 15 and 19.

General description of the frequency of learning outcomes making fashion patterns by using animated video media and PowerPoint media through problem-based learning settings

The general description of the gains-score results revealed consists of the distribution of the average value ( ) and standard deviation (SD) based on the use of animated video media and PowerPoint media through problem-based learning settings given to each treatment group. Calculation of the central measure (mean), and the size of the data spread (standard deviation, variance can be seen in Table 2.

Table 2
Recapitulation of gains calculation results-scores of student learning outcomes making clothing patterns

Data Statistics	A1	A2
Mean	22,33	15,00
Median	22,0	15,00
Std. Deviation	6,586	9,012
Variant	43,381	81,222
Minimum Value	10	1
Maximum Value	34	33
Range	24	32
Amount	335	285

Information:
A1 = Learning Outcomes of Making Clothing Patterns for students who take part in learning with animated video media through PBM settings
A2 = Learning Outcomes of Making Clothing Patterns for students who take part in learning with PowerPoint media via PBM settings

Based on Table 2, descriptive statistics can be stated that the learning outcomes of making fashion patterns for students who take part in learning with animated video media are better than students who take lessons with PowerPoint media through problem-based learning settings. Frequency distribution graphs, and learning outcomes to make fashion patterns for students who take lessons with animated video media and students who take lessons with PowerPoint media through problem-based learning settings in the form of histograms are presented in Figure 1.
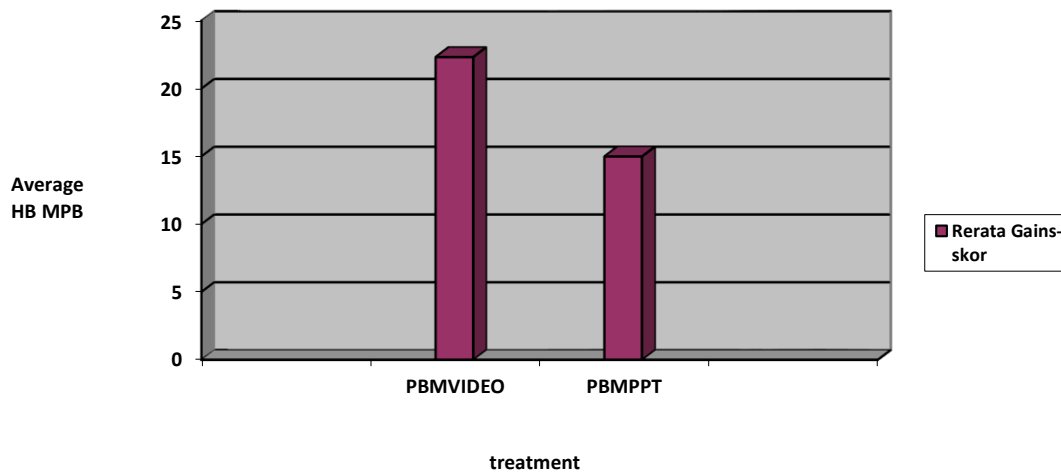
Figure 1. Distribution Graph of Learning Outcomes to Make Clothing Patterns

Hypothesis prerequisite test

A prerequisite test was conducted to check the distribution of data, and variance between groups. The first prerequisite test that was carried out was the normality test of the data distribution, the second was the homogeneity test of variance between groups.

Normality test

The normality test is intended to test whether the existing data comes from data that is normally distributed or not. The normality test was carried out using the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The test criteria are that the data has a normal distribution if the significance number obtained is greater than 0.05 and in other cases, the distribution is not normally distributed. The summary results of the normality test of learning outcomes to make fashion patterns are shown in Table 3.

Table 3
Summary of the Normality test of learning outcomes to make clothing patterns

	MP	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
HB	MPBM with Animated Videos	0,162	15	0,200[*]	0,943	15	0,427
	MPBM with PPT	0,097	19	0,200[*]	0,973	19	0,826

Based on Table 3 above, it is known that for the data on learning outcomes to make fashion patterns, all the significance levels are above 0.05 so the data on learning outcomes to make student clothing patterns, both at Kolmogorov-Smirnov and Shapiro-Wilk have a significance above 0.05 so The data on learning outcomes to make student clothing patterns is data that comes from a normal distribution.

Variant Homogeneity test

A homogeneity test was conducted to determine whether the existing variants were homogeneous. The homogeneity test of the variance of learning outcomes for students fashion patterns was carried out using Levene's Test of Equality of Error Variances. If the significance level of the variance is greater than 0.05, then

the variance is homogeneous. The summary of the results of the homogeneity test of the variance of learning outcomes to make students' clothing patterns is shown in Table 4.

Table 4
Summary of homogeneity test results variants of learning outcomes making clothing patterns

		Levene Statistic	df1	df2	Sig.
HB	Based on Mean	2,318	1	32	0,138
	Based on Median	2,343	1	32	0,136
	Based on Median and with adjusted df	2,343	1	31,461	0,136
	Based on trimmed mean	2,343	1	32	0,136

Based on Table 4, it is known that the results of learning to make student clothing patterns have a significance greater than 0.05. This shows that the null hypothesis which states "the variance between groups of students who take learning with animated video media through problem-based learning settings and groups of students who take lessons with PowerPoint media through problem-based learning settings is not different", is accepted. In other words, the variance between groups using animated video media and PowerPoint through problem-based learning settings is homogeneous. Based on the results of the prerequisite tests, namely the normality test, and the homogeneity test, it can be concluded that the data from all groups are normally distributed, and homogeneous. Therefore, hypothesis testing with a t-test can be continued.

Hypothesis testing

Hypothesis testing is done by t-test. Hypothesis testing was conducted to show whether there were differences in learning outcomes to make fashion patterns between groups of students who studied using animated video media and PowerPoint media through problem-based learning settings. The conclusion of this hypothesis test is drawn based on the analysis of the t-value or significance value (sig.) in the t-test table. t value with a significance of less than 0.05, then H0 is rejected and H1 is accepted. The summary of the results of the t-test is shown in Table 5.

Table 5
Summary of t-test results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
HB	Equal variances assumed	2,318	0,138	2,640	32	0,013	7,333	2,778	1,676	12,991
	Equal variances not assumed			2,739	31,851	0,010	7,333	2,677	1,879	12,787

Based on Table 5, it is known that the value of t = 2.640 with a significance level of less than 0.05. Thus, a decision can be made for the proposed hypothesis as follows.

H$_0$ (1): there is no difference in learning outcomes to make fashion patterns between groups of students who learn using animated video media and PowerPoint media through problem-based learning settings are rejected. In other words

H₁ (1): there are differences in learning outcomes to make fashion patterns between groups of students who learn by using animated video media and PowerPoint media through problem-based learning settings are accepted.

So, there is a significant difference ($p < 0.05$) in the variables of using animated video media and PowerPoint media through problem-based learning settings on student learning outcomes to make fashion patterns.

3.2 Discussion

Based on the results of the compacted study, the results showed that there were significant differences between students who studied using animated videos through PBM settings and students who studied using PowerPoint media through PBM settings. Where students who study using animated video media with PBM settings have better learning outcomes compared to students who learn with PowerPoint media through PBM settings. Agree with the research results Syamsul & Kharnolis, (2022); Fatonah & Rohana (2022), that the use of video as a learning medium can make it easier for students to understand, remember and practice the material. Video media allows students to repeat learning materials to facilitate independent learning. Likewise, the results of research Famela (2021), that the application of animated video media in learning is effective in students' writing skills of persuasive texts. The use of animated video media makes students interested in learning, from those who pay attention to videos and are active in the classroom then affect students' grades, so it has a good impact on increasing interest in learning, increasing learning outcomes from before and very helpful in distance learning that makes it easier to share material learning and can be used anytime when needed (Sunami & Aslam, 2021; Kusumawati, 2022). The use of learning videos is effective in improving student learning outcomes, the use of animated video media is one of the right media to improve students' affective and cognitive learning outcomes (Ferry et al., 2019); this video tutorial learning media is effectively used to improve student learning outcomes (Sari, 2021; Linggarsari, 2021; Mashudi et al., 2021; Arimadona et al., 2022).

The use of video tutorials is effectively used in vocational skills and teachers are expected to be able to use video tutorials in learning vocational skills (Wlanda & Armaini, 2021). The use of video media can improve learning activities and student learning outcomes (Taufikurachman et al., 2018; Febriani et al., 2022). Animated video media is very well used in learning and can build a mindset so that it can motivate students in learning (Rahayu et al., 2021; Capuno et al., 2019; Syaparuddin & Elihami, 2020). The use of animated video media also makes the learning process more enjoyable for students (Robi'atutsani, 2021).

Furthermore, to encourage an effective and efficient learning process, learning media must function as a communication tool used to convey messages so that they can stimulate students' thoughts, feelings and abilities. The use of appropriate media can help students master the lecture material given. Especially now that the practical learning process takes place online. This requires every student to be able to learn more independently as a consequence of online learning. Maximum utilization of learning media can support students in achieving learning goals (Damopolii et al., 2019). Video learning is a medium used to stimulate the thoughts, feelings, and willingness of students to learn through displaying ideas or ideas, messages and information in an audio-visual way. With the audio-visual media, students can see firsthand the real actions of what is contained in the media, this can stimulate student learning motivation and increase student learning activities. Learning media is appropriate to be used as a study guide for students independently (Erni & Farihah, 2021; Permatasari et al., 2019). Audio-visual learning media can be used as an alternative for vocational teachers in carrying out learning during the COVID-19 pandemic (Suryana, 2021). There is a significant difference in the effect of using interactive videos in improving students' abilities (Rosmaya et al., 2019). Through the use of interactive learning videos, most students have an interest, where animated learning videos to help study at home (Prehanto et al., 2021). Interesting two-dimensional animated video learning media is used during the learning process (Agustien et al., 2018). Animated video media can replace the teacher's role in online learning, especially in explaining material (Rahmawati et al., 2021). Animated video media is declared feasible, effective, and practical to be used as learning media in schools, especially when online (Fisabilillah & Sakti, 2021).

The practical benefits of learning media in the teaching and learning process are as follows: (1) Learning media can clarify the presentation of messages and information so that they can facilitate and improve learning processes and outcomes. (2) Learning media can increase and direct children's attention so that it can lead to learning motivation, more direct interaction between students and their environment, and the possibility of students learning independently according to their abilities and interests. (3) Learning media can overcome the

limitations of the senses, space and time. d. Learning media can provide students with a common experience about events in their environment, and allow direct interaction with teachers, the community, and the environment, for example through field trips (Karo-Karo & Rohani, 2018).

In addition to using the right media in the learning process, the selection of learning models must also be considered. There are many learning methods, teachers are expected to be able to choose the right method according to the characteristics of the subject and also the characteristics of the students. So that by using the right learning model the learning process will run well, motivate students to learn and also improve learning outcomes. In this study, the PBM model was used in each study group. The experimental class uses the PBM model with the help of animated videos and the control class uses the PBM model with the help of power points. That using the PBM model is suitable for use in learning pattern-making at the Vocational School of Fashion. The PBM model is a problem-based learning model that describes a view of education in which the school is seen as a mirror of society and the classroom becomes a place of investigation of everyday life problems (Richaed, 2012). Nilson (2016), defines problem-based learning as learning that results from the process of working towards an understanding of solving a problem. The problem is first encountered in the learning process (Barrows & Tamblyn, 1980). PBM is an approach to structuring a curriculum that involves confronting students with problems from practices that provide a stimulus for learning (Boud & Feletti, 1997).

Agree with the research results (Mahyuddin, 2022; Yusufa et al., 2020; Rahmawati et al., 2022) that using the PBM model can improve student learning outcomes. There is an average difference between student learning outcomes who are taught using a problem-based learning model with other learning models (Atika, 2021). Students' understanding increases after using the PBL model in the learning process (Torres et al., 2022). The PBM approach provides students with cognitive benefits (Hmelo, 1998). In addition to improving learning outcomes, the PBM model also improves students' independent learning abilities, which master theoretical knowledge and improve practical abilities (Gao et al., 2022). The PBM model also affects student literacy (Septiana, 2022). PBM has a positive effect on the level of critical thinking, during the problem-solving process, students clarify problems and formulate hypotheses, and consider solutions, as well as investigations (Purba et al., 2020).

The media-assisted PBM model influences students' critical thinking skills and collaboration skills (Anggriani et al., 2022); metacognitive (Sutarto et al., 2022). The influence of PBM activities supported by technology has a positive effect on self-efficacy (Hursen, 2019; Suo et al., 2022). The PBM model with animation media in the experimental class significantly affects student learning outcomes more than conventional learning (Tanjung, 2022).

4 Conclusion

Based on the results of the research and discussion of testing from the data obtained, it can be concluded that there are significant differences in the learning outcomes of fashion pattern-making in the experimental class using animated video media with problem-based learning settings with control class learning outcomes using PowerPoint media with problem-based learning settings. This is shown from the average value of the experimental group which is 22.33 which is greater than the average of the control group and can be seen from the t-counting that the value is 15.00. This hypothesis test is drawn based on the analysis of the t-value or the significance value (sig.) in the t-test table. t value with a significance of less than 0.05, then H0 is rejected and H1 is accepted. The value of t = 2.640 with a significance level of less than 0.05. So that there are differences in learning outcomes for making fashion patterns between groups of students who study using animated video media and PowerPoint media through problem-based learning settings. The learning outcomes of making fashion patterns for students who study with animated video media with PBM settings are better than the learning outcomes of students who use PowerPoint media with PBM settings.

Suggestions

Suggestions that can be submitted based on the research that has been done are as follows. (1) Principals should participate in introducing and providing encouragement for teachers to apply the guided PBM learning model assisted by animated videos that can be used in improving the quality of learning so that students become more

active, 2) For teachers, in carrying out pattern-making learning to obtain the quality of learning outcomes is good, it is recommended to use or apply the PBM learning model assisted by animated videos (3) For students should be able to follow the learning process using the PBM model assisted by animated videos properly and actively in every learning activity, (4) For other researchers who will conduct research with the video-assisted PBM learning model should be studied in different classes with other variables and different subjects.

References

Agustien, R., Umamah, N., & Sumarno, S. (2018). Pengembangan media pembelajaran video animasi dua dimensi situs Pekauman di Bondowoso dengan model ADDIE mata pelajaran Sejarah kelas X IPS. *Jurnal edukasi*, *5*(1), 19-23.

Anderson, L. W., Krathwohl Peter W Airasian, D. R., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., & Wittrock, M. C. (2001). Taxonomy for_ Assessing a Revision 0f Bloom's Taxonomy 0f Educational Objectives. by Addison Wesley Longman, Inc. https://www.uky.edu/~rsand1/china2018/texts/Anderson-Krathwohl - A taxonomy for learning teaching and assessing.pdf

Angendari, M. D., & Mayuni, P. A. (2022). The Development of Learning Media Video Animated Basic Patterns of Practical System Body. In *Proceedings of the 4th International Conference on Vocational Education and Technology, IConVET 2021, 27 November 2021, Singaraja, Bali, Indonesia*.

Anggriani, M. D., Haryanto, H., & Atmojo, S. E. (2022). The Impact of Problem-Based Learning Model Assisted by Mentimeter Media in Science Learning on Students' Critical Thinking and Collaboration Skills. *International Journal of Elementary Education*, *6*(2).

Arimadona, S., Silvina, R., & Ramaza, F. (2022). Pengembangan media video animasi pembelajaran biologi berbasis daring materi sistem pencernaan manusia di SMP Negeri 2 Kecamatan Kapur IX. *Journal on Teacher Education*, *3*(2), 120-126.

Asrial, A., Syahrial, S., Maison, M., Kurniawan, D. A., & Piyana, S. O. (2020). Ethnoconstructivism e-module to improve perception, interest, and motivation of students in Class V Elementary School. *JPI (Jurnal Pendidikan Indonesia)*, *9*(1), 30-41.

Atifah, A. (2022). Peningkatan Keterampilan Membuat Pola Dasar Rok Dengan Pola Standar Melalui Pembelajaran Kooperatif Tipe Stad. *Strategy: Jurnal Inovasi Strategi dan Model Pembelajaran*, *2*(2), 203-211.

Atika, A. R. (2021). The Influence Problem-Based Learning Model with Scientific Approach by Using Media Prezi on Learning Outcomes. In *International Conference on Educational Studies in Mathematics (ICoESM 2021)* (pp. 121-125). Atlantis Press.

Bakkenes, I., Vermunt, J. D., & Wubbels, T. (2010). Teacher learning in the context of educational innovation: Learning activities and learning outcomes of experienced teachers. *Learning and instruction*, *20*(6), 533-548. https://doi.org/10.1016/j.learninstruc.2009.09.001

Barrows, H. S., & Tamblyn, R. M. (1980). *Problem-based learning: An approach to medical education* (Vol. 1). Springer Publishing Company.

Boud, D., & Feletti, G. (Eds.). (1997). *The challenge of problem-based learning*. Psychology Press.

Brome, R., Awad, M., & Moacdieh, N. M. (2021). Roadside digital billboard advertisements: Effects of static, transitioning, and animated designs on drivers' performance and attention. *Transportation research part F: traffic psychology and behaviour*, *83*, 226-237. https://doi.org/10.1016/j.trf.2021.10.013

Capuno, R., Revalde, H., Etcuban, J. O., Aventuna, M., Medio, G., & Demeterio, R. A. (2019). Facilitating learning mathematics through the use of instructional media. *International Electronic Journal of Mathematics Education*, *14*(3), 677-688.

Carpenter, G. A., Grossberg, S., & Rosen, D. B. (1991). Fuzzy ART: Fast stable learning and categorization of analog patterns by an adaptive resonance system. *Neural networks*, *4*(6), 759-771. https://doi.org/10.1016/0893-6080(91)90056-B

Celik, P., Onder, F., & Silay, I. (2011). The effects of problem-based learning on the students' success in physics course. *Procedia-Social and Behavioral Sciences*, *28*, 656-660. https://doi.org/10.1016/j.sbspro.2011.11.124

Chang, B. J. (2016). Problem-based learning in medical school: A student's perspective. *Annals of Medicine and Surgery*, *12*, 88-89. https://doi.org/10.1016/j.amsu.2016.11.011

Cipta, N. H., & Pamungkas, A. S. (2019). Pengembangan Media Pembelajaran Video Animasi Hands Move Dengan Konteks Lingkungan Pada Mapel Ips Iseu Synthia Permatasari. *TERAMPIL Jurnal Pendidikan Dan Pembelajaran Dasar, 6*(1), 34–48.

Damopolii, V., Bito, N., & Resmawan, R. (2019). Efektifitas Media Pembelajaran berbasis Multimedia pada Materi Segiempat. *Algoritm. J. Math. Educ*, *1*(2), 74-85.

Daryanto, D. (2013). Media pembelajaran perannya sangat penting dalam mencapai tujuan pembelajaran. *Gava Media*.

Dayu, D. P. K., Pratiwi, C. P., & Hakim, P. R. (2022). Problem-Based Learning Model to Increase Students' Critical Thinking. *Jurnal Basicedu*, *6*(3), 4672-4678.

Erni, E., & Farihah, F. (2021). Pengembangan Media Video Tutorial Pada Mata Kuliah Teknologi Menjahit Dalam Mendukung Pembelajaran Dimasa Pandemi Covid-19. *Jurnal Pendidikan Teknologi Dan Kejuruan*, *18*(1), 121-131.

Famela, C. (2021). Efektivitas Penerapan Media Video Animasi dalam Pembelajaran Keterampilan Menulis Teks Persuasi Siswa Kelas VIII MTs Al-Muttaqin Plemahan. *Jurnal Penelitian, Pendidikan, Dan Pembelajaran*, *16*(22).

Fatonah, D., & Rohana, M. P. (2022). Pengaruh Media Video Animasi Terhadap Keterampilan MenyimakSiswa SD Negeri 1 Sukamaju. Innovative:Journal Of Social Science Research (Inpress Issue), 2(1), 262–271.

Febriani, E. A., Astriani, D., & Qosyim, A. (2022). Penerapan Media Video Animasi Untuk Meningkatkan Motivasi Dan Hasil Belajar Siswa Materi Tekanan Zat Cair. *Pensa: E-Jurnal Pendidikan Sains*, *10*(1), 21-25.

Ferry, D., Jepriadi, & Kamil, D. (2019). Peningkatan Hasil Belajar Biologi Siswa Melalui Penerapan Media Video Animasi Tiga Dimensi (3D). *J. Pedagogi Hayati, 3*(2), 1–11.

Fisabilillah, F. F. N., & Sakti, N. C. (2021). Pengembangan Video Animasi Sebagai Upaya Peningkatan Minat Belajar Peserta Didik Materi Perpajakan di Sekolah Menengah Atas. *Edukatif: Jurnal Ilmu Pendidikan*, *3*(4), 1271-1282.

Gao, X., Wang, L., Deng, J., Wan, C., & Mu, D. (2022). The effect of the problem based learning teaching model combined with mind mapping on nursing teaching: A meta-analysis. *Nurse Education Today*, *111*, 105306. https://doi.org/10.1016/j.nedt.2022.105306

Ghory, S., & Ghafory, H. (2021). The impact of modern technology in the teaching and learning process. *International Journal of Innovative Research and Scientific Studies*, *4*(3), 168-173.

Herani, N. E. (2021). Pemanfaatan video pembelajaran pada mata pelajaran tematik terpadu Di sekolah dasar saat pandemi COVID-19. *EDUTECH: Jurnal Inovasi Pendidikan Berbantuan Teknologi*, *1*(1), 58-66.

Hidayah, N., & Yasnidawati, Y. (2019). Penyesuaian Pola Dasar Busana Sistem Indonesia Untuk Wanita Indonesia Dengan Bentuk Badan Gemuk. *Gorga: Jurnal Seni Rupa*, *8*(1), 222-230.

Hmelo, C. E. (1998). Problem-based learning: Effects on the early acquisition of cognitive skill in medicine. *The journal of the learning sciences*, *7*(2), 173-208.

Ho, T. Q., Gadke, D. L., Henington, C., Evans-McCleon, T. N., & Justice, C. A. (2019). The effects of animated video modeling on joint attention and social engagement in children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, *58*, 83-95. https://doi.org/10.1016/j.rasd.2018.09.004

Hoque, M. E. (2016). Three domains of learning: Cognitive, affective and psychomotor. *The Journal of EFL Education and Research*, *2*(2), 45-52.

Hursen, C. (2019). The effect of technology supported problem-based learning approach on adults' self-efficacy perception for research-inquiry. *Education and Information Technologies*, *24*(2), 1131-1145.

Iswara, E., Darhim, D., & Juandi, D. (2021). Students' Critical Thinking Skills in Solving on The Topic of Sequences and Series. *Plusminus: Jurnal Pendidikan Matematika*, *1*(3), 385-394.

Julhadi. (2021). Hasil Belajar Peserta Didik Ditinjau dari Media Komputer dan Motivasi. Edu Publisher.

Karo-Karo, I. R., & Rohani, R. (2018). Manfaat media dalam pembelajaran. *AXIOM: Jurnal Pendidikan Dan Matematika*, *7*(1).

Kusumawati, N. (2022). Analisis Motivasi Belajar Berbantukan Video Animasi Pada Siswa Kelas V SDN 01 Taman. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah*, *6*(1), 31-37.

Liansari, V., & Azizah, N. L. (2022). The Relationship between the Use of Active, Innovative, Creative, and Fun Learning Techniques and Online English Learning by Multidisciplinary Students. *KnE Social Sciences*, 18-23.

Linggarsari, E. (2021). Meta Analisis Pembelajaran Berbasis Media Video Pembelajaran terhadap Peningkatan Hasil Belajar Siswa Sekolah Dasar. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, *2*(1), 122-128.

Lytvyn, V., Akimova, O., Kuznetsova, H., Zenchenko, T., Stepanenko, O., & Koreneva, I. (2021). The use of synchronous and asynchronous teaching methods in pedagogical education in COVID-19 terms. *International Journal of Health Sciences*, *5*(3), 617–629. https://doi.org/10.53730/ijhs.v5n3.2681

Mahyuddin, A. (2022). The Application of Problem Based Learning Models to Improve Motivation and Learning Outcomes Materials Analyzing the Size of Single Data Concentration and Student Group Data. *Pinisi Journal of Education and Management*, *1*(1), 79-88.

Malmia, W., Makatita, S. H., Lisaholit, S., Azwan, A., Magfirah, I., Tinggapi, H., & Umanailo, M. C. B. (2019). Problem-based learning as an effort to improve student learning outcomes. *Int. J. Sci. Technol. Res*, *8*(9), 1140-1143.

Mandalika, M., & Syahril, S. (2020). Pengembangan Media Pembelajaran Berbasis Video Tutorial untuk Meningkatkan Efektifitas Pembelajaran Pada Mata Kuliah Tata Rias. *INVOTEK: Jurnal Inovasi Vokasional Dan Teknologi*, *20*(1), 85-92.

Mashudi, M., Komariah, K., & Irvan, M. F. (2021). The use of audio-visual media in improving Culinary students learning outcomes in Chicken Carcass material. *Jurnal Pendidikan Vokasi*, *11*(1), 14-23.

Masuri, D. K., & Budiyono. (2020). Pengembangan Media Pembelajaran Video Animasi Materi Volume Bangun Ruang Untuk Sd Kelas V. JPGSD Jurnal Penelitian Pendidikan Guru Sekolah Dasar, 8(5), 893–903.

Mu'minah, I. H. (2021). Pemanfaatan media pembelajaran berbasis video sebagai alternatif dalam pembelajaran daring IPA pada masa pandemi covid-19. *Prosiding Penelitian Pendidikan dan Pengabdian 2021*, *1*(1), 1197-1211.

Murtonen, M., Gruber, H., & Lehtinen, E. (2017). The return of behaviourist epistemology: A review of learning outcomes studies. *Educational Research Review*, *22*, 114-128. https://doi.org/10.1016/j.edurev.2017.08.001

Nilson, L. B. (2016). *Teaching at its best: A research-based resource for college instructors*. John Wiley & Sons.

Permatasari, I. S., Hendracipta, N., & Pamungkas, A. S. (2019). Pengembangan media pembelajaran video animasi hands move dengan konteks lingkungan pada mapel IPS. *TERAMPIL: Jurnal Pendidikan dan Pembelajaran Dasar*, *6*(1), 34-48.

Prehanto, A., Aprily, N. M., Merliana, A., & Nurhazanah, M. (2021). Video pembelajaran interkatif merupakan dari media pembelajaran online yang menjadi solusi dalam proses pembelajaran, terutama dalam pemecahan masalah akses belajar siswa. Penelitian ini memberikan kesimpulan bahwa penggunaan video pembelajaran yang anima. *Indonesian Journal of Primary Education, 5*(1), 32–38.

Purba, D., Janah, M., & Arianto, F. (2020). The Impact of Problem Based Learning Model on Critical Thinking Ability in Vocational Education. *International Journal of Education and Research, 8*(12), 33–40.

Putra, D. P. S., Hasni, H., & Sumpala, A. T. (2022). Application Of Problem Based Learning Model To Improve Student Learning Outcomes In Ips Subjects Grade 8 Mts Singkawang Country. *Social Landscape Journal*, *3*(1), 1-6.

Rahayu, N. D., Zulherman, & Yatri, I. (2021). Animated Video Media Based on Adobe after Effects (AEF) Application: An Empirical Study for Elementary School Students. *Journal of Physics: Conference Series, 1783*(1), 108.

Rahmah, D. N., Setiono, K. W., & Telusa, A. S. (2021). Efektivitas Media Video Terhadap Peningkatan Pengetahuan Pencegahan Covid-19 Pada Mahasiswa Baru Universitas Nusa Cendana. *Cendana Medical Journal (CMJ)*, *9*(1), 46-57.

Rahmawati, D. N., Hidayat, T., & Astuti, R. P. F. (2021). Analisis Penerapan Media Video Animasi Pada Pembelajaran Ips Kelas Vii Mts Tauhidiyah 2 Senganten Kecamatan Gondang Kabupaten Bojonegoro Tahun Pelajaran 2020-2021. *Jurnal Pendidikan Edutama, 8*(2).

Rahmawati, D., Arafat, Y., & Aryaningrum, K. (2022). Penerapan Model Pbl (Problem Based Learning) Berbantu Media Powerpoint Terhadap Hasil Belajar Pada Pembelajaran Ipa Kelas Iv Sdn Tenggaro. *Jurnal Pendidikan Indonesia, 3*(2), 712–718.

Raz, N., & Rodrigue, K. M. (2006). Differential aging of the brain: patterns, cognitive correlates and modifiers. *Neuroscience & Biobehavioral Reviews*, *30*(6), 730-748. https://doi.org/10.1016/j.neubiorev.2006.07.001

Reinsini, C. E., Susila, I. W., & Cholik, M. (2021). Application of Problem-Based Learning to Enhance Students Learning Outcomes in Basic Competencies of Maintaining Brake Systems. *International Journal for Educational and Vocational Studies*, *3*(2), 139-145.

Richaed, A. (2012). Learning To Teach. Mc Graw Hill

Ridha, M., Firman, F., & Desyandri, D. (2021). Efektifitas Penggunaan Media Video pada Pembelajaran Tematik Terpadu di Sekolah Dasar Saat Pandemi Covid-19. *Jurnal Pendidikan Tambusai*, *5*(1), 154-162.

Robi'atutsani. (2021). Pengembangan Media Video Animasi Pantura (Sopan Santun Berbicara) Dalam Keterampilan Berbicara Melalui Program One Day Discovery Di Sekolah Inovatif Sd Maarif Jogosari Pandaan. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar, 9*(10), 3594–3606.

Rosmaya, I., Sulaeman, S., & Purwati, N. H. (2019). Pengaruh Video Interaktif dan Media Gambar terhadap Kemampuan Merawat Diri pada Anak Tunagrahita. *Journal of Telenursing (JOTING)*, *1*(1), 17-26.

Rusman, M. P. (2017). *Belajar & Pembelajaran: Berorientasi Standar Proses Pendidikan*. Prenada Media.

Santos, S. C. D., Bispo, E. L., Santos Filho, O. D. C., & Oliveira, R. P. A. D. (2022). Problem-Based Learning Diagnosis in Computing Higher Education: An Overview from Brazilian Public Institutions. *SN Computer Science*, *3*(3), 1-21.

SARI, D. P. (2021). Peningkatan Hasil Belajar Matematika Siswa Kelas Vi Melalui Penerapan Media Video Animasi. *SCIENCE: Jurnal Inovasi Pendidikan Matematika dan IPA*, *1*(1), 39-45.

Septiana, N. (2022). Application of Problem Based Learning (PBL) Learning Model Assisted by Popular Article Media on Science Literacy of Students of Respiratory System Material Class VIII SMPN 7 Palangkaraya. *JURNAL INOVASI PENDIDIKAN DAN SAINS*, *3*(2), 68-72.

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2012). Instructional Technology & Media for Learning: Learning Technology and Media for Learning.

Sudarma, I. K., & Sukmana, A. I. W. I. Y. (2022). Improving Children's Cognitive Ability Through Information Processing Theory-Based Digital Content. *International Journal of Elementary Education*, *6*(1).

Sudarsana, I. K., Nakayanti, A. R., Sapta, A., Satria, E., Saddhono, K., Daengs, G. A., ... & Mursalin, M. (2019). Technology application in education and learning process. In *Journal of Physics: Conference Series* (Vol. 1363, No. 1, p. 012061). IOP Publishing.

Sunami, M. A., & Aslam, A. (2021). Pengaruh penggunaan media pembelajaran video animasi berbasis zoom meeting terhadap minat dan hasil belajar IPA siswa sekolah dasar. *Jurnal Basicedu*, *5*(4), 1940-1945.

Suo, S. A., Odja, A. H., & Ntobuo, N. E. (2022). The Influence Of Video-Assisted Problem Based Learning Models On Learning Outcomes On The Concept Of Elasticity And Hooke's Law In High School. *INSECTA: Integrative Science Education and Teaching Activity Journal*, *3*(1), 10-19.

Suryana, E. (2021). Efektifitas Media Audio Visual Dengan Google Clasroom Untuk Meningkatkan Pemahaman Siswa Di Masa Pendemi COVID-19 (Penelitian Pada Siswa Kelas XII TMPO 1 SMK Negeri 2 Kota Tasikmalaya Tahun 2020/2021 Materi Pemeliharaan Kelistrikan Kendaraan Ringan. *Journal of Vocational Education and Automotive Technology*, *3*(1), 146-155.

Sutarto, Hastuti, I. D., Fuster-Guillén, D., Garay, 3essica Paola Palacios, Hernández, R. M., & Namaziando, E. (2022). The Effect of Problem-Based Learning on Metacognitive Ability in the Conjecturing Process of Junior High School Students. *Hindawi Education Research International*, 1–10.

Syamsul, N. N. N., & Kharnolis, M. (2022). Penerapan Media Video Pembelajaran Pada Kompetensi Dasar Pembuatan Pola Rok Setengah Lingkar. *Jurnal Tata Busana, 11*(1), 26–32.

Syaparuddin, S., & Elihami, E. (2020). Improving Student Learning Motivation Through the Utilization of Video Media in Education Students. *Jurnal Edukasi Nonformal, 1*(2), 228–235.

Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, *65*, 101565. https://doi.org/10.1016/j.techsoc.2021.101565

Tanjung, N. (2022). Pengaruh Model Pbl (Problem Based Learning) Dengan Media Animasi Terhadap Kemampuan Berpikir Kritis Dan Hasil Belajar Biologi Siswa Di SMAN I Kota Bengkulu. *Jurnal Bioeduscientific*, *3*(1), 1-16.

Taufikurachman, I. E., Kusumah, I. H., & Permana, T. (2018). Penggunaan Media Video Pada Mata Pelajaran Pekerjaan Dasar Teknik Otomotif Di Sekolah Menengah Kejuruan. *Journal of Mechanical Engineering Education*, *6*(1), 57-63.

Timor, A. R., Ambiyar, A., Dakhi, O., Verawadina, U., & Zagoto, M. M. (2021). Effectiveness of problem-based model learning on learning outcomes and student learning motivation in basic electronic subjects. *International journal of multi science*, *1*(10), 1-8.

Torres, A., Hu, J., Sriraman, V., Martínez-Ortiz, A., & Membrillo-Hernández, J. (2022). Assessing the Effectiveness of Problem-Based Learning Across Two Concrete Construction Courses. *International Journal of Instruction*, *15*(4).

Utami, A. R., Oktaviani, L., & Emaliana, I. (2021). The Use of Video for Distance Learning During Covid-19 Pandemic: Students' Voice. *JET (Journal of English Teaching) Adi Buana*, *6*(02), 153-161.

Virk, A., Mahajan, R., & Singh, T. (2022). Conceptualizing problem-based learning: an overview. *International Journal of Applied and Basic Medical Research*, *12*(1), 1.

Wibawa, B., & Muhidin, A. (2021). The effect of instructional videos on learning performance. In *AIP Conference Proceedings* (Vol. 2331, No. 1, p. 060011). AIP Publishing LLC.

Wisada, P. D., & Sudarma, I. K. (2019). Pengembangan media video pembelajaran berorientasi pendidikan karakter. *Journal of Education Technology*, *3*(3), 140-146.

Wulanda, N. N., & Armaini, A. (2021). Efektivitas Video Tutorial Dalam Keterampilan Vokasional Membuat Souvenir Bantalan Jarum Bagi Anak Tunagrahita Ringan. *Jurnal Penelitian Pendidikan Khusus*, *9*(1), 172-180.

Yusuf, R., Sanusi, R., Maimun, B. A., & Putra, I. (2020). Critical thinking and learning outcomes through problem based learning model based on LBK application. *International Journal of Innovation, Creativity and Change*, *12*(12), 907-918.

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