



The Level of Student Independence in Using Youtube to Improve Computer Assembly Skills at Vocational High School

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Abstract

Observation results at State Vocational High School 6 Kupang show that students are not active in learning activities in personal computer assembly subjects. Students also never learn on their own initiative. Students only learn because of pressure from outside themselves. The existence of dependency and the absence of their own initiative makes students less independent in learning. The majority of students only learn if someone tells them to, presses them, waits for them, and only if they have an exam. Therefore, the teacher directs students to use YouTube to learn computer assembly independently. This research aims to determine the level of achievement in aspects of implementation, understanding of learning, and student learning success in using YouTube independently to improve computer assembly skills in class XI students in the Computer Network and Telecommunications Engineering skills program at State Vocational High School 6 Kupang. This research is a quantitative descriptive type. The research population was 60 class XI students. Data was taken using a closed questionnaire. The instrument was validated with Expert Judgment, while Cronbach Alpha was used to find reliability values. The data obtained was analyzed using descriptive statistics in the form of mean values. The research results show: (1) The learning process using YouTube as a learning resource can increase learning independence with an achievement level of 93.49%. (2) Using YouTube can increase understanding of computer assembly procedures with an achievement level of 96.38%. (3) Utilizing YouTube can improve computer assembly skills with an achievement level of 97.40%.

Keywords: level of independence, use of youtube, computer assembly skills

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1. Introduction

The Education System Law (Number 20 of 2003) explains the National Education System. In this law, it is stated that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, and the skills they need. society, nation and state. Education in Indonesia at the formal education level consists of primary education, secondary education and higher education.

Vocational High School (VHS) is a form of formal education unit at secondary education level that prepares and equips students with skills to be ready to work in certain areas of expertise in the world of work and industry [1],[2]. This is in line with the definition of Vocational education in the Education System Law (Law Number 2 of 1990 concerning the National Education System) which was updated by (Law Number 20 of 2003 Article 15). Vocational High Schools (VHS) have the main mission to produce skilled workers who meet the needs of employment opportunities. Apart from that, vocational school graduates also have the opportunity to continue their education to a higher level (university). Apart from that, students are expected to be able to create their own jobs as independent entrepreneurs.

State Vocational High School 6 Kupang is a Vocational High School that has been prepared to meet the best Vocational Schools. This school was founded on August 5 2022 and was built on an area of $\pm 4,656$ m². State Vocational High School 6 Kupang has 5 (five) skill programs, namely Software and Games Development (SGD), Computer Network and Telecommunications Engineering (CNTE), Visual Communication Design (VCD), Institutional Financial Accounting (IFA) & Office Management and Business Services (OMBS).

State Vocational High School 6 Kupang has resources of 67 teachers and 19 employees. The community has high hopes for improving the quality of State Vocational High School 6 Kupang, this has been realized by the great support and enthusiasm of the community to send their children to school at State Vocational High School 6 Kupang, especially in the new academic year 2023/2024. There is no need to doubt the quality of education at State Vocational High School 6 Kupang, as evidenced by the various achievements achieved by students of State Vocational High School 6 Kupang at both provincial and national levels, even internationally and with an always high graduation percentage.

It is known that the independent curriculum now prioritizes student activity and participation in learning. So students are better trained to be able to learn independently, be more active and creative to determine their learning goals in accordance with character values

and noble morals. Limited learning time or lesson hours at school also requires students to be able to learn without relying on teacher explanations at school. They are required to be able to understand the lessons themselves by studying in depth the material at home or outside school hours without a teacher. So independent learning is very necessary to support each student's understanding.

The component of education that has greatly influenced the educational process is the educator or teacher, because the teacher is the spearhead who relates to students as subjects and objects of learning. Therefore, the teaching and learning process that occurs in schools requires teachers to be able to develop, guide and direct students in the desired direction. Teaching and learning process activities give rise to educational interactions between teachers and students, when teachers deliver teaching materials to students. The teacher describes, explains, asks questions and evaluates. One of the main tasks of a teacher is to make students know or do things in a formal way. For this reason, various methods need to be developed by teachers to be able to accommodate students in learning and develop students' potential. Teachers are required to be skilled in choosing and using appropriate teaching methods for the situations and conditions they face. The use of methods that are not in accordance with teaching objectives will be an obstacle in achieving learning objectives. Therefore, teachers must be able to design teaching methods according to the characteristics of the subject matter.

One of the important factors that influences success in achieving the minimum completeness criteria is the learning method. The selection and use of appropriate teaching methods that are in accordance with competency objectives is very necessary, because teaching methods are the methods used by teachers to establish relationships or interactions with students during teaching and learning activities. An effective learning process will be successful if the teacher can use appropriate learning methods and involves a lot of students' active role [3],[4]. By appropriate teaching methods applied by teachers, students will be more active and better understand the subjects they learn at school.

Basically, the vocational school has 5 skill programs, one of which is Computer Network and Telecommunications Engineering (CNTE). CNTE is one of the skills programs currently being developed at VHS. Personal computer (PC) assembly is a subject given in the CNTE program. Assembling a computer is a necessity for basic knowledge and knowledge in science and technology [5]. One of the competency standards is installing a PC with competency. This material invites students to get to know PC components, understand the functions of each component, and be able to apply them when assembling a computer. This material cannot be delivered only using the lecture method, because it requires a more concrete learning

experience so that it does not give rise to verbalism. However, in practice, the availability of tools and materials is not always met. The demonstration method as one of the methods used becomes less efficient when shown in a room that is large enough so that not all students can clearly follow the basics of installing PC components.

Based on the results of initial observations carried out at State Vocational High School 6 Kupang, in learning Computer Hardware, the teacher directs and optimizes students for independent learning. Independence is one of the factors that determines students' success in learning [6]. This learning independence greatly influences students' abilities and learning outcomes [7], especially learning outcomes in the cognitive domain known as learning achievement. Students are said to be able to learn independently if they are able to carry out learning tasks of their own volition or initiative without dependence on other people with full discipline and responsibility [8],[9],[10] therefore, new innovations in learning are needed. This is also emphasized by a study which found that the level of learning independence can improve student learning achievement [11].

This learning situation was developed by teachers at State Vocational High School 6 Kupang, namely using YouTube-based learning resources, students can watch YouTube, looking for answers to difficulties regarding computer assembly. This generation is very attached and familiar with digital technology [12]. Among students as the millennial generation, they are already familiar with the YouTube application because the current generation spends more time accessing social media in the form of YouTube [13]. In fact according another research, YouTube can be an alternative for learning video-based skills [14]. Thus, students should not learn from educators alone, but should be able to independently learn from various sources available in their environment [15]. Student independence can actually be increased by providing a choice of learning resources and actively involving students in learning.

However, teachers have not fully optimized their ability to actively involve students in learning activities. Apart from that, students also have not maximized the use of available learning resources, and students also show that students are still dependent on other people in learning. In fact, the increasing popularity of YouTube as one of the most popular social media is an opportunity in the world of education, because it makes it easy for students to obtain information and use it. According to Salsabila et al in Kumala, educators can innovate in delivering learning material, one of which is by utilizing YouTube media [16]. According to the results of one of the studies conducted by Nainggolan, it was concluded that YouTube-based learning media can be used as a reference for managing learning that is fun, motivating, and can improve learning outcomes [17]. So the YouTube video media used really helps students' learning process.

The results of observations made show that students are not active in learning activities. Students also never learn on their own initiative. Students only carry out school assignments or homework because of pressure from outside themselves. The existence of dependency and the absence of their own initiative makes students less independent in learning. The majority of students only learn if someone tells them to, presses them, waits for them, and only if they have an exam. If there are no exams, students study without seriousness. Therefore, the teacher directs students to use YouTube to understand things that students don't know about assembling computers or can ask colleagues to find solutions to the difficulties they face when assembling computers. Students can also study and repeat at home the computer assembly skills material they have received at school. And with learning that uses YouTube-based learning resources, students can learn independently, more effectively and creatively [18],[19],[20].

Based on the several factors above that encourage students to be creative, independent and achievers, the researcher intends to conduct research aimed at measuring the level of student independence in using YouTube to improve computer assembly skills. Therefore, continuous improvement in the learning process must continue to be pursued. One of the steps taken to improve the quality of learning is to evaluate learning methods. With evaluation, it is hoped that things that need to be addressed in a learning process will be immediately addressed. If a learning method is not evaluated, it will not be known how and how well the policies that have been issued can be implemented. Therefore, evaluation of learning through learning methods can be adjusted and improved on an ongoing basis.

2. Research Method

This research was carried out in September 2023 at State Vocational High School 6 Kupang for the 2023/2024 academic year. This type of research is quantitative descriptive research. This research contains factual and accurate descriptions of the facts, characteristics, and relationships between theories and the phenomena studied [21]. Data are presented as percentages and analyzed using descriptive analysis. The method that the author uses in research is a quantitative descriptive method. With this method, the author intends to collect historical data and observe carefully certain aspects related to the problem being researched by the author so that he will obtain data that can support the preparation of a research report. The data obtained is then processed and analyzed further on the basis of the theory that has been studied so as to obtain an overview of the object and conclusions can be drawn regarding the problem being studied [22]. The type of sample used in this research was a saturated sample, therefore the entire population was used as the research subject, namely all class and each class consists of 30 students.

The data collection technique in this research was carried out using a questionnaire method. The questionnaire used was a direct questionnaire given to students of the Computer Network and Telecommunications Engineering Skills Program at State Vocational High School 6 Kupang. In this research, a closed questionnaire was used to obtain data or information regarding the implementation of the level of independent learning of students using YouTube, students' understanding of the use of YouTube, and the level of success of students using YouTube to improve their computer assembly skills. Meanwhile, documentation techniques are used to obtain data on student learning outcomes with the learning independence of students who use YouTube in the Computer Network and Telecommunications Engineering Skills Program at State Vocational High School 6 Kupang. The student learning outcome documents used are the student assignment grades held by the teacher.

In accordance with the data collection technique used, the instrument used in this research is a questionnaire. The questionnaire used was a closed questionnaire to obtain quantitative data in the form of the percentage of achievement in using YouTube to improve computer assembly skills and the level of learning independence. The instrument for learning independence in this research is a scale. The statements in this instrument are positive statements and each statement item uses a modified Likert scale with five alternative answer choices, namely very good, good, not so good, not good and very not good.

The validity of the instrument in this research uses content and construct validity. Proving content validity is carried out by compiling a questionnaire based on a grid developed from theoretical studies. Meanwhile, proving construct validity begins by testing the instrument. The instrument trial in this research was carried out on research respondents which is usually called a used test. In this used test, researchers distribute questionnaires to respondents for validity as well as research. Next, proof of construct validity is obtained by factor analysis. The instrument validity test carried out is related to content validity, which is based on logical considerations, through expert judgment carried out by two lecturers: an education evaluation expert and a vocational education expert. Results from two examining lecturers with results suitable for use. Based on reliability testing using the Excel program, the following data was obtained:

Table 1. Summary of Class A Instrument Reliability Test Results

Variable	Alpha Value	Information
Implementation	0.721124	Reliable
Understanding	0.714350	Reliable
Success	0.713172	Reliable

Table 2. Summary of Class B Instrument Reliability Test Results

Variable	Alpha Value	Information
Implementation	0.712524	Reliable
Understanding	0.712358	Reliable
Success	0.710552	Reliable

Based on the data above, it shows that the Cronbach's Alpha value is > 0.7 , it can be concluded that the instrument used in this research is reliable. The data analysis technique in this research uses descriptive statistics, namely (1) calculating the total score of each respondent, (2) measuring the average value, (3) calculating the percentage of the respondent's answer scoring results, (4) calculating the standard deviation, (5) calculating Middeal and Sdideal, (6) determining the number of interval classes and (7) changing the total average score into categories for the level of student learning independence in Table 3.

Table 3. Kriteria Kategori Penilaian Ideal

Value interval	Category
$S > \bar{X} + 1.8\sigma$	Very good
$\bar{X} + 0.6\sigma < S < \bar{X} + 1.8\sigma$	Good
$\bar{X} - 0.6\sigma < S < \bar{X} + 0.6\sigma$	Not so good
$\bar{X} - 1.8\sigma < S < \bar{X} - 0.6\sigma$	Not good
$S < \bar{X} - 1.8\sigma$	Very Not Good

3. Results and Discussion

The data collected in this research is data regarding the implementation of using YouTube, knowledge in using YouTube, success in using YouTube to improve computer assembly skills obtained from 60 respondents.

3.1 . Implementation of the use of YouTube

Using YouTube to increase student initiative for independent learning. From the research data, it can be concluded that the level of achievement of existing indicators can be seen as follows:

Table 4. Descriptive Implementation of YouTube Use

Statement	Average	%
I try to study alone for 1-2 hours per day using YouTube	5.25	93.92
I try to complete all assignments independently with the help of YouTube	5.39	96.74
I followed the learning process via YouTube until completion	5.6	98.00
I often exchange opinions with other YouTube users in the comments column regarding things that are still difficult for me to understand	4.97	88.30
I learn via YouTube of my own will	5.22	93.30
I looked for a lot of additional explanations regarding learning material that I didn't understand via YouTube	4.87	90.70
Average	5.22	93.49
Percentage per school (%)	93.03	93.03
Lowest	4.87	90.70
Highest	5.6	98.00
Mode	0.157	0.033
Median	5.20	93.60
Standard Deviation	0.34	0.10

Table 4 above explains how from the five statements it is explained that at least 93.03% of students use YouTube during learning. Learning videos on YouTube can also be used for interactive learning in class, both for students and teachers themselves through online and offline presentations. From the use of YouTube to increase student initiative in independent learning, it can be seen the criteria and level of achievement in implementing the use of YouTube during the independent learning process carried out by students.

3.2 . Knowledge in using Youtube

Knowledge in using YouTube in independent learning is more likely to improve memory and understanding because the learning process does not only use one sense. Students will achieve better and better understand the material provided by the teacher. The changes that occur include students being more enthusiastic about the learning process and students being more active in looking for tutorials using YouTube. From the use of YouTube in independent learning, it can be seen the criteria and level of achievement in knowledge of using YouTube by students. From the research data above, it can be concluded that the level of achievement of existing indicators can be seen as follows:

Table 5. Descriptive Knowledge of Using YouTube

Statement	Average	%
With YouTube , I learned about tutorials on how to assemble a computer properly	5.42	97.36
I use YouTube to look for information about learning materials	5.31	95.17
I'm interested in looking for learning tutorials on YouTube	5.24	93.61
With YouTube , I can learn independently	5.36	96.00
I studied alone in class using YouTube even though the teacher didn't come	5.52	99.24
I study/do assignments regularly, not only during tests	5.41	96.95
Average	5.37	96.38
Percentage per school (%)	96.42	96.42
Lowest	5.24	93.61
Highest	5.52	99.24
Mode	0.05	0.00
Median	5.38	96.58
Standard Deviation	0.15	0.025

3.3 . Success in using YouTube

Success in using YouTube is utilizing YouTube to improve computer assembly skills. Students are said to be able to learn independently if the student has carried out learning tasks without dependence on other people. Basically, independence is the behavior of an individual who is able to be responsible in learning, take the initiative, be persistent in learning, be able to practice directly, and be cooperative in learning. By using YouTube during learning, students can learn independently and indirectly understand the computer assembly learning material.

From using YouTube to improve computer assembly skills, we can find out the criteria and level of success in using YouTube as explained in Table 6 below:

Table 6. Descriptive success in using YouTube

Statement	Average	%
It is easier for me to understand the tutorial learning material on YouTube	5.47	98.30
I always try to practice directly after watching on YouTube	5.34	95.80
I immediately did it when the teacher gave me the assignment	5.31	95.17
Learning to use YouTube broadened my knowledge in assembling computers	5.41	97.00
If I have difficulty while studying, I can find a way out by watching YouTube	5.51	99.35
I prefer to do my own assignments with the help of YouTube	5.59	98.80
Average	5.44	97.40
Percentage per school (%)	98.01	98.01
Lowest	5.31	95.17
Highest	5.59	98.80
Mode	5.47	0.98
Median	5.44	97.67
Standard Deviation	0.17	0.030

From the results of the data analysis presented above, it can be concluded that in general the level of student independence in learning by using YouTube in the Computer Network and Telecommunications Engineering skills program at State Vocational High School 6 Kupang, the criteria and level of achievement in using YouTube can be identified. The following is a recap of achievement level data on these three indicators:

Table 7. Descriptive recap of YouTube usage data

Indicator	Average	%	Category
Implementation of the use of YouTube	5.22	93.49	Very good
Knowledge of using YouTube	5.37	96.38	Very good
Successful use of YouTube	5.44	97.40	Very good

For a clearer picture of the results above, it can be seen in the bar chart as follows:

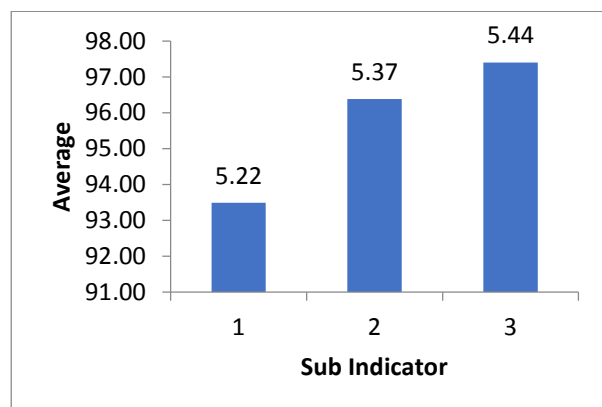


Figure 1. Histogram of research data recap

The results from table 7 and figure 1 above, show that from these three indicators the distribution of the level of student independence in using YouTube to improve computer assembly skills in class) implementation of using YouTube with an achievement level of 93.49%,

(2) knowledge of using YouTube with an achievement level of 96.38%, and (3) success in using YouTube with an achievement level of 97.40%. This shows that the three indicators above on the level of student independence in using YouTube to improve computer assembly skills in class XI of the CNTE State Vocational High School 6 Kupang skills program are in the very well implemented category.

Based on the data presented, it can be concluded that teachers can improve students' skills in assembling computers by using YouTube. Regarding independent learning, it is clear that students really like using YouTube, so that by themselves they are able and willing to learn without having to be accompanied by a teacher. It cannot be denied that YouTube is the social media that is most popular with people today, including the younger generation. They are already used to using YouTube, so it will be easier if they involve using it in learning. Considering the teacher's limited time to explain lesson material in class, the limited hardware used for practice and the teacher's limited ability to involve each student in learning activities, this can be used as an effective learning alternative. Supporting this, research concluded that the use of YouTube as a teaching medium plays a significant role in students' interest in learning [23]. Therefore, the use of learning media that suits students' interests will automatically increase the level of student independence to be involved in its use.

Computer assembly learning material is a very complex material. Procedures and methods for installing components must be carefully considered according to their respective places and must be sequential. This is what causes different obstacles to be found when assembling. Each student can directly overcome these variations in obstacles when accessing YouTube. There are so many learning videos that can be found on YouTube regarding computer assembly complete with solutions to various problems. This was answered in the questionnaire point which emphasized that it was easier for students to understand computer assembly tutorials on YouTube with an achievement level of 98.30%. Likewise, the achievement level was 99.35% in the point which emphasized that students immediately found solutions to the obstacles they encountered in learning computer assembly by watching YouTube.

4. Conclusion

Limited student learning activities in the classroom require teachers to be able to think creatively and innovatively regarding the use of additional learning media to help students learn independently outside the classroom. One thing that can be an alternative is using YouTube. This media is very familiar among students, so they are very interested in using this media. The impact is that the level of learning independence increases. Apart from that, students are very enthusiastic about learning to use this media because the tutorials are

interesting, complete, coherent and clear, so they are easy to learn. Knowledge after using YouTube also increases. Using YouTube is also very helpful for students when they encounter problems in their learning related to computer assembly. This is a supporting factor in improving computer assembly skills. For this reason, it can be concluded that the level of student independence in using YouTube has succeeded in increasing computer assembly skills in vocational high schools, especially in the class XI CNTE skills program.

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