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Students Perception to Video Media for Vibration Theory Subject in Civil Engineering Department, Universitas Andalas

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ABSTRACT

Nowadays, online learning is a must to be conducted for students because of the Covid-19 pandemic. Lecturers should find a media or a tool to deliver the material to the students, so that they are still able to obtain knowledge and understand the subjects. One of the media widely used for online learning is videos. In this paper, a simple research is conducted by doing a small questionnaire which is spread among the students of vibrations subject in Universitas Andalas. There are about 61 correspondences that have contributed to the questionnaire. From the results, it can be stated that the students prefer to use videos as media learning because the videos can be repeated as often as they want. They also said that understanding are easier to obtain when they use videos rather than other media learning such as reading text, or ppt file. However, it is quite difficult to have a good quality of videos because the videos must be interesting, have a clear voice, and contain a complete material. Having a large file, also becomes a weakness of the video as a media for education.

Keywords: Vibration Subject, Videos, Online Learning

1. INTRODUCTION

Video based learning is quickly becoming a basic training need. Simply put, students prefer watching a video over reading documents, emails or online articles. The reasons for opting into video-based learning include

(a) Video is more persuasive compared to other content types, (b) Video addresses different learning styles of visual, auditory and kinesthetic learners, (c) the increased usage of smartphones provides on-the-go training, (d) Video supports on-demand, bite-sized microlearning, teaching at the moment of need, (e) video is a cost-effective solution as part of professional education and training [1].

Electronic learning (e-learning) is learning that makes use of information package based on information and communication technology for purposes learning that can be accessed by students anytime and anywhere. (Permendikbud No.109 2013 article 1 paragraph 4).

Blended learning is a form of learning system that combines face-to-face process in the classroom with the e-learning process. E-learning activities can be carried out in the form of synchronous and asynchronous learning in order to create learning experience to achieve predetermined learning outcomes [2].

Vibration theory is one of the compulsory courses that must be taken by all civil engineering studentswho will complete their education. This lecture reigns in semester 5 (five) and in general discusses about the vibrational aspects of the structure as part of the loading characteristic dynamic. From the learning results so far, the level of mastery of students in this subject is quite low because the material contains theory mechanical theory which has always required hard work for students to be able to understand it. In the field of construct ion technology, dynamic loads very common, such as wind loads, earthquake loads, loads from engine movement, vehicle loads, etc., so students should be really mastered this vibration theory material. Hence, students is expected to be able to demonstrate the ability to understand in singles degree of freedom, multi degree of freedom, natural frequency of the structure, period natural structure and vibrating pattern of the structure as a sign of mastery at the end lectures.

The contribution of courses to the curriculum structure is enormous. Students must master the Vibration Theory material before they can understand the material in the next semester, namely Earthquake Engineering Course. The choice as a continuation of the Vibration Theory material is also accommodated by Department of Civil Engineering with the name Structural Dynamics.

2. METHODS

The questionnaire is the main instrument for collecting data in survey research. Basically, it is a set of standardized questions, often called items, which follow a fixed scheme in order to collect individual data about one or more specific topics. Sometimes questionnaires are confused with interviews. First of all, questionnaires are one of the most affordable ways to gather quantitative data. A survey is a process of gathering data that could involve a wide variety of data collection methods, including a questionnaire. In essence, every questionnaire is a survey, but not every survey is a questionnaire.

The learning method applied in the classrooms so far is by lecturing conventional, namely face-to-face meetings in class 14 times, exams 1 time midterm, and 1 semester final exam. The meeting is filled with lectures from lecturers, followed by discussions with students or accompanied with quizzes and independent assignments. Sometimes there are also tasks such as presentations which are usually done by several students (in groups).

The assessment for this lecture is the accumulation of the scores for independent assignments, group assignments, quizzes, midterms, and final semester exams. Usually the semester exams are weighted 35% each, and the remaining 30% is divided for independent assignments, group assignments, and quizzes. Midterm exam questions taken from the material before the 8th meeting which discusses the single degree topic of freedom, while the final exam questions are the material after the exam midterm which focuses on multi degree of freedom. Distribution of final grades in previous semesters, with a total 223 students, in this vibration theory course as follows:

Figure 1 Students' grade distribution

From Figure 1 it can be seen that the grade A for students very little compared to other values. And if we are grouping A, A-, B + and B grades as good scores, B- values. C +, and C, as lacking values, then the D and E values as bad scores, then obtained the percentage with a graph like below.
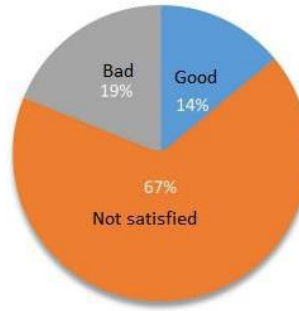

Figure 2 Students' grade percentages

From the Figure 2, it can be seen that only 14% of the total students who produce good grades, 67% of students get good grades less, and 19% of students get poor grades. It means number good marks are the lowest percentage of all, followed by the grade bad and less value.

Based on the description and analysis above, it can be assumed that it is necessary further analysis of the teaching and learning process for this course. In short, because the lecture material has a lot of calculations and formulas, it should be balanced with the student's ability to use logic, then this lecture is proposed to be taught more deeply in blended learning. This means that there are some materials in the form of visual explanations that are recorded in the form of videos and can be repeated by students anytime they want. Then archive and the learning process is also stored neatly in online media such as ilearn they can organize and structure their schedule well.

This research requires output in the form of published articles and learning designs that are expected to be implemented in the semester odd number 2020/2021. Therefore, an achievement strategy must be developed in such a way that is clear and structured. The desired achievement is increase student ability in 3 aspects as conveyed by Benyamin Bloom in 1956. The three aspects are: affective (behavior), cognitive (scientific), psychomotor (skills) aspects. In the behavioral or affective elements, in this blended learning method, it is hoped that students will be able to show their dignity by becoming people who are responsible for their studies, are diligent, honest, and disciplined. The existence of ilearn (online) media will be a self-test for students to get it doing exercises or assignments without looking to the internet or other media if it is not justified. Student discipline is also very good developed with online media because every student must be able manage time because lectures are strictly held with access time restrictions learning Media. For the knowledge or cognitive aspects, with this blended learning students stimulated to thirst for knowledge. Especially the internet media now is the daily environment of students. As for the psychomotor aspect, blended learning provides opportunities for students to train his skills in making presentations, delivering material, which will be assessed by a lecturer in the form of lecture assignments.

The online delivery method itself can take several ways. Civil engineering students at the beginning of the even semester 2019/2020 have been requested their responses to the use of ilearn and vidcon media. In general they are more support the use of ilearn even though it is not so familiar their use. Indeed, because of the current conditions that avoid face to face direct and in-class interaction, Andalas University has made it all mandatory academicians to use online media to deliver material lectures to students, including in assessments such as assignments, quizzes, exams midterm, and final semester exams.

Figure 3 The performance of ilearn media used by Andalas University

From the picture below, it can be seen that generally students prefer ilearn media in the learning process compared to videocall. This matter due to constraints in a larger quota package on video conferencing and it is also difficult to understand the description of the lecturer who is giving the material in video conference when the network is not good. As for the response to use other media such as whatsapp only, whatsapp with audio, and google classroom not shown because this proposal only focuses on the ilearn method.

Figure 4 Students' perceptions regarding learning methods

The proposed technology media is a video made with as interesting as possible. Another way it is planned to be used is by recording explanation of the learning material in pdf format using media zoom. Zoom is a vidcon medium that can record speech or explanation. In this case, the lecturer explains the material in power point as usual but without a student, then recorded, so that the result is an mp4 file that can be uploaded to ilearn media. Result recording in the form of a video accompanied by instructor audio and movement of the teacher's cursor or stroke on the ppt file which is being

explained.

Evaluation of the successful implementation of blended learning is done at the end of the semester by looking at the results of the final learning achievement students in the form of final grade distribution. Additionally, we will see responses students towards the use of this blended learning process by distributing questionnaires to students who use this medium. The results of the questionnaire will be processed to get a conclusion and recommendation. So far, in the even semester 2019/2020, lecturers have a lot of use of distance media in learning, consequently the condition of the Covid-19 outbreak that is currently rampant. To obtain the relative comprehensive thoughts and ideas of the students about that, a questionnaire should be conducted. The figure below describes the questionnaire that has been spread to the students. It is applied by using googleform format, and asks the students to fulfil and answer the question. There are about five questions and all of them should be answered by the students. The questions are more about students' preference about online learning, what do they think about the video provided, why do they like or dislike the video.

The students who have participated to answer the quiz is 61 students from around 65 students. The percentage of participants is around 94%. This is a relatively good number to consider the results of the questionnaire. Format of the questionnaire can be seen from the next figure. It was launched at 19 September 2020 and shared to the students of vibration subject whatsapp group.
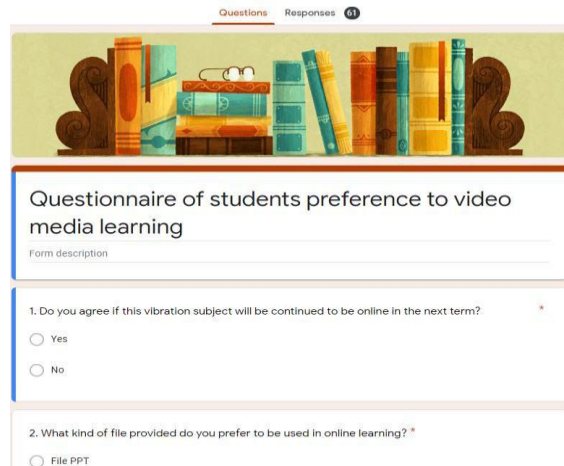

Figure 5 The questionnaire for students

The data of questionnaire results then are analysed and discuss so that the next step or strategy can be considered concisely.

4. RESULTS AND DISCUSSION

Actually the material in the video are designed to be interestingly related to the subjects explained in the classroom. It should strengthen the capability of the students

to understand the material. After spreading the questionnaire to the students, the results are detected as follow.

Almost all students have a positive mind about video platform because 80.3% or 49 students think that the video indeed helps them in enhancing vibration subject understanding. 16.4% or 10 students state that they do not think that video has contributed well to their understanding about the subject, and prefer to have ppt file. The rest or about 3.3%, 2 persons, said that they prefer to have pdf file instead of ppt or video. The graph about that description can be seen from the figure below.
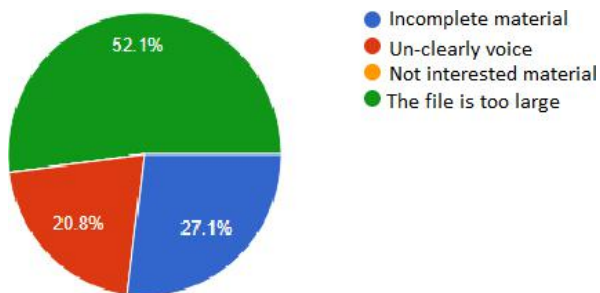

Figure 6 Students preference in having the supplementary file.

The graph below is explaining the opinions of the students relating to the use of video uploaded in the ilearn media. All of the students stated that the videos are useful in upgrading and enhancing their understanding of the vibration subject. None of them agree that the video contributed nothing for them.
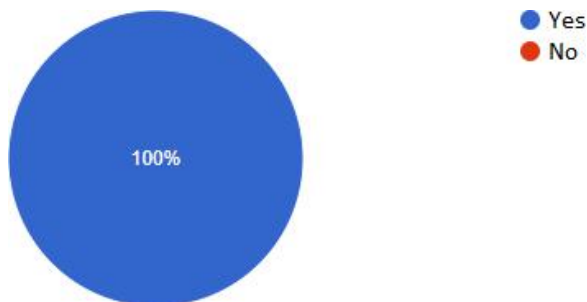

Figure 7 Students opinion about the use of video in enhancing their understanding

Figure 8 describes the opinions of the students about the quality of the videos uploaded in the media ilearn. They all agree to say that the videos are easy to be understood and can be repeated. Those two things become the reasons for t them to like the video.
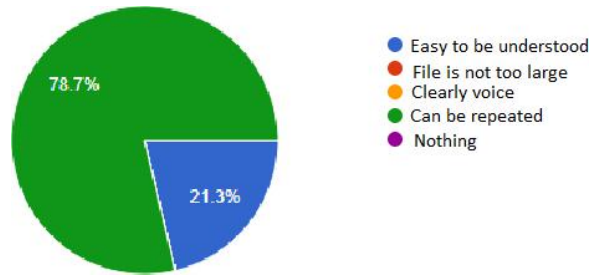

Figure 8 Students opinion about the quality of the videos submitted in the media ilearn

Figure below is the students' opinions anout the weakness of the videos used in the online learning. There are 3 weakness chosen by the students, namely unclearly voice, incomplete material and the file is too large. All of these weaknesses are going to be upgraded in the upcoming videos.
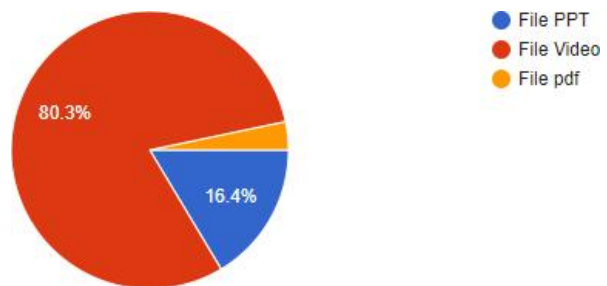

Figure 9 Students' opinions about the weakness of the videos uploaded in the media ilearn.

From the results of the study, it can be stated that students are happier to have online learning by using videos. It can be understood because the videos usually give students clear concept clarity, as everything can be visualized and explained in detail. In addition, visuals tend to be more interesting and engaging, when compared to text.

Students who are good visual learners have a lot of advantages studying from videos. They can learn more efficiently. It also helps retain and maintain interest for longer periods of time. Besides, it provides an innovative and effective means for educators to address and deliver the required curriculum content.

Another reason why students like video instead of other type of file is because usually videos are mostly very demonstration-friendly. In addition, videos also can create experiences [3].

The more interested and engaged students are and the more interactive each learning session is, the more students will enjoy learning and retain information from the lesson. Videos provide the option to stop each video and challenge students to predict the outcome of a

demonstration, and elaborate on, or debate a point. Students also have the option to rewind a section of the video to review a segment to ensure that they understand key concepts. You can ensure to add further interactivity by copying activities, conducting discussions or repeating demonstrations and experiments in the subject. It gives instance notes, whenever required can visualize the video and topic will be revised and can also make notes [4].

On the contrary, several disadvantages are noted from videos as media learning. Some of them are that playing video can use a lot of the bandwidth and may take time to load. The video also could be a distraction if the structure of the video is not aligned to what needs to be taught. In addition, usually it is hard and time consuming to find quality videos

5. CONCLUSION

From this study it can be concluded that videos are one of the most favorite media of learning to students. They agree that video can be more useful compared to other media such as ppt file or pdf file. Therefore, it is important to create a good quality of videos so that the students will have more spirit in the online learning.

ACKNOWLEDGMENTS

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