3D TEXTURING TUTORIAL TEACHING VIA WEB 2.0 INSTRUCTIONAL VIDEO.

Mohammad Dzulsyafiq Mohammad Yusoff [1], Anuar Mohd Yusof [2], Ariff Ariffin [3], Hidayat Hamid[4], Nor Sofiatulakma Jamaludin [5]
Faculty of Creative Technology and Heritage
University Malaysia Kelantan.
dzulsyafiq@umk.edu.my, anuarmy@umk.edu.my, ariff.a@umk.edu.my, hidayat.h@umk.edu.my, sofiatul@umk.edu.my

Abstract. Advent of technology has changed the learning ecosystem throughout the whole world. Therefore, video which considered as one of powerful learning tools offered a lot of advantages in teaching and learning. It offers an ability to partly taking the role of instructor in class which will lessen the burden and task of the instructor. In addition, with advent of internet, this video is made accessible by the student at their own comfort. This paper will discuss and compare the effectiveness and experience of student learning 3D Graphic using online instructional tutorial video. Both conventional tutorial method and online video tutorial method will be used in different group. The feedback from the participants will compiled and further discussed for future improvement and recommendation.

Keywords. *Instructional design, 3D Graphic, Online tutorial video*

1. Introduction

The advent of technologies among the society nowadays has also affected the teaching and learning. Inevitable that with the advent of the technology has caused changes in student's learning behaviour and way of perceiving knowledge. Thus, digital medium has become the most learning medium used in teaching and learning. Several learning theories has began implementing the technology available to ensure its relevance in the current age. Instructional design or known as ID among educators, is one of the examples of an effective teaching delivery. Instructional design is defined as a systematic process that is employed to develop education and training programs in a consistent and reliable fashion (Reiser & Dempsey, 2018).It often associated with the notion of teaching and learning as well as providing well controlled method and improvements in understanding. For the past 50 years, researchers had attempt to define and create models of design with the intent to expand how instruction should be. Barson (1967) defined instructional development as the systematic process for improving instruction. Fascinating argument about this project is the attention that many different conditions influence learning, including the use of media, and that generalizing any sort of model would potentially be hazardous at best and devastating at worst. From here, we can understand that the notion of implementing Instructional Design could be variable.

Twelker (1972) claimed that a systematic approach to developing instruction was progressively popular idea but advised that instructional design (ID) methods varied from simple to complex. These historical observations predicted the reality that every instructional design project is unique every time with no two projects ever progressing through the process identically. These differences however, every now and then could be subtle while at other times significant, have given way to dozens of different models used with varying popularity in a wide variety of learning contexts. The question now is what design model is applicable in terms of providing comprehensive and effectiveness in the context of teaching subjects relatable to technology.

According to Allen (2011), Instructional design is a set of process, or systematic approach in developing learning content and experience to happen more safe and optimized. Therefore, there are several concerns that will be raised up when it comes to instructional design such as; the sequences, the medium that will be used, learners motivation, performance feedback and so on. Allen (2011) also stated that most of the e-learning could not been delivered effectively. Thus, this paper will focus on implementing instructional design via online video tutorial in teaching 3D texturing.

In recent years, teaching and learning have been made easier via online tutorial video. Most of the learner nowadays prefer video teaching rather than conventional lecture giving by the lecturer physically. This method has become one of effective way in teaching delivery and many researcher and professional continue to discover on new and more effective ways to keep the video engaged with the audiences(Gravett & Gill, 2010).

2. Research approach and Problem Statement

In this digital era, video is considered as a powerful tool in teaching and learning. According to Brame (2015), many studies have been conducted indicated the ability of videos as a powerful learning tools. However appropriate approach has to be implemented properly to ensure the effectiveness of the video in teaching and learning. Another research by van der Meij and van der Meij (2013) also indicate that instructions video have some advantage over software learning. However, there are limited and rarely research has been conducted on instructional video for procedural knowledge development(van der Meij & van der Meij, 2013).

Thus, the aim of the research is to replace the conventional tutorial with online tutorial without compromising and, even improve the teaching delivery among the student. 3D texturing is one of the subtopics in 3D graphic modeling course taught in University Malaysia Kelantan, Malaysia. This course will be offered once in every two academic semesters with an average of 60 student taking up the course. This course is considered as one of technical courses which require a 2 hours of tutorial session per week. The Malaysian Accreditation Standard has ruled out the appropriate lecture to student ration for tutorial class is 1:15. This ratio was suggested in order to achieve optimum result in teaching and learning.

The problem arises when the number of students taking up the course keep on increasing while the instructor that qualified in teaching the courses are limited in numbers. This result to the class to be break into several group and one lecturer handling every tutorial group in a separate session. If the problem persists, the instructor will be worn out and exhausted as the instructor have to repeat the same lessons in four different tutorial group.

Teaching technical course like 3D graphic modeling, require more than two hours of the tutorial session. Conventional tutorial will result to the instructor teaching in front of the class with 15 students will be listening in front of their computer, following the step taught by the instructor. It is almost impossible for every one of the students to able to follow properly the step taught by the instructor in front. Chances are that, several of the students will miss a couple of a step and start firing questions to the instructor that will slowing down the tutorial session as the instructor will have to entertain to the questions. The good student that able to follow every step precisely will have to wait for the slower one that missed the step. Students are having difficulty to digest all the lesson taught within the tutorial period.

Thus, this research will be investigating the effectiveness of the instructional online video tutorial to be implemented during the tutorial session in order to teach 3D texturing to the students taking up the course. Apart from that, the research is also aiming to identify students experience in learning 3D texturing using the online tutorial video.

3. Implementation

To address the issues, the used of online tutorial video with Instructional Design was proposed and been put to test. The tutorial session was separated into two different group. Group A and Group B. Both of the group will be taught on the same lesson which is 3D Texturing but with different approach. Both of the group have no prior knowledge to the lesson that will be taught. Before the tutorial session, both groups will have to answer a 5-point likert scale, survey to know their perceived knowledge and understanding on the lesson that will be taught. Group A which consist of 22 number of students will undergo the lesson with conventional tutorial method where the instructor will demonstrate in front and the student will follow the step given by the instructor. Group B which consist of 27 number of students

will undergo the tutorial session using online tutorial video that was developed with instructional design. Both of the group will have to achieve the same learning outcomes. At the end of the lesson, both group will be given a questionnaire regarding their understanding and experience during the lessons. Both results were then compiled and compared for the analysis.
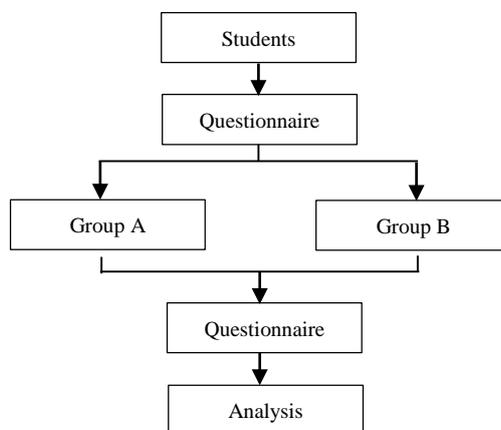
Fig. 1. *Framework of the research*

4. Findings

Table 1 summarize the data collected from the questionnaire. The data was gathered to assess the respondents (which are the students) perception of knowledge and experience on online video tutorial, descriptively. Based from the data compiled, respondents from both group perceived that they have a low level of competency skills on 3D texturing, Group A (Mean=2.29,SD=1.2) and Group B (Mean=2.52,SD1.16), before the tutorial session.

Table 1. Descriptive statistics of student's feedback

No	Scale dimension	Group A		Group B	
		Mean	SD	Mean	SD
1	3D Texturing perceived competency skills (before the tutorial session)	2.29	1.2	2.52	1.16
2	3D Texturing perceived competency skills (after the tutorial session)	3.81	0.68	4.04	0.34
3	Student's satisfaction of the tutorial delivery	4.48	0.51	3.96	0.59
4	Student's feedback on the needs of video in teaching 3D texturing	3.95	1.2	3.89	0.7

Both of the sample group, have improved their perceived competency skills in 3D texturing after the tutorial session although there is a slight difference in the mean value where Group A (Mean=3.81,SD0.68) value is lower than the Group B (Mean=4.04,SD=0.34) value. The SD value for both group is also low and indicated consensus on the finding. Student have been asked on their satisfaction of the teaching throughout the tutorial session. The finding shows that the group with the conventional teaching method (Group A) have a higher mean value (Mean=4.48, SD=0.51) than the group that undergo the tutorial session using the online video (Group B) (Mean=3.96,SD=0.59). However both group can be consider satisfy with the teaching method since it surpass the range of good(3.41-4.20). Respondent was also asked on the needs of having tutorial video as a learning material.

Based on the feedback, both group feels the needs of having the video as learning material with mean exceeding 3.41 where group A(Mean=3.95, SD=1.2) and Group B(Mean=3.89,SD=0.7).

5. Conclusion

This study attempted to examine the usage of online video tutorial and its effects to the student. The issues derived from the limited resources during tutorial session such as lack of qualified instructor and limited of time. This research can be considered as introductory testing on the efficiency of implementing online tutorial video for teaching technical course namely 3D Graphic Modeling during the tutorial session. Initial hypotheses of this research are that the group of students that undergo the tutorial session via online tutorial video will be more satisfied with the experience and having a better perceived knowledge on the lesson taught. Upon the testing we discovered that although the result of the group of students that undergo the tutorial session using online tutorial video slightly higher than the other group, but the differences are not significance. Therefore, the result presented need further investigation and validation. Nevertheless, this research indicated that student feel the necessity to have the online video tutorial included as their learning material.

Futher, research can be conducted on optimizing the online tutorial video in teaching and learning and the implementation of Instructional design and other elements in the said video.

6. References

Allen, M. W. (2011). *Designing successful e-learning: Forget what you know about instructional design and do something interesting* (Vol. 2): John Wiley & Sons.

Barson, J. (1967). INSTRUCTIONAL SYSTEMS DEVELOPMENT--A DEMONSTRATION AND EVALUATION PROJECT. FINAL REPORT.

Brame, C. J. (2015). Effective educational videos. *Vanderbilt University Center for Teaching*.

Gravett, K., & Gill, C. (2010). Using online video to promote database searching skills: the creation of a virtual tutorial for Health and Social Care students. *Journal of Information Literacy, 4*(1), 66-71.

Reiser, R. A., & Dempsey, J. V. (2018). *TRENDS AND ISSUES IN INSTRUCTIONAL DESIGN AND TECHNOLOGY* (Fourth ed.). New York: Pearson.

Twelker, P. A. (1972). The Systematic Development of Instruction: An Overview and Basic Guide to the Literature.

van der Meij, H., & van der Meij, J. (2013). Eight guidelines for the design of instructional videos for software training. *Technical communication, 60*(3), 205-228.