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The Effectiveness of Video Usage as Teaching Materials for Online Learning

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Abstract: This paper investigates the effectiveness of video usage as teaching materials to support online learning activities in Universiti Teknologi MARA. Nowadays, the online learning has become a common method for teaching especially in higher institutions in Malaysia. With the development of Internet and Web 2.0 for education, conducting teaching and learning activities become a challenging task since students have different learning preferences and the lecturers must be well-prepared in constructing teaching materials by utilizing the available tools. Hence, it is vital for the academicians to explore on methods to conduct online classes in attractive and meaningful way for their students. This study was conducted using quantitative approach whereby it involved three groups of diploma students. The respondents for this study were 120 students of Diploma in Computer Science that took two different computer science courses and 40 students of Diploma in Sport Science that registered for *IT Essential for Sports* course. Three sets of videos containing the learning objectives for three different courses were distributed to the students through i-Learn portal during their online class. Questionnaires were distributed one week after the videos were viewed by the students to examine their acceptance towards the new approach and the effectiveness of learning using videos. The findings suggested that there was a significant difference between male and female students on accepting the video as teaching materials although the number of female students was greater than male. The students were also able to adapt various types of learning materials gradually since most of them are computer and Internet literate.

Keywords: Blended Learning, Learning Materials, Online Learning, Students' Acceptance, Video Usage

1. Introduction

Teaching in higher institutions becomes a big challenge to every educator as teaching delivery methods nowadays does not only involve the face to face lecture sessions and consultation hours. Blended learning is one of teaching delivery methods that being used in Universiti Teknologi MARA (UiTM) which combining face to face lecture with non-face to face computer mediated technology. Non-face to face in this context is more to the online learning activities or commonly describe as e-learning. The lecturers essentially have to plan on conducting the non-face to face sessions and choosing the suitable materials to be used. The lecturers also need to consider the materials being uploaded to be used during the session able to help students achieving the lesson outcomes. Intention to use e-learning rely on individual characteristics, computer self-efficacy and internet self-efficacy (Lee, Hsiao, & Purnomo, 2014).

To implement a successful non-face to face session, there are a few activities being suggested by i-Learn Center to help lecturers in delivering the course contents. i-Learn portal is an official UiTM's Learning Management System (LMS) that provides features for all users to support online activities such as content sharing platform, conducting online quizzes, online submission for assessments, and forum discussion. There are lots of learning objects or learning materials in variety of formats that have been uploaded to the LMS since it was officially

established. Referred contents are inclusive of text format and learning objects in presentation tools format, interactive courseware, audios, videos, and hyperlink to the source of material for ease of reference. Even though previous research by Joi L., Camille and Krista (2010) found that there are different expectation and perception between various terms of online learning, the provided materials for online learning are still the same. As usage of video for teaching material, Badrul and Mohammed (2015) highlighted that it must be relevant to the student learning objective. Hence, it will be attractive enough to grasp the students' attention and provide them the necessary understandings.

Previous acknowledged researchers has conducted studies and found various advantages of using video as teaching materials and the usefulness towards the practical lessons. Hampton (2002) stated that multisensory skills can be developed since video is a learning material that includes the audio and visual together and also allow the learners to control the video's navigation such as play, replay, pause, and rewind to the sections of the lessons needed. Mishra (2001) highlighted the video that showing practical and real-life activities are very useful as it can eliminate the cost of conducting experiment and presentation repeatedly. Using video as learning materials can also help in saving the cost of repeating the same experiments or demonstrations (Jung, 2005) stated that even though some of video are costly to be produced, it is very useful for demonstration purposes. In relation to prior information provided, teaching materials is one of the predictor of perceived usefulness of e-learning and playfulness is predictor of intention to use e-learning (Lee, Yoon, & Lee, 2009). Hence, this study is carried out to examine the students' acceptance and the effectiveness of video usage as teaching materials in order to support the towards a success implementation of blended learning in the university.

2.   Methodology

A quantitative approach using questionnaire has been adapted in this study. Online questionnaires were given to students who had completed reviewing the materials through i-Learn portal. This study is targeting students as respondents as they play the important role in this blended learning process and become the receiver of the knowledge delivered through the given video material. Three groups of students that received different teaching videos from 3 different courses are selected as respondents for this study.

A total of 160 responses were collected and this includes 100% of the online form filled up by the students. The students are selected through purposive sampling from classes conducted by researchers whose are from the Faculty of Computer & Mathematical Sciences (FSKM) and the Faculty of Sports Science and Recreation (FSR) in UiTM. Groups of students were selected from two different programs to help in getting the findings on comparing computer and non-computer students and between Year 1 and Year 2 students. The collected data was analyzed using the SPSS software Version 23.0.

The research design is shown in Fig. 1. The questionnaire was developed comprising of 2 parts measured on a 6-point Likert scale. The first part is on the demographic item. The items in part two consisted on evaluation on students' acceptance and the effectiveness of video as teaching material.
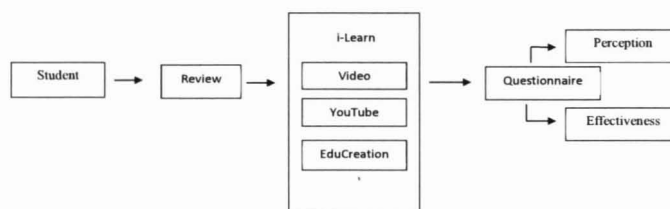

Fig. 1 Research design

As for the first group of students are those who are taking 'IT Essentials for Sports (SPS105)' course, the videos given to students are compiled from YouTube website, demonstrating on how to use a presentation tool called Prezi. Students need to follow the given instructions in the video to help them producing their presentation materials using Prezi application software. Screenshot of the provided course is shown in Fig. 2.

Fig. 3 illustrates the video for second group of students who are taking 'Computer Organization (CSC159)' course enrolled by Diploma in Computer Science students, the instructor recorded the video herself containing the demonstration and explanation on arithmetic operation that can be performed using different bases number.
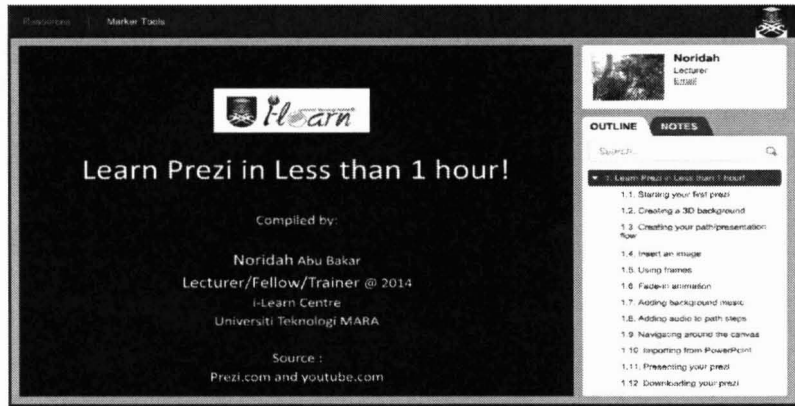
Fig. 2 Screenshot on video for course SPS105 IT Essential for Sports
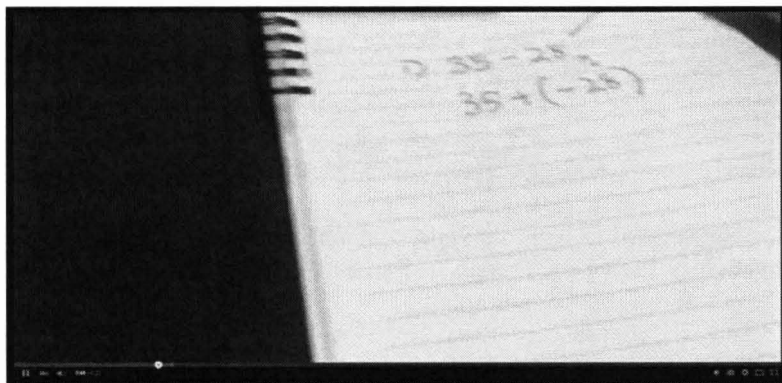
Fig. 3 Screenshot on video for course CSC159 for Diploma in Computer Science

The other video material used in this study is video for Practical Approach in Operating System (CSC204) course enrolled by Diploma in Computer Science students, whom become the third group of respondents. In this video, the instructor recorded the explanation using Edu Creation teaching tool that contains about protection files mechanism and storage allocation techniques. The instructor also demonstrates the calculation of protection code and size of storage allocation for each technique. Sample of the image taken from the video is presented in Fig. 4.
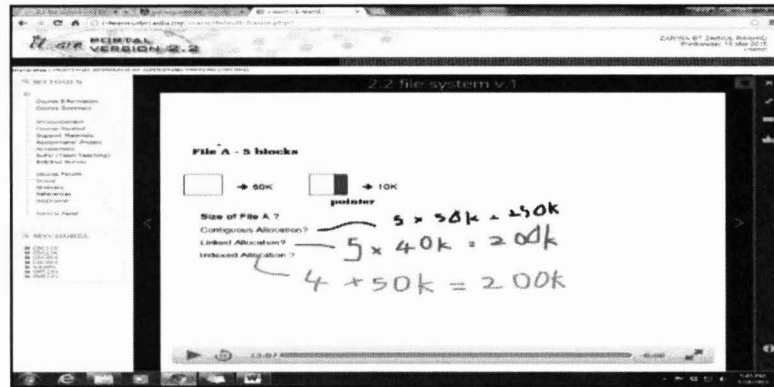
Fig. 4 Screenshot on recorded video for course CSC204 for Diploma in Computer Science

3.   Data Analysis and Discussion

Fig. 5 shows the demographic information on gender while Fig. 6 shows the percentage of students by each faculty. As it is a norm for higher education institutions in Malaysia to be dominated by women, and the highest percentage of students who answered the survey also clearly shows that 60% comes from female students and the remaining 40% were male students. With regards to the portion of students by faculty, 75% responds come from FSKM and remaining 25% were from FSR.

Table 1 shows that collected data from 160 respondents were used in the calculation of Cronbach's Alpha and 100% taken for analysis. No missing data recorded as the online data collection method was used with the setting of mandatory field in the form.

Cronbach's alpha is a popular test in measuring the interim consistency. As explained by popular authors in research methods, Sekaran and Bougie (2009); in general, reliabilities less than 0.60 are considered poor, those in the 0.70 range are acceptable, and those over 0.80 are good. The obtained alpha score as shown in Table 2 is for both perception and satisfaction is 0.89, which indicates that the scale has high internal consistency and proven that the items for each variables are reliable and positively correlated to one another. Thus, it can be accepted for measurement.

Once the reliability test showing a supportive result, the analysis proceeds with the descriptive statistics. For each items, mean and standard deviations were identified. The computed mean rating for each item that is greater than 2.50 indicated expression of agreement with the items while means below than 2.50 indicated expression of disagreement with the variable assessed in the questionnaire.
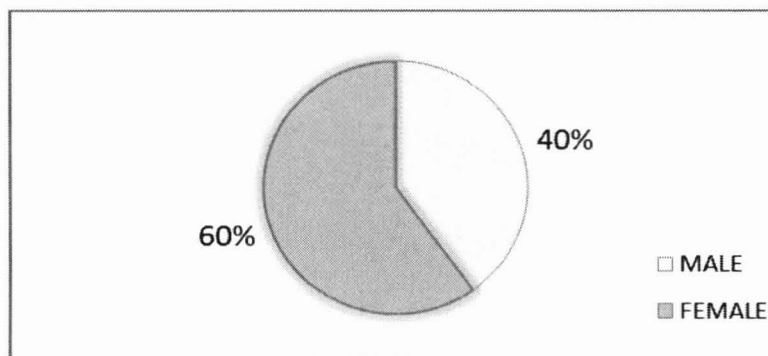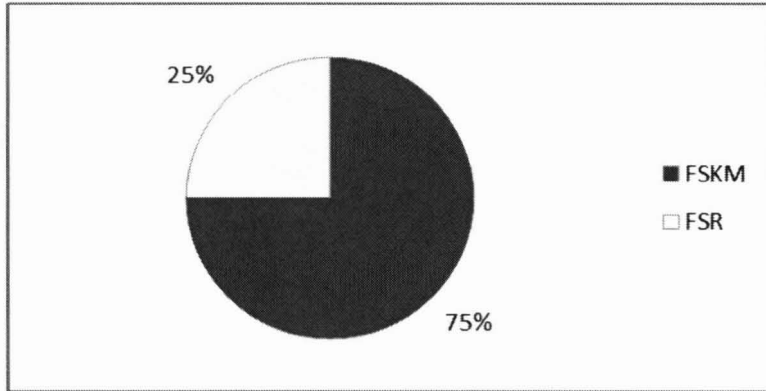

Fig. 5 Demographic information on the respondents' gender

Fig. 6 Percentage of Respondents by Faculty

Table 1. Case processing summary

List wise deletion based on all variables i the procedure.		N	%
Cases	Valid	160	100
	Excluded[a]	0	0
	Total	160	100

Table 2. Reliability testing

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Acceptance	0.89	0.888	5
Perceived effectiveness	0.89	0.894	5

Result in Table 3 shows that all the items had mean ratings greater than 2.50. The highest mean below the acceptance variable is 'The given videos are meaningful' with mean 4.29 (SD= 0.982). It shows that the given videos are mostly meeting their expectations or at least not a poor video to facilitate their learnings. Even though the statement 'I am able to become a self-learner by learning through videos' shows the lowest means of 3.78 (SD=0.904), all the students are actually rated it above the theoretical mean of 2.50 with reference to the standard deviation value. Indeed, when the videos were given to the students to facilitate their learning, they were so eager to view it and start to focus themselves in learning. This visibly indicated that the acceptance level in learning through videos is relatively high. Apart from that, they also agreed that the given videos are interesting, suitable to facilitate their learning and supports the statement that other lessons should consider using the video as well to support learning activities.

Table 3. Descriptive statistics of students' rating

Elements of evaluation for the video-based lesson	Mean Rating	Std. Deviation
Elements for acceptance		
I am able to become self-learner by learning through videos	3.78	0.904
The given videos are meaningful	4.19	0.858
Learning through videos are interesting	4.29	0.982
Videos are suitable to facilitate my learning	3.97	0.921
Educators should also use videos in other lessons	3.94	1.08
Elements for effectiveness		
It is easy to understand most of the content in the video lessons	3.78	1.02
It is easy to follow the video lessons	3.84	0.988
I love the part that we can repeat the video lessons as many as we like	4.76	1.025
The content in the video covers most the lessons that I need	3.98	0.945
I am satisfied with this learning method (video lessons)	3.99	0.971

The output in Table 4 shows the means of acceptance and effectiveness of using video as teaching materials for lecture. Means of acceptance for male and female students are 4.37 and 3.81 respectively. As for the mean perception the Levene's Test for Equally of Variance has a probability (0.162) greater than 0.05, we can assume that the population variances are relatively equal. Thus, we can use the t-value, df and two-tail significance for the equal variance estimates to determine whether differences exist between male and female students. The two-tail significance for gender in Table 5 indicates that p= 0.000, p<0.05 and therefore is significant. It means that there is significant difference between male and female students pertaining to acceptance on video usage as teaching materials for online learning – t (158) = 4.665, p<0.05. The male students also more accept the usage of video for lecture as the mean score is higher (4.37) than the female students (3.81) as shown in Table.

In terms of the effectiveness of video usage for lecture, in the Group Statistics Table 4 we found that male students are more satisfied than female students with their respective values 4.41 and 3.84 respectively. In Table 5, the two-tail significance for gender indicates that p=0.000, p<0.05 and therefore is significant. It also means that there is significant difference between male and female students in terms of video usage effectiveness for lecture – t(158) = 4.572, p<0.05. The male students have higher satisfaction level (4.42) than the female students (3.84) as shown in Table 4.

The mean rating of the items for each of the variables measured as rated by the respondents was computed for both faculties involved in the study. Table 6 tabulated the mean rating for both group are high and appear relatively close for most of the questions or items. Result shows that the perception (acceptance) by FSKM students (M=3.91, SD=0.78) and FSR students (M=4.41, SD=0.68) are both positively supporting the video lessons method. With regards to the effectiveness, there is also a positive respond for FSKM students (M=3.94, SD=0.85) and FSR students (M=4.46, SD=0.64). The findings from the analysed data in this study also related to previous studies done by other researchers. Cakir (2006) found that videos can be used efficiently by foreign teachers in language course and study by Donkor (2010) revealed that video-based materials are pedagogically better compared to print or document-based material especially for distance learning for technical skills education. Overall result is showing that students are accepting the video as a teaching material even though they are from different group, different content creator and different area of studies.

Table 4. Group statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Mean Acceptance	Male	64	4.3687	0.66114	0.08264
	Female	96	3.8104	0.79067	0.0807
Mean Effectiveness	Male	64	4.4156	0.7085	0.08856
	Female	96	3.8396	0.82519	0.08422

Table 5. Independent samples test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper
MEANPERCEPTION	Equal variances assumed	1.971	0.162	4.665	158	0.000	0.55833	0.1197	0.32192	0.79475
	Equal variances not assumed			4.834	149.987	0.000	0.55833	0.11551	0.3301	0.78656
MEANEFFECTIVENESS	Equal variances assumed	2.36	0.126	4.572	158	0.000	0.57604	0.12599	0.32719	0.82489
	Equal variances not assumed			4.713	148.132	0.000	0.57604	0.12221	0.33453	0.81755

Table 6. Group statistics

	Faculty	N	Mean	Std. Deviation	Std. Error Mean
Mean Perception	FSKM	120	3.9083	0.78	0.07151
	FSR	40	4.41	0.69	0.10836
Mean Effectiveness	FSKM	120	3.94	0.84559	0.07719
	FSR	40	4.46	0.63762	0.10

4.   Conclusion

This study demonstrates that students expressed a positive preference for accepting video as one of the teaching materials. Three types of different recorded video were used and the finding indicates that these videos are effective in terms of delivering the content. Furthermore students expressed a strong preference for the video lessons that can be repeated as many as they like. Even though different group of students with different area of studies have some different in perception and feedback towards the effectiveness in video learning method, regards to the overall positive result obtained, it is believed that students' acceptance to this method of teaching and quality learning experience can be improved through usage of video as online teaching materials. Students will have positive attitude towards e-learning when they find it easy to use and useful for their coursework (Adewole-Odeshi, 2014) and in this study, the videos are proven as easy and useful for online teaching material especially for the male students.

Nevertheless, as usage of video is good for learning aids and one of the delivery methods for learning materials, it is also necessary to consider learning experience that actively

engages students when developing teaching materials. A continuous study on larger sample size involving more faculties in UiTM is being carried out by the authors to consider a more flexible approach to improve quality and value in learning experience. It is also hoped that the UiTM administrators would always open the access for YouTube during the office hours to support the online learning.

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