Student's Perception on Online Instructional Media Effectiveness in Automotive Field

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ABSTRACT

Instructional media is an important component in online learning. This study aims to: 1) find out what types of learning media that motivate students to learn; 2) knowing the benefits of various types of learning media used by students on online learning. This study used ex post facto method. The questionnaire was used to gain the data from bachelor student. The instrument explores information about various forms of online learning media, namely text, audio, graphic, animation, and video. The terms of the benefits of media including able to stimulate students' curiosity, motivate student, make easier for students understanding, encourage students learning happily, and giving student's flexibility in choosing learning resources. The results showed that: The better online learning media for motivating student were animation and video with a very high category of motivation achievement. While other types of learning media are in the high category. Judging from the benefits of various types of media, video and animation media are the most useful for students in online learning. The media got very high category on stimulating students' curiosity, motivating student`s learning, making it easier for students to understand, encouraging students learning happily, as well as giving students flexibility in choosing learning resources. Meanwhile, other types of learning media are in the high category. Even on text media, getting a low category on encouraging students learning happily. Therefore, teachers not only use PowerPoint media, but also need to consider other types of learning media for teaching students in online learning.

Keywords: Online Learning, Learning Media

INTRODUCTION

Vocational education is one solution in overcoming economic problems in Indonesia. To support this, The Indonesian government has changed the ratio of senior high schools: vocational schools from 70%: 30% to 30%: 70% in 2008. However, the implementation of vocational education in Indonesia so far still has many problems. According to [1] , the establishment of a new school was not balanced with a feasibility study. Therefore, the graduates feel difficult to get a job. Some challenges of the faced were the inadequate facilities, teachers and industry support [1]. This is exacerbated by the Covid-19 pandemic since the beginning of 2020 because of course it has a bad effect on education, because it has a major impact on schools, research, academic programs, professional development of staff and work in the academic field, etc.[2].

Distance learning has actually been developed for a long time in the world of education. However, not many schools/educational institutions have fully implemented online learning so far. Especially in vocational learning, face-to-face learning always been chosen because it requires practical learning in it. However, the Covid-19 pandemic has forced all levels of education in Indonesia to carry out online learning, including vocational education. Since the COVID-19 pandemic, As of March 30, over 166 countries have implemented nationwide closures, impacting over 87% of the world's student population, approximately 1.52 billion students. In addition, nearly 60.2 million teachers are no longer in the classroom [3]. By taking into account the risks to face-to-face education, online learning has been carried out through online learning platforms, virtual campuses, to continue facilitating student learning at distance. For other way, students can use smartphone for supporting the online learning. By this device, students can use some online learning platform. Therefore, this will require, in turn, having online training and support mechanisms for teachers and students that must be duly reinforced [3]. As a result of this pandemic, vocational education which trains a lot of hands-on skills cannot carry out practical learning directly.

In an ideal implementation, planning distance learning programs required solid strategic planning focusing on developing all potential participants in the educational institutions [4]. Online learning still has various weaknesses, such as these involve low self-organization, lack of control on the instructor's side, lack of effective interaction and sense of isolation, which obviously decreases their satisfaction with online learning experience [5]. In fact, online vocation education contains good online pedagogy as student-centered, but student to student communication in learning were rated lower than teacher-student practices [6]. However, effective distance learning

requires considerable attention and commitment on the part of faculty. Faculty have to manifest all resources and relevant course content with the emphasis on student support, interaction and assessment techniques [5]. In fact, according to [7] there was no significant difference found between the performance and satisfaction of students who were instructed in the traditional, online, or class-in-a-box environment. Therefore, even though it is done online, learning can still be used to achieve student achievement and satisfaction in learning. However practical learning at vocational learning is difficult to do online, because it requires certain equipment and tools.

The implementation of vocational education through distance learning is a challenge for all teaching staff. Distance learning can also be interpreted as distance education [8]. Distance learning is a teaching and learning process where students and teachers are in different physical locations [9]. In addition to differences in places, distance learning can also be done at different times [10]. Because there are differences in physical locations between students and teachers, the teaching and learning process must be adjusted both from the density of the material and the media that will be used to facilitate the transfer of knowledge. Online learning, digital learning, e-learning and virtual learning are similar meaning for distance learning [11]. In distance learning, teachers and students are required to be able to master the technology that supports the learning process. Hence, for teachers or students who are not able to adapt to the technology, they will experience difficulties during learning activities. According to [12] the latest communication technology is very significant to use in the process of implementing online learning.

Distance learning requires the right Learning Management System (LMS) platform to guide student learning. The LMS is a web-based learning management system that is used as a training tool for students [13]. So that the learning experience and understanding of students related to a particular topic is increased [14]. According to [15], the use of the LMS platform helps the learning process become more accessible and provides convenience for users. LMS is an alternative that can be chosen by teachers to assist in delivering material, discussing, and even evaluating learning. Many types of LMS that can be used both open source and commercial. [14] explained the things that need to be considered in choosing an LMS are 1) thinking about the needs of users and the lessons that will use the LMS; 2) consider the objectives of the LMS development; 3) ensuring that the LMS is easy to use, flexible, and able to be integrated with other systems that assist students in managing learning and the needs of students in learning. One part that plays an important role in LMS is the learning media section.

Learning media aims to concrete things that are initially abstract for students, including learning materials. [16] said that there are two main functions of learning media, namely: 1) it is used to deliver subject matter such as printed materials, video tapes, television, computer-based teaching materials, and CD-ROMs; 2) facilitate communication between teachers and students, such as fax, radio, teleconferencing, videoconferencing, and internet. Other opinions regarding the types of learning media were put forward [17] namely: Print Media, Chalks and Chalkboard, Graphic Materials, Realia, Still Pictures, Models and Mock-Ups, Audio Media, Overhead Projectors, Slide Projectors and Filmstrip Projectors, Film Projectors and Video Player/Projector, Multi-Media Presentation. Furthermore [4], classifies learning media which consists of the following types: human-based media, print-based media, visual-based media, audio-visual media, and computer media. In practice, learning media for distance learning is different from face-to-face learning media. Not all types of learning media can be used in online learning.

Some learning media that are often used are learning media in the form of text, graphics, audio, animation, and video. In distance learning, there are several considerations in determining learning media, including: 1) Identification of knowledge and skill gaps, 2) Effective assessment and measurement tools, 3) Level

of interaction (didactic versus dialectic), 4) Instructional strategies Complexity of content rate of content change. Furthermore, other considerations that need to be considered are Audience size & distribution and cost in the media [19]. According to [16] asserts that in choosing learning media, the components of instructional media can provide: 1) information on subjects and the learning process, 2) sound and visual displays to explain and demonstrate skills, 3) opportunities to test and assess themselves and 4) communication between teachers and students. Furthermore, [16] also explains that in choosing media, it is necessary to consider several factors who the students are, where the students are, the level of students' abilities, and students' learning styles.

In general, distance learning is not widely practiced by teachers. However, with the Covid-19 pandemic, almost all teachers had to carry out distance learning, including the Department of Automotive Engineering Education, Faculty of Engineering, Yogyakarta State University. For designing effective distance learning program, Instructors need to maximize interaction by using ICT in virtual learning environment. This goal can be attained if instructors are subject to extensive training on how to utilize new technologies and adapt teaching methods to distance learning environment as well as monitor and assess students' progress [5]. Lecturers have prepared various learning

resources through the LMS platform that can be accessed by students.

However, the online learning situation is much different from classroom face to face learning. In the context of vocational learning, the problem that occurs was practical learning which requires the involvement of mastery of skills (hands on skills). Besides technical problems such as network constraints, students did not always access various learning resources through the various learning media provided. This could be seen from the indications of a lack of student motivation to learn, which could be seen from the frequency of students being late in collecting assignments, and not always accessing the learning resources that had been provided. Thus, the role of learning media was still lacking. [20] suggested the various benefits of learning media for students, including: 1) stimulating curiosity to learn, 2) motivating students to study both in class and independently, 3) making it easier for students to understand the subject matter being taught, 4) providing a fun and not boring learning so that it is more focused on learning, and 5) giving students awareness of choosing the best learning media by themselves. This strengthens the opinion [21] that: "the purpose of media is to facilitate communication and learning". During online learning, lecturers had used various types of learning media added to the LMS platform, including text, audio, graphic, animation, and video forms of media. With various types of

learning media that had been used, it was certainly expected to support online lectures, increased student learning motivation and been optimally useful in learning. However, with the characteristics of these different media, certain types of media were indicated to be more effective in supporting online lectures, both in supporting learning motivation, and in supporting the effectiveness of learning. Therefore, this study aimed to: 1) find out what types of learning media motivate students to learn; 2) find out the benefits of various types of learning media used by students when online learning.

RESEARCH METHOD

This study uses the descriptive quantitative research method to explore student`s perception on online learning media. The fact that various learning media have been used by students gives the impression and benefits that student get. Indicators of the usefulness of online learning media are seen from several things, including: 1) stimulating curiosity to learn, 2) motivating students to study in class and independently, 3) Support students to understand the subject matter easier, 4) providing fun learning, and 5) providing awareness in selecting media. These indicators are used to assess the forms of learning media used in online lectures so far, included: text, audio, graphic, animation, and video. Data collection using an online

questionnaire given for all students who have taken online learning in the Department of Automotive Engineering Education, Faculty of Engineering, Universitas Negeri Yogyakarta. The questionnaire uses a Likert scale with 4 answer choices, so that the most negative answer choices to the most positive answer choices are sequentially given a score of 1, 2, 3, and 4. To test the validity and reliability of the instrument, it is done by content validation and construct validation. Instruments that have been validated through expert opinion, then tested on groups of students who have taken online learning as many as 38 students. Of the 44 instruments, there are 22 instruments that are not valid based on statistical tests with product moments, so the number of valid instrument items is 22 items with a product moment r value higher than the r table value, which is 0.320 with a significance level of 5%. After being analyzed, the valid instrument items have represented all the indicators on each variable of the usefulness of learning media. Apart from the results of the validity test, seen from the reliability test of the instrument using the spearman brown split half technique, it obtained a reliability value of 0.996 so that the instrument can be declared reliable. Instruments that have been valid and reliable are then presented to all students, and data is obtained as many as 149 respondents. The results of this data were then analyzed quantitatively using descriptive statistics.

RESULTS AND DISCUSSIONS

In accordance with its objectives, this study reveals how the perception of students majoring in automotive engineering education, Faculty of Engineering, Universitas Negeri Yogyakarta on the use of various types of learning media in online instructions. The data obtained through a questionnaire instrument given to 149 students who took part in online learning, to obtain data on the impact on learning motivation and the function and role of learning media in general from various types of learning media in online learning.

Types of Learning Media that Encourage Learning Motivation for Automotive Engineering Education Students

In accordance with the research objectives, it is necessary to know the types of learning media that tend to motivate student learning during online learning. From the various learning media that have been used in online learning, it is known that the impact data on learning motivation of each type of learning media is seen from the median mode data and the average value. The average data is then calculated into percentage data, and categorized through a continuum scale of achievement of the average score of students' learning motivation. With a score of choice of questionnaire with 4 answer choices 1, 2, 3, and 4, then in the region the score of 1.00 - 1.75 is in the very low category. Score 1.76 –

2.50 low category. A score of 2.56 – 3.23 is in the high category, and a score of 3.26 – 4.00 is in the very high category. Complete data can be seen in table 1.

Table 1. Score the impact of student motivation from the use of various types of learning media

Item	Text	Audio	Graphic	Animation	Video
Median	3.00	3.00	3.00	3.00	4.00
Mode	3.00	3.00	3.00	4.00	4.00
Mean	2.70	2.68	2.94	3.35	3.57
Percentage Of Achievement	67%	67%	73%	84%	89%
Category	High	High	High	Very High	Very High

Graphically, the impact of using learning media on student motivation to learn can be seen in the following diagram:
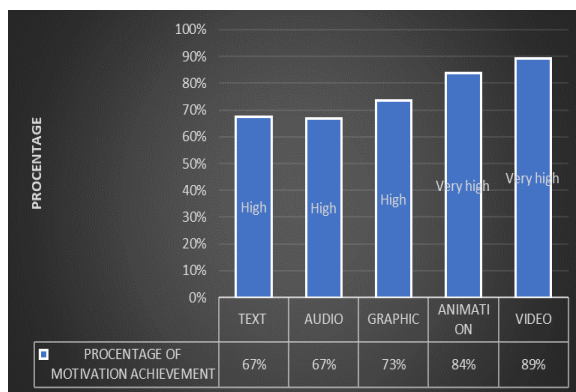

Figure 1. Achievement of learning motivation from the use of various online learning media

According to Figure 1, it can be seen that the highest impact on student learning motivation in the use of learning media is the use of video in learning with a very high category (89%), followed by the type of learning media in the form of animation which is in a very high gradation (84%).

The Benefits of Various Types of Learning Media

According to the data obtained from the questionnaire, it can be seen the comparison of the benefits of various learning media used in online instructions, namely the types of text, audio, graphics, animation and video. In general, data on the usefulness of learning media in online learning can be seen in table 2 below.

Table 2. Score the role of the usefulness of various types of online learning media

Item	Form of Instructional Media				
	Text	Audio	Graphic	Animation	Video
Total Score	8.898	8.729	9.763	11.164	11.726
Mean	2.71	2.66	2.98	3.41	3.58
Maximum Score	4.0	4.0	4.0	4.0	4.0
Minimum Score	1.0	1.0	1.0	1.0	1.0
Median	3.0	3.0	3.0	4.0	4.0
Mode	3.0	3.0	3.0	4.0	4.0

The data on the table 2 shows the responses given by students to the indicators of the usefulness of learning media in each type of online learning media. Based on the table 2 data, in general all the learning media used play a good role in supporting online learning. This can be seen from the average score of each use of learning media more than 2.50. It can also be seen from the median value and the mode, each type of learning media gets a score of 3 and 4. More specifically, it can be seen that from the total score obtained, the video type of learning media gets the highest score compared to other types of learning media in online learning. While the audio learning media got the lowest score. Judging from the average score, it can also be seen that the video type learning media got an average score of 3.58 from a maximum value of 4, while the audio

type learning media got the lowest average score, which was 2.66. Thus, it can be seen that the learning media in the form of video is a learning media that functions and is most optimally useful compared to other online learning media.

Judging from the indicators, the indicators of the usefulness of learning media in online learning consist of 5 indicators, namely 1) stimulating curiosity to learn, 2) motivating students to study in class or independently, 3) Support students to understand the subject matter easier, 4) providing fun learning, and 5) provide awareness in choosing media. In accordance with the data from the questionnaires given to respondents, it can be seen the average score of each indicator of the benefits of the media in Figure 2.
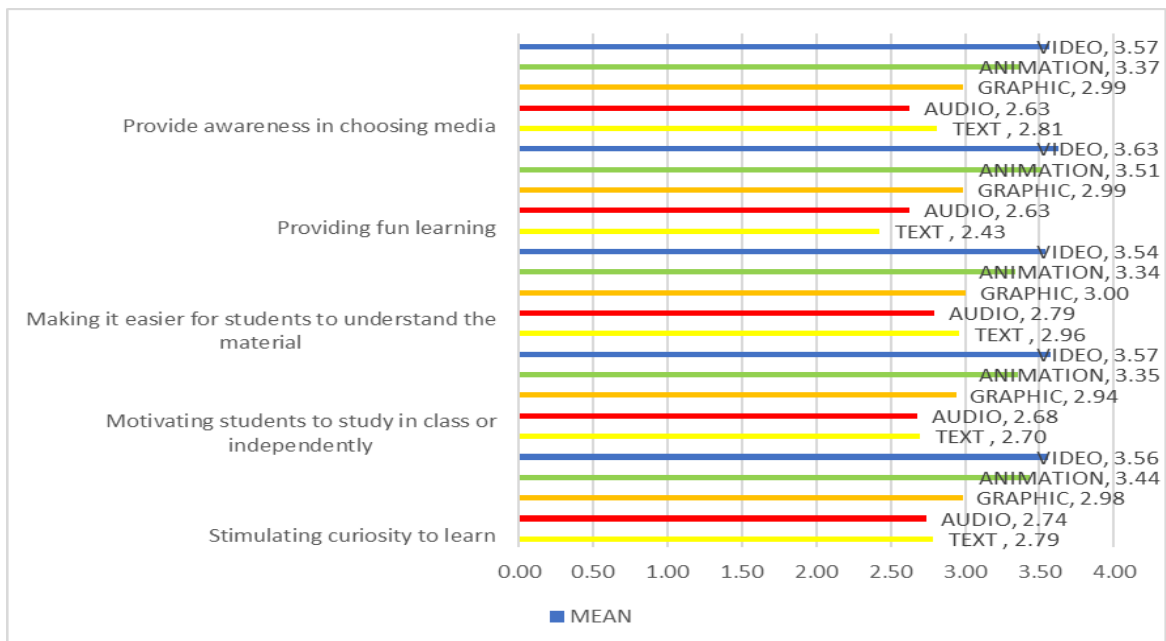

Figure 2. The average score of each indicator of the benefits of media in online learning

Based on the data presented in the graph in Figure 3 above, it can be seen that the types of online learning media that are effective for use on each indicator are video types, then animation, graphics, text, and audio. This can be seen from the achievement of the overall average score on each indicator. The use of graphic media is also quite good in supporting online learning. For the type of audio media, it can be seen that almost all the averages get the lowest score. However, on indicators to provide fun learning, audio-type learning media is more fun than text-type learning media. The average value obtained by each indicator for each type of learning media needs to be categorized from the level of usefulness very low (score 1.00 - 1.75), low (score 1.76 - 2.50), high (score 2.51 - 3.25) and very high (score 3.26 – 4.00). The average categorization of each indicator on each type of media can be seen in table 3 below.

Table 3. Categorization of the usefulness of each type of media

Indicators	Types of Media	Mean	Cathegory
Stimulating curiosity to learn	TEXT	2.79	High
	AUDIO	2.74	High
	GRAPHIC	2.98	High
	ANIMATION	3.44	Very high
	VIDEO	3.56	Very high
Motivating students to study in class or independently	TEXT	2.70	High
	AUDIO	2.68	High
	GRAPHIC	2.94	High
	ANIMATION	3.35	Very high
	VIDEO	3.57	Very high
Support students to understand the subject matter easier	TEXT	2.67	High
	AUDIO	2.79	High
	GRAPHIC	3.00	High
	ANIMATION	3.34	Very high
	VIDEO	3.54	Very high
Providing fun learning	TEXT	2.43	Low
	AUDIO	2.63	High
	GRAPHIC	2.99	High
	ANIMATION	3.51	Very high
	VIDEO	3.63	Very high
Provide awareness in choosing media	TEXT	2.81	High
	AUDIO	2.63	High
	GRAPHIC	2.99	High
	ANIMATION	3.37	Very high
	VIDEO	3.57	Very high

According to the results of the categorization of the level of usefulness of various types of learning media above, it can be seen that most of them are in the high and very high categories. For learning media in the form of text, audio and graphics, almost all are in the high category. However, there is one category that gets low, namely the type of text media in providing fun learning. This means that most students do not feel happy in using text-based learning media. Judging from the very high category on each indicator of the usefulness of learning media, the media in the form of animation and video get all very high categories. This means that the form of animation and video learning media is very supportive of online learning.

Effect from Online Instructional

Instructional media is one of essential components in learning. Learning media takes important roles. Based on the responses given by students of automotive engineering education FT UNY, various learning media have been used by lecturers to deliver learning material in online learning due to the COVID-19 pandemic. The various types of media include text, audio, graphics, animation, and video. According to the results of data analysis on the use of online learning media, in general the learning media used by lecturers in lectures have received a positive response. However, there are learning media that appear to be more optimally useful than other learning media, namely learning media

in the form of animation and video. The results of this study are in line with research conducted [22] and [23] that the use of animated videos for learning has a positive influence on student achievement and apply describe rationally about teaching materials. This is also supported by [24] which states that the use of animation media can also improve student learning outcomes and be able to encourage students to think critically. Otherwise, the use of text-type learning media is not much liked by students. This is in line with the statement [19] that text media limits the teaching strategies of the teacher. In addition, if the content of the text media changes, the renewal of lectures is less practical. This also occurs in learning media of audio recording and graphic types. Besides being limited to the use of limited learning strategies, the audio media type is also not equipped with images, while the graphic type is not equipped with sound so it is less attractive. However, text-type learning media is easily accessible by students, and can be used to complement other types of media, because in online learning, learning media can be combined to achieve learning objectives [19].

The use of learning media in online lectures is very much needed. [25] said that in online pre-practice learning using LMS requires student learning activities to access material through simulation videos, as well as other forms of learning media. In practice, teachers must choose the learning media and

technology used. According to [26] choosing learning media can use the selection rubric, which contains the following criteria: 1) Alignment with standards, outcomes, and objectives; 2) Accurate and current information; 3) Age-appropriate language; 4) Interest level and engagement; 5) Technical quality; 6) Ease of use (for student or teacher); 7) Bias free; 8) User guide and directions. Based on this theory, it can be seen that the learning media in the form of animation and video support online learning. One of the factors that become the advantages of this type of media is the aspect of convenience and attractiveness that can be obtained by learning, because online asynchronous learning is now supported by available hardware and access. With the use of learning media in the form of animation, students' interest in learning will increase, students will feel happier in the learning process, and students' understanding of the material provided will increase [27]. This is also in accordance with research conducted by [28] that animation media has several benefits, namely 1) the learning process is more effective; 2) student learning achievement increases; 3) students' learning motivation increases; and 4) teacher learning management skills increase.

In addition, the use of instructional media in form of video will help students understand the material more easily [29]. The use of video as a learning media can also help students to see events that cannot be directly witnessed, dangerous, or events that have occurred for a long time, so that the material presented can be understood by students well [30]. Video learning media can provide large amounts of full-motion video and high-impact visuals, self-pacing, and continual review of the content [19]. In this case, the use of video learning media can help students learn the subject matter, especially practical learning materials. In online learning, video learning media tends to stimulate students' curiosity to learn, motivate student learning, make it easier for students to understand the material, provide a fun learning, and give students flexibility in choosing learning resources in the form of videos. This is in line with [31] that videos are able to present information, describe a process, explain complex concepts, teach skills, manage time, and can influence attitudes. By optimizing the use of animation and video learning media in lectures, lectures/learning even remotely will be more effective.

The use of optimal learning media will have an impact on effective learning processes and outcomes, because learning media is one of the main components in learning. To achieve the role of effective learning media, it can be underlined that teacher can combine various types of learning media. However, from the results of this study, the use of animation and video learning media needs to be emphasized for use in online learning. Meanwhile, text, audio,

and graphic learning media can be used to complement the two form of learning media above. According to [32], learning media has several benefits that can help in the learning process, namely 1) the delivery of material can be uniformed; 2) the teaching and learning process is clearer and more interesting; 3) the teaching and learning process is more interactive; 4) more efficient time and energy; 5) student learning outcomes increase; 6) the teaching and learning process can be done anywhere and anytime; 7) the positive attitude of students on the material and teaching and learning process will grow; and 8) the teacher's role is more positive and productive.

CONCLUSION

Based on the results of the research and discussion above, it can be concluded that the optimal types of online learning media in motivating student learning are animation and video media with a very high category of student learning motivation achievement. As for the other three types of videos in the high category. In terms of the benefits of various types of learning media, the most useful video and animation learning media are felt by students in online learning, namely the very high category on indicators: can stimulate students' curiosity to learn, motivate student learning, make it easier for students to understand the material, provide fun learning, and give students flexibility in choosing learning resources. While in other

types of learning media in the high category. Even on text media, getting a low category on the indicator provides fun online learning. Teachers can combine various types of learning media. The use of animation and video learning media needs to be emphasized for use in online learning. Meanwhile, text, audio, and graphic learning media can be used to complement the two learning media above. Therefore, teachers not only use PowerPoint media, but also need to consider other types of learning media for teaching students in online learning.

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