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AN OVERVIEW OF UTILIZING SHORT VIDEO ON SOCIAL MEDIA PLATFORM AS T&L TOOL DURING ODL: CASE STUDY OF DIPLOMA CIVIL ENGINEERING STUDENTS

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Abstract

Social media like YouTube has been used globally by teachers and educators for open distance learning (ODL) during pandemic COVID19. Most teachers upload lecture videos on YouTube for easy access. The video's duration is generally long up to 15 minutes or more. Creating short video (60 seconds) content is one of the benefits of emerging technology in the digital era. Nowadays, there are a lot of applications available to help social media users to create interactive video content. By creating a short video on Tik Tok or YouTube as an alternative to recorded lecture videos, educators can create an interesting learning environment to enhance students' performance. This study tended to create an overview of how a short video helps Civil Engineering diploma students to remember basic theories in Reinforced Concrete (RC) Design. RC Design course involved a lot of formulas and calculations. A mistake in the theories will cause wrong design solutions. Three groups of students participated in this study. These three groups are under the same lecturer to eliminate the factors that influence the performance of the students based on the lecturer's method of delivery. In this study, students were provided with short videos on the theories of RC Design. A questionnaire was then distributed to students to obtain their perception on the use of short video contents as learning tools. The results show that short videos are reliable tools in delivering a technical course in engineering education.

Keywords: engineering education, open distance learning, tik tok, short video, social media, youtube

Introduction

Digital 2021 by Kemp (2021) recently reported that Malaysia has about 28 million active social media users. The statistic shows that 98.1% of the users aged between 16 to 64 years used the internet to watch videos online. Among all social medias application available, YouTube has become the most popular platform with 93.7% users followed by WhatsApp (91.9%), Facebook (89.1%) and Instagram (74.7%). Tik Tok with 35.1% users, is currently increasing in popularity. According to recent statistic, Tik Tok is the most downloaded application in 2020 (Kemp, 2021).

As a result of the pandemic, educational institutions are shifting toward open distance learning (ODL). Online classes have been conducted for almost two years during lockdown in Malaysia. Many researchers are studying on the issue of readiness of education system towards new learning environment.

A part from synchronize live meeting, social media platforms like YouTube have been used as the medium for teaching and learning. Teachers upload and post recorded lecture videos on YouTube channel for students to self-study. Long lecture videos, on the other hand, do not encourage students in self-study. Lengthy lecture video is found to be uninteresting, have low engagement and consumes a lot of internet data. Therefore, interactive short video is suggested as an alternative to record lecture videos. Short video platform such as Tik Tok is used to deliver knowledge effectively. YouTube has also introduced new features for incorporating short video clips.

The purpose of this research was to provide an overview of how Tik Tok and YouTube short video contents are used in the teaching and learning of technical courses in engineering education. This study explained how short videos help Civil Engineering Diploma students remember basic theories in Reinforced Concrete (RC) Design. RC Design course involved a lot of formulas and calculations. A mistake in the theories will cause wrong design solutions. Specific objectives had been set to achieve the aim of this study included: 1) to develop a series of short video content on the basic theories of RC Design and 2) to obtain students' perceptions on the use of short videos in teaching and learning.

Open Distance Learning (ODL)

Open Distance Learning (ODL) is a method of learning conducted remotely in which both the teacher and the learner are not required to be present at the same time. The learning process can be carried out with the help of an internet connection, either using video conferencing or online lecture videos.

According to Shamila (2021), open learning and teaching (ODL) is a concept that requires students to be "independent learners" via virtual or online environments. The term "open and distance learning" refers to an interactive method between instructors and students in which educational content and instructions are transmitted remotely via computers and the internet, with neither the instructors nor the students being present physically (Milman, 2015).

In addition, Allam (2020), describes distance learning as a teaching style in which students complete their studies virtually rather than physically attending a lecture session. Students read, take tests, and complete online learning in their registered courses without having to visit a lecture hall, computer lab, library, or physical classroom.

Engineering Education

Engineering education is commonly referred to as content-centered, hands-on, and design-oriented instruction, with a particular emphasis on the development of critical thinking abilities (Bourne, 2019). Because of the pandemic, online teaching has become an additional important tool for educators to deliver their course contents to the students.

In order to succeed in engineering education during and after COVID-19, students must be aware of the Outcome-Based Education (OBE) paradigm that underpins modern engineering programs, as well as significant metacognitive and learning skills. (Junaid & Ala, 2020). Students should also concentrate on improving their metacognitive skills; striving for holistic, well-rounded learning, becoming coachable and acquiring the skills of coaching self-evaluation; accepting responsibility for their own learning; and developing the ability to learn throughout the rest of one's life.

According to Joshua *et al*. (2021), several possible methods can be used to achieve the goal, set up for engineering education even in this pandemic. Virtual laboratories, remote labs, and digital-live labs can be provided as long as the virtual theory classes are completed. Even though the shift to online education has been obvious for the past decade, the lockdown has

accelerated the process significantly.

Social Media Usage for Education

According to the study by Yasemin (2014), social media can have significant contributions to education and the environment. She also stated that users' knowledge sharing, and communication are encouraged by the connectedness and socializing characteristics, which are a powerful aspect that supports collaborative learning through debate and sharing. Thus, educators can truly benefit from social media as a support to their instructional procedures if they keep these advantages in mind.

Using social media in higher education has several benefits, according to previous study. The following are the main advantages: (i) enhanced communication between students and academics, (ii) expanded opportunities for student collaboration, (iii) prompt information sharing with classmates, (iv) referring to course material after the lecture, (v) supplementation of learning management systems, and (vi) development of technical skills leading to employability (Dunn, 2013; Legaree, 2015).

Short Video (Tik Tok) for Education

TikTok is a 15-second video-sharing application that allows users to make and share videos on any subject**.** Currently, TikTok is being used by teachers to create digital coursework. This is a great feature for classroom use, but it is even better for remote learning and home tasks. These videos can be made by individuals or as part of a collective project. The goal is to encourage students to utilize the app to complete an assignment, which will engage them on a platform they can relate to, motivate them to understand topics and work in groups, and aid peer-to-peer teaching (Luke, 2021)

Yang (2020), in his study, investigated the perspective of high school students from China on using Tik Tok for English learning in and outside of the English as a Foreign Language (EFL) classroom. From the findings of his study, it was found that the students were attracted to using Tik Tok as a video aid in EFL classrooms as well as an English learning approach outside of class. Students also expressed a strong desire to get their teachers to advise and help them in using Tik Tok effectively for English learning.

TikTok has attracted a lot of interest in the educational setting during the pandemic, according to Aida et al. (2021), whether from students or teachers. Therefore, more innovative, and creative educators explore the effectiveness of TikTok in delivering teaching and learning. Additionally, TikTok creates scientific information and assists students in improving their knowledge and abilities by combining existing knowledge.

Yide (2021), stated that in his study on the use of TikTok application in physical education, it was found that TikTok videos were able to boost the effectiveness of students' physical learning, as well as considerably increase students' sports like and mobilize students' passion for regular sports. Moreover, he added that TikTok has served as a valuable resource for learning how to use the Internet in teaching subjects.

YouTube for Education

According to findings by Akram (2012), to examine medical students' attitudes toward the usefulness of YouTube videos in a problem-based learning (PBL) curriculum for anatomy education, 92% agreed/strongly agreed that the channel YouTube helped them to learn anatomy effectively and can be used as social media as well as in education. Moreover, he also revealed that YouTube can be a useful tool for improving anatomy training if the videos are well selected, diverse, and geared toward course objectives.

Many students used web-based platforms to get information from YouTube for anatomy-related video clips and showed that integrating social media into blended learning methodologies in anatomy schools could be beneficial to the academic anatomy community (Denis *et al.,* 2015).

Research Methodology

This study described the use of short video platforms which were TikTok and YouTube as learning tools in delivering Reinforced Concrete (RC) Design course fundamental theories. TikTok and YouTube Channel were used to provide a series of short video contents on the principles of RC Design. This research was divided into two parts. The first phase involved the development of short video content, and the second was the survey to obtain students perception.

Development of Short Video Content

At the beginning of the semester, an ice-breaking session was conducted. Students were required to submit a short video about structural members (roof, beam, column, wall, foundation) in a building during the ice-breaking session. TikTok and YouTube became the most popular platform used by the students for the ice-breaking activity. As a result, these two platforms were selected as the short video platform. The two platforms used in this study are shown in **Figure 1**. The provided short video contents ranged between 15 seconds to 60 seconds in length.

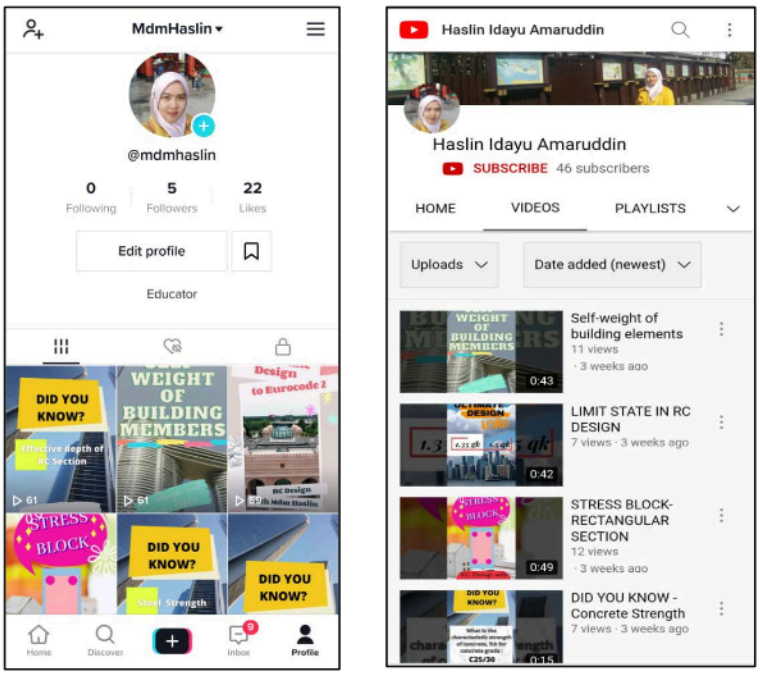


Figure 1 Short video platform: TikTok (left) and YouTube (right)

Survey on Student's Perceptions

This study took place in the School of Civil Engineering, UiTM Pahang. Three groups of Diploma in Civil Engineering students who are taking RC Design course were selected to represent the population in this study. To eliminate the influence of the lecturer's delivery method on the subject matters, all three groups are from the same lecturer.

A questionnaire was distributed to students to get their perception on the use of short video as learning tools. The questionnaire was divided into two parts. The first part was asking the students their preferable platform and lecture contents while the second part represent students' opinions on short video contents. In the second part of the survey, the students rated their responses using a 5-point Likert scale, where the marks 5 to 1 represent strongly agree, agree, moderately agree, disagree, and strongly disagree, respectively.

ANOVA Analysis

The qualitative descriptive statistic was then used to evaluate the collected data on students' perceptions. Qualitative descriptive analysis is suitable for presenting behavior, perception, and action experiences of the subject. Junus, (2021), and Amaliyah, (2021), both used the same method in their work. An ANOVA analysis was used to compare the perceptions of three groups of students toward short videos. The ANOVA test was chosen because it is suitable to evaluate any significant difference between the mean of three or more groups of subjects.

Result and Discussion

Respondents Population

In total, 41 students took part in this study as respondents. **Figure 2** shows the number of respondents by group. The distribution of respondents from groups E, F, and G is 15, 12, 14 respectively. All the three groups were selected from the same lecturer. However, this demography does not represent the whole Diploma in Civil Engineering students since only three groups were considered in this study.

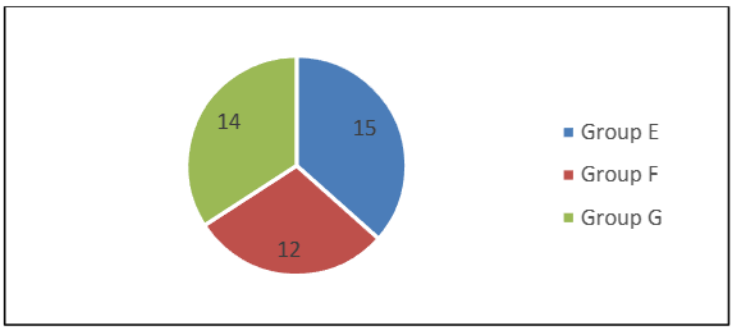
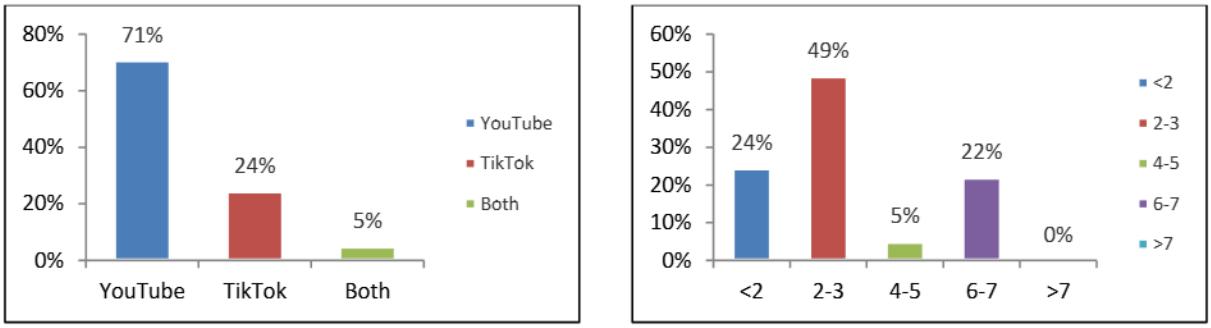


Figure 2 Respondent's distribution by group

Short Video Platform

Based on the results shown in **Figure 3(a)**, YouTube has become the most popular short video platform among students. This could be due to the fact that all smartphones have YouTube apps. Not every student has a TikTok account. This explains the popularity of YouTube among students. **Figure 3(b)** shows how frequently students access the short video contents over the course in a week. 49 percent of the respondents watch the videos 2-3 times per week while 22 percent watched 6-7 times per week. More than half of the respondents watched the short video contents more than once. However, 24 percent of those responded to the survey had only seen it once. This demonstrates that short videos encourage students to learn outside of the classroom which confirms what has been stated in previous study (Yang, 2020). The use of interactive visual content with background music in the short video engaged students in the learning process. Students primarily used social media to interact with friends, and browsing

through social media has become a regular routine in their life. There are many opportunities to integrate these interests on social media with the academic setting to enhance self-learning among students (Escamilla-Fajardo, 2021).



(a) **(b)**

Figure 3 (a) Preferable short video platform (b) Frequency of using selected platform

Students Perception

In the survey, students were asked about their perceptions of ODL in teaching and learning as well as the use of short videos during ODL. **Table 1** displays student's responses to the given statements based on a 5-point Likert scale. The mean value scale is as follows: 1.00-1.80 for strongly disagree, 1.81-2.60 for disagree, 2.61-3.40 for moderately agree, 3.41-4.20 for agree, and 4.21-5.00 for strongly agree.

Based on the collected data, students responded that they moderately agree with the mean value of 3.39 to the statement that they can study independently during ODL. They were, however, satisfied with the lecture videos provided by the lecturers, with a mean value of 3.98. It demonstrates that, even if the lecture content is sufficient, it does not motivate them to learn independently. When asked whether they preferred watching short videos over recorded lecture videos, students agreed with the mean value of 3.85. Short videos are found to be much more interesting than lecture videos. They also strongly agreed, with a mean value of 4.22, that those short videos helped them remember the basic principles of reinforced concrete design. Short video platform such as TikTok provides interactive editing tools to make content interactive. Content creators can select music and motion filters to create content appealing to the students, which agrees with the study by Escamilla-Fajardo (2021) on the application of social media in teaching and learning.

Overall, students agree, with a score of 4.02, that the short video contents are an effective tool for teaching and learning during ODL. Similar studies by Yide (2021) also found that TikTok boosted students' passion for regular sports and improved the effectiveness of physical education. Luke (2021) on the other hand, discovered that social media also inspires students to be creative and enhances collaboration. Therefore, this study offers valuable experience for future teachers to start using short videos as an alternative tool in content delivery. However, social media has a negative impact on the audience. Excessive use may lead to addiction. Therefore, teachers must consider this impact when adopting social media in teaching and learning.

Table 1 Students Perception of ODL and Short Videos

	n	Min	Max	Mean	Std. Deviation	Description
I am able to study independently during ODL	41	1	5	3.39	0.945	Moderately Agree
I am satisfied with the lecture videos provides by the lecturers for ODL	41	1	5	3.98	0.880	Agree
I like to watch short videos more than recorded lecture video	41	1	5	3.85	0.910	Agree
I remember the theory much easier by using short videos.	41	3	5	4.22	0.725	Strongly Agree
I think that short videos are an effective tool in T & L during ODL	41	3	5	4.02	0.651	Agree

ANOVA Analysis Results

Table 2 displays the results of the ANOVA single factor analysis for three groups of students, group E, F and G. The ANOVA test was performed to determine whether there were any significant differences between the effectiveness of short video content in T&L for these three groups. The null hypothesis, h_o state that the mean value of the three groups is equal. The use of short videos has a significant contribution on the students learning process during ODL where $F(2,38) = 3.64$, $p = 0.036$. Since the $p < 0.05$ then the h_o should not be rejected where all the mean values is greater that F critical = 3.24.

Table 2 ANOVA Analysis Test Results for three different groups

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.730	2	1.365	3.64	0.036	3.24
Within Groups	14.245	38	0.375			
Total	16.976	40				

Conclusion

This study provides an overview of the method used to assist Diploma in Civil Engineering students memorize fundamental theories of RC design. The findings indicate that most of the students agree that short videos are useful for self-study. It is recommended that the short video contents should be extended to all topics not only on the theories. The effectiveness of the short videos may be investigated further by comparing students' results at the end of the semester. Further research is necessary in order to gather responses from all diploma students enrolled in the RC Design course, as this study only applied to three groups of students. Therefore, more variables can be identified and investigated. In conclusion, short videos may be a powerful tool

for future teaching and learning.

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