



Using Learning Videos On Google Classroom To Increase Learning Outcomes Of Computer System Subjects In Vocational High School

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ABSTRACT

Current technology developments have altered the order of human life activities. A touch of technology provides several conveniences in carrying out duties. This is also evident in the educational sector. For education to be integrated, it must undergo a transformational process. Various breakthroughs in curriculum creation, learning innovation, and educational facility and infrastructure fulfillment are required to increase educational quality. Teachers must make learning more inventive so that students may learn effectively in both independent and classroom settings. Initially, in the distance learning process, the teacher just delivered module files or electronic books on the learning platform. However, the learning process has not yielded the best outcomes, necessitating the development of new ways to address these issues. One of the innovations that teachers can do is to design video-based learning media. A learning video has the advantage of being able to present audio (sound) and visuals (images) that describe and explain concepts and procedures for learning material. The purpose of this study was to determine the effect of using learning videos on improving learning outcomes in computer systems subjects in vocational schools. The research method used is a one-group pretest-posttest design, which involves only one experimental class to determine the effect of using learning videos on Google Classroom to improve learning outcomes for computer systems subjects in SMK. According to data analysis results, the utilization of learning videos is highly beneficial in increasing student learning outcomes in computer systems subjects. The percentage increase in student learning outcomes is 9.24%.

Keyword : Learning Videos, Learning Outcomes, Learning Innovations

1. INTRODUCTION

Today's advancements in science and technology have resulted in substantial changes in many aspects of life. When technology affects numerous areas of human life, it is believed to improve the efficiency of a product or activity for its consumers. Human-made technology provides positive benefits for humans to find new ways to facilitate life activities in many aspects [1]. The world of education is also inseparable from the integration of technology in the context of learning effectiveness and efficiency. Technology is one of the solutions to problems in the world of education because it can penetrate the boundaries of space and time.

To increase the quality and quantity of education, the world of education is currently being developed and reformatted. As a result, several advances in curriculum development, learning innovations, and providing adequate educational facilities and infrastructure are required. Teachers must be more inventive and creative to increase the quality of the learning process and encourage students to learn optimally both alone and in class.

The current COVID-19 epidemic is affecting the educational sector, so the government has made

a policy to eliminate face-to-face learning at all levels of education. People are asked to limit their activities outside their houses as one type of worldwide policy to curb the virus's spread. One of the procedures conducted by selecting the best approach so that learning stays optimum and participatory is the process of learning from home. Distance learning will be facilitated by the use of online learning technologies. E-learning is a sort of technology-supported teaching and learning that allows students to get student teaching materials via the network and computer technology [2].

One of the online learning platforms that are currently widely used for online learning during the pandemic is Google Classroom. The learning approach through Google Classroom is part of a strategy to utilize technology so that it can facilitate teachers and students in the learning process. Google Classroom is an application that can be used for learning during a pandemic. With this application, teachers are given the convenience of organizing and distributing assignments to students. Learning activities can also be carried out at any time, and students can learn independently by reading and observing the subject matter provided and sending assignments without having to meet directly with the teacher.

In the subject of Computer Systems at SMKN 4 Tanjungpinang, Google Classroom is used as an online learning application. The selection of this application takes into account the condition of the facilities and infrastructure supporting students' online learning. This application tends to be an asynchronous model, where students can access teaching materials that have been provided on the platform by the teacher and can be accessed at any time without the need for face-to-face contact [3]. This application can be run using computers, laptops, and gadgets. Students are provided information and homework immediately throughout the learning process by the subject teacher through Google Classroom. The teacher presents the material in the form of a written module in PDF format, then students study the material and are directed to discuss through the comments column. However, the use of text-based media is less able to attract students' attention. In addition, this media is not able to provide a good understanding for all students to study independently. This is evident from the value of student learning outcomes where not all students can do assignments correctly and collect assignments beyond the specified time limit. This condition is possible because the material presented uses non-interactive media, and of course, relies on reading ability to understand the material. This is evident from the value of student learning outcomes where not all students can do assignments correctly and collect assignments beyond the specified time limit. This condition is possible because the material presented uses non-interactive media, and of course, relies on reading ability to understand the material.

For learning to be effective, media that is appropriate for the students' personalities should be used in the teaching and learning process, the subjects delivered, the atmosphere, and supporting infrastructure are needed. With good learning tools will lead students to be able to improve learning outcomes well. Learning media is a channel or intermediary used to convey messages or teaching materials. Media is indispensable in learning as a means of delivering information and messages from teachers to students. Good and smooth learning requires good learning media and by class conditions.

Given the importance of the role of learning media, to overcome the problems that have been described previously, teachers need to choose

interesting and interactive media to improve students' understanding of learning computer systems. The advancement of technology necessitates the use of computer-based learning in the field of education to apply computer-based learning. One way teachers must be able to create a lesson that has the potential to create an independent learning atmosphere and bring the class together like a magnet that can attract students to learn in a pleasant atmosphere, one of which is by utilizing learning videos. As a medium for student learning, videos can combine text, images, and sound. With the motion and animation elements of video, it is hoped that video can attract students' attention longer when compared to other learning media. With learning videos, students will be more motivated to learn so that their learning outcomes can increase [4].

Based on the description above, a discussion was carried out on the use of learning videos in Google Classroom to improve learning outcomes for computer systems subjects in vocational schools. In addition, the use of instructional video media in Computer Systems subjects in vocational high school can be used as an alternative to improve the quality of learning.

2. LITERATURE REVIEW

2.1 Tutorial Video

Because students can interact audio with recordings, visually with still images or moving images, and audio-visually with videos or films, video is one form of learning media that has the potential to significantly impact learning success. As a source of learning, learning media can help teachers carry out the learning process more effectively in delivering teaching materials [5]. Every teacher must be able to demonstrate sufficient knowledge and understanding of educational/teaching media for the effective use of educational media.

Learning videos are one of the most relevant educational tools in this digital era. Based on the types of learning media, learning videos are audio-visual-based media supported by computer technology [6]. Video media is anything that allows audio signals to be combined with sequential moving images. A learning video has the advantage of being able to present audio (sound) and visuals (images) that describe and explain concepts and procedures for learning material. As an audio-visual medium, teachers need to design so that the elements in the video such as text, images, and sound can run synchronously and attractively [4]. The goal of learning videos as a teaching medium is to give explanations and ease in communicating learning messages so that they are not merely verbal, transcend the restrictions of place, distance,

time, and student senses, and may be beneficial in a variety of ways.

In its application, learning videos are media that are not difficult to use and can be run using the default mobile or computer application [7]. The characteristics of instructional video media are that they can be stored and used repeatedly, have special techniques, for setting the order both in terms of presentation and storage, are relatively easy to operate, and can present past events or events elsewhere. Video media has the benefit of allowing the user to alter the size of the video display to their preferences and needs. Video media will also clearly deliver a lot of information because it may reach the students immediately. Video media will bring a new dimension to learning innovation.

2.2 Google Classroom

"Google Classroom" is a Google tool designed primarily for education and learning [8]. Google Classroom is a learning tool that may be utilized in the context of education to assist teachers and students in finding answers to challenges in face-to-face learning [9]. The Google Classroom application has features that support the e-Learning learning process. There are several features offered by Google Classroom, including the assignment feature (assignment), the grading process with different assessment schemes, two-way communication between teachers and students supported by Google Drive, the existence of program archive features, and Google Classroom application features that can be accessed with Android and iOS devices [10].

It is feasible to build virtual classes using Google Classroom. Google Classroom may be used to distribute assignments, submit tasks, and even grade submitted assignments. This Google Classroom tool is beneficial for remote learning. This program is free to download and use on any device. This program may also be utilized in a collaborative group setting. Google Classroom is a fantastic tool for improving teacher workflows when it comes to remote learning. Teachers may use this software to save time, keep lessons organized, and increase communication with students.

To utilize Google Classroom, both the instructor and the student must have a Google account that they made or a Google account for education, notably belajar.id. The school administrator creates a belajar.id account for each instructor and student. The teacher then launches a new Google Classroom class. Teachers can then invite students to participate by sharing the code they were given when they created a new class. Code distribution is straightforward, both online and offline because it is connected with Google email accounts. Because all materials submitted are linked to the Google Drive

service, teachers may make announcements and distribute papers without using paper.

2.3 Learning Outcomes

Schools as formal educational institutions use a certain assessment reference to measure learning outcomes. Learning outcomes are obtained through an activity measuring the competencies that must be possessed by a student with certain criteria. Learning outcomes are behaviors in the form of knowledge, skills, attitudes, information, and new cognitive strategies that are obtained by students after interacting with the environment in an atmosphere or learning condition.

A shift in conduct is one of the signals that someone has learned [11]. Changes in knowledge (cognitive) and abilities (psychomotor), as well as changes in beliefs and attitudes, are all part of these behavioral changes (affective). Learning outcomes are the results obtained by students through the assessment process of the learning process that has been followed, including aspects of attitudes, knowledge, and skills, so that in students there is a behavior change [12]. Teacher competence in choosing a learning approach and using the right media will provide support for improving student learning outcomes [13].

Thus, learning outcomes may be defined as a change in behavior gained by students after completing the learning process, where the changes are connected to characteristics of students' knowledge, abilities, and attitudes.

2.4 Computer System Subject

Computer Systems is one of the subjects of the Basic Computer and Informatics Engineering Expertise Program group. In this subject, the scope of competence discusses number systems, logic gates and circuits, basic electronics, microcontrollers, computer architecture, and memory. In this paper, the observations made are on one of the basic competencies about the number system. In this material, students have explained the types of number systems and number conversions. The minimum learning mastery of this subject is 75.

3. METHOD

The research method used is a one-group pretest-posttest design, which involves only one experimental class to determine the effect of using learning videos in Google Classroom to improve learning outcomes for computer systems subjects at SMKN 4 Tanjungpinang. These study's research participants were all pupils from class X TKJ 1, a total of 41 persons. The researcher designed the research instrument, which consists of multiple-choice questions.

The IBM SPSS Statistics 28 application program was used to perform a normality test and a statistical test in the form of a t-test (Paired Samples T-Test). The significance threshold (α) employed in this hypothesis test was 0.05, or 5% [14].

3.1 Normality test

A normality test was performed to examine the distribution of the given data. The following is the decision-making framework:

- 1) The data is normally distributed if the significance value (2-tailed) or probability is greater than 0.05.
- 2) The data is not normally distributed if the significance value (2-tailed) or probability is less than 0.05.

3.2 Paired Sample T-test

Paired sample t-test was used as a comparative test or difference between two groups of data, in this case, the data of students' pretest and post-test scores. This test was conducted to determine whether there was an increase in student learning outcomes before and after using learning videos. The basis for decision making is:

- 1) If the significance value is <0.05 , it indicates a significant difference between the initial and final conditions.
- 2) If the significance value is > 0.05 , it indicates that there is no significant difference between the initial and final conditions.

4. RESULTS

The following data were produced based on the descriptive statistical analysis of IBM SPSS Statistics 28:

Table 1. Descriptive Statistics

	N	Min	Max	Mean	SD
n_awal	41	37	100	73.59	15.743
n_akhir	41	57	100	80.39	10.888
Valid N (listwise)	41				

The table above describes the statistical data for the initial and final grades of 41 students. The student's initial scores had the lowest score of 37 and the highest score of 100 with an average value of 73.59 and a standard deviation of 15.743. In the final score, the students had the lowest score of 57 and the highest score of 100 with an average score of 80.39 and a standard deviation of 10.888.

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		41
Normal Parameters ^{a,b}	Mean	.000
	Std. Deviation	9.978
Most Extreme Differences	Absolute	.051
	Positive	.051
	Negative	-.044
Test Statistic		.051
Asymp. Sig. (2-tailed) ^c		.200 ^d
Monte Carlo Sig. (2-tailed) ^e	Sig.	.997
	99% Confidence Interval	Lower Bound .995 Upper Bound .998

The table above summarizes the findings of the initial and final value data normalcy test. The results of the IBM SPSS Statistics 28 analysis, show a significance level (2-tailed) for the Unstandardized Residual value of 0.200.

Table 3. Paired Samples Test

	t	df	Significant Two Sided p
Pair 1 N_awal – n_akhir	-2.878	40	.006

The table above summarizes the Paired Sample T-test findings for beginning and end value data. The results of the analysis of IBM SPSS Statistics 28, show a significance level (2-sided) of 0.006. It was determined that there was a statistically significant difference of $0.006 < 0.05$ between the initial and final value conditions.

Based on the results of data analysis, table 1 shows that there is an increase in student learning outcomes, which can be seen from the lowest value, which was originally a value of 37, which has increased to 57. In addition, the average value of the class has also increased from 73.59 in the initial value to 80.39 in the final score, a percentage increase of 9.24%.

The data used in this study were normally distributed. This can be proven based on the analysis in Table 2, which obtained a significant level of 0.200. Thus, because the significance level of 0.200 is greater than 0.05, the keyword data is normally distributed.

Table 3 presents the results of the paired sample test, showing that the significant level of the data is 0.006, where this number is less than 0.05. Thus, it can be concluded that there is a significant difference between the students' initial and final grades.

An increase in student learning outcomes is suspected because, after gaining the first value, students are treated to learning videos during the learning process. As a result, video media is extremely beneficial in enhancing student accomplishment in computer system subjects. This is consistent with the findings of [4] and [15], who discovered that using teacher-designed videos during the learning process can improve student learning results. The majority of students saw an improvement in their learning results. There are still scores below mastery of learning among students who improve their learning outcomes. Individual reinforcement will be provided as a follow-up for these students. Furthermore, there are still some students who have not demonstrated learning improvement since they did not demonstrate activity or absence during the learning process while the researcher observed them.

In making videos, teachers need to pay attention to the video format so that the video file size is not too large. The larger the video size, of course, the more it will require a large internet quota when downloading, while not all students can get smooth internet access. so that all students can access and download learning videos easily. The use of learning videos should make it easier for students to learn [16].

5. CONCLUSION

From the results of the discussion of learning problems that have been described, there are several conclusions that the authors get, including video learning can help you get the most out of Google Classroom. After employing learning videos, student learning results improved. Students' attentiveness is increased when they watch learning videos. The percentage increase in student learning outcomes is 9.24%.

Based on the research findings, discussion, and conclusions, the following recommendations can be made: given to the research is by that the computer system learning video media based on testing the results of students is feasible to use, and thus it can be applied in the teaching and learning process in schools. More study on the usefulness of using instructional videos in Computer Systems subjects is predicted to increase student learning accomplishment.

6. REFERENCES

- [1] Ngafifi, M. (2014). Kemajuan Teknologi dan Pola Hidup Manusia Dalam Perspektif Sosial Budaya. *Jurnal Pembangunan Pendidikan: Fondasi dan Aplikasi*, 2(1), 33-47
DOI: <https://doi.org/10.21831/jppfa.v2i1.2616>
- [2] Jamun, Johannes Marryono. (2018). Dampak Teknologi Terhadap Pendidikan. *Jurnal Pendidikan dan Kebudayaan Missio*, 10(1), 48-52
- [3] Setiawan, Dimas., & Wicaksono, Suluh Langgeng. (2020). Evaluasi Usability Google Classroom Menggunakan System Usability Scale. *Walisongo Journal of Information Technology*, 2(1), 71-78
DOI: 10.21580/wjit.2020.2.1.5792
- [4] Khairani, dkk. (2019). Studi Meta-Analisis Pengaruh Video Pembelajaran Terhadap Hasil Belajar Peserta Didik. *Jurnal Biolokus*, 2(1), 158-166
- [5] Wahid, Abdul. (2018). Pentingnya Media Pembelajaran Dalam Meningkatkan Prestasi Belajar. *Istiqra'*, 2(2), 1-11
- [6] Wahyuni, Eko Sri. & Yokhebed. (2019). Deskripsi Media Pembelajaran Yang Digunakan Guru Biologi Sma Negeri Di Kota Pontianak. *Jurnal Pendidikan Informatika dan Sains*, 8(1), 32-40
DOI:10.31571/saintek.v8i1.1105
- [7] Fauzan, dkk. (2017). Pengembangan Media Pembelajaran Berbasis Video Pada Teori Pemesinan Frais. *Jurnal Dinamika Vokasional Teknik Mesin*, 2(2), 82-88
DOI: 10.21831/dinamika.v2i2.15994
- [8] Joenaidy, Abdul Muis. (2018). Guru Asyik, Murid Fantastik!. Yogyakarta: Diva Press
- [9] Rahmi, dkk. (2020). Platform Asesmen untuk Pembelajaran Daring: Teori & Praktik. Medan: Yayasan Kita Menulis
- [10] Lidia, dkk. (2019). E-Learning: Implementasi, Strategi dan Inovasinya. Medan: Yayasan Kita Menulis
- [11] Sadiman, Arief S, dkk. (2012). *Media Pendidikan*. Jakarta: PT. Raja Grafindo Persada.
- [12] Nurrita, Teni. (2018). Pengembangan Media Pembelajaran Untuk Meningkatkan Hasil Belajar Siswa. *Misykat*, 3(1), 170-187
DOI: <http://dx.doi.org/10.33511/misykat.v3n1.171>
- [13] Dakhi, Agustin Sukses. (2020). Peningkatan Hasil Belajar Siswa. *Jurnal Education and development Institut Pendidikan Tapanuli Selatan*, 8(2), 468-470
- [14] Asyhari, Ardian., & Hartati, Risa. (2015). Profil Peningkatan Kemampuan Literasi Sains Siswa Melalui Pembelajaran Saintifik. *Jurnal Ilmiah Pendidikan Fisika Al-BiRuNi*, 4(2), 179-191
<https://doi.org/10.24042/jpifalbiruni.v4i2.91>
- [15] Agustiningasih. (2015). "Video" Sebagai Alternatif Media Pembelajaran Dalam Rangka Mendukung Keberhasilan Penerapan

- Kurikulum 2013 Di Sekolah Dasar. Pancaran, 4(1), 55-68
- [16] Agustini, Ketut, dkk. (2020). Pengembangan Video Pembelajaran Untuk Meningkatkan Motivasi Belajar Siswa Menggunakan Model R&D. Jurnal Imiah Pendidikan dan Pembelajaran, 4(1), 62-78

DOI:<http://dx.doi.org/10.23887/jipp.v4i1.1840>

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