

DEVELOPMENT OF MASSIVE OPEN ONLINE COURSE (MOOC) BASED ON ADDIE MODEL FOR CATERING COURSES

Mohd Erfy Ismail
Universiti Tun Hussein Onn Malaysia
erfy@uthm.edu.my

Pipit Utami
Universitas Negeri Yogyakarta
pipitutami@uny.ac.id

Irwan Mahazir Ismail
Universiti Tun Hussein Onn Malaysia
irwanm@uthm.edu.my

Norhasyimah Hamzah
Universiti Tun Hussein Onn Malaysia
hasyimah@uthm.edu.my

Hairuddin Harun
Universiti Tun Hussein Onn Malaysia
hairuddin@uthm.edu.my

Abstract

Nowadays, innovation for teaching aids is an important requirement to ensure the teaching and learning process can run smoothly. Coinciding with the Malaysia Education Blueprint 2013-2025 (Ministry of Education) through the ninth surge of Global Online Learning, the development of the Massive Open Online Course (MOOC) was built. The ADDIE model has been adapted for this development. The study aims to develop an appropriate interactive learning for Food and Beverage Presentation subjects based on the Vocational College (VC) syllabus. In research development, researchers use Richey and Klein research recommendations, using Alpha and Beta tests in the evaluation phase of the study. The population of the study involved 155 Catering students at Muar Vocational College and the sample of the study were 60 of third and fourth-year Diploma students. The sampling method used is the purposive sampling and the instrument used in the form of the questionnaire. Data collected were collected and analyzed descriptively using Statistical Packages for Social Science (SPSS) version 23.0. Based on the analysis, the reliability value of the instrument is 0.997 and shows that the reliability of the instrument is at a high level. The findings show that the use of MOOC can increase computer literacy (3.75), interest (3.78) and student learning styles (3.75) and make the learning process more interesting. In addition, the findings show that the use of the MOOC application can help students in improving the performance and achievement of students in learning and thus can be an alternative to diversifying the teaching and learning process in VC.

Keywords: MOOC Literacy, Interest, Learning Style, ADDIE Model, Catering, TVET

INTRODUCTION

Technical & Vocational Education and Training (TVET) Malaysia has been empowered by Ministry of Higher Education (MOHE) of Malaysia to improve the image and quality of Malaysia TVET education towards World Class Education (Minghat, Yasin, Subari, & Noordin, 2013). TVET aims to develop students' skills, abilities, and understanding of real-world employment and prepare skilled manpower for future use (Aziz, Ramli, & Othman, 2014). According to Osman (2016), through Technical and Vocational Education, the skills majors can contribute to a knowledge-based economy, technology and mobility of the workforce. Students who want to continue their studies towards skills-based education, they can choose the vocational college to understand, learn and explore the skills there.

Information and computer technology greatly influences the lives of society today. The emergence of computer technology and modern communication tools can help people to collect, process and handle information easily and systematically (Anggraini, Mukhadis, & Muladi, 2013). Teachers are now encouraged in computer literacy so that knowledge in the 21st century can be explored and utilized in the P & P process (Penny, Friston, Ashburner, Kiebel, & Nichols, 2011). The use of computers is increasingly important in everyday life, whether in the office or at home. Vision 2020 faces the challenges of life-based on science and technology as one of the key agenda (I. M. Bin Ismail, 2005). One of the implementation of ICT in learning is electronic learning (Priyanto, Sofyan, & Surjono, 2017). Utilization of the Internet in the form of web-based learning media is one form of e-learning which in this era is popularly developed by various educational institutions (Hardyanto & Surjono, 2016).

Online learning with the valid and structured material is important for students in the achievement of learning objectives Prastiyo, Djohar, & Purnawan (2018). MOOC is an online learning course whose participants are unlimited and can be accessed openly through the website. According to Aris & Halim (2016), Massive Open Online Course (MOOC) is an online course aimed at massive interactive participation and open access through web-

sites. MOOC is an online learning accessible to everyone around the globe for free (Kop & Carroll, 2011). MOOC is a global online learning capable of accommodating student capacity on a large scale (Nordin, Norman, & Embi, 2016). In fact, the field of skills is an important field especially for developing countries to prepare for the 21st century (Bakar & Latif, 2010).

Not only that, Abidin (2014) stated that attitude or interest in teaching and learning process could be embedded in digital literacy practices for all academic institutions to support the concept of e-learning as an effective learning method. Additionally, this is in line with the needs of the country's e-learning policy and 21st-century education that highlights student-centered learning.

Based on the background of the problem, a new culture in ICT or e-learning is one of the effective teaching approaches and can help teachers by diversifying teaching methods to facilitate students to understand while helping teachers to carry out their teaching smoothly and in order. Additionally, teachers can achieve outstanding student achievement and create their success much easier (Abdullah, 2010). This new development has created a new flexible learning environment in terms of time, place, method and learning materials (Othman & Mohamad, 2014). They need to act and react to explore these interactive and digital methods in learning (Gan, Menkhoff, & Smith, 2015).

The use of the MOOC especially among academics helps increase the motivation and interest among students who are still fading in e-learning (Yahya, 2013). The world is growing in e-learning. Thus, this learning allows students to learn anywhere and at the time chosen by the students. This allows students to manage their own time more effectively. This virtual learning also involves the use of optimal costs. In addition, interactive learning styles online allow students to explore new information through digital libraries or websites (Pappano, 2012). Therefore, students can work in groups or individually to view and collect information, analyze and evaluate information obtained directly through an e-learning platform. As more and more technologies are introduced in the field of education, this treasure of knowledge can provide and disseminate information and knowledge globally.

The objective of this study is to study the following: (a) develop MOOC platform for use in learning; (b) to test the functionality of using the MOOC learning platform; (c) MOOC literacy among students towards MOOC usage; (d) the interests of students towards MOOC usage; (e) the student learning styles towards MOOC usage.

METHODOLOGY

In the research development, this research was used Richey & Klein (2014) development design, which uses Alpha and Beta testing in the evaluation phase of the study that software or products developed should apply appropriate models to help students solve problems and improve student performance. This product uses product development design. The model used to design this project is ADDIE Model. According to Richey & Klein (2014), there are five (5) phases in this model is analysis phase, design phase, development phase, implementation phase and evaluation phase. This model was chosen based on the approach to the development of the study by solving the problems arising from the early stages.

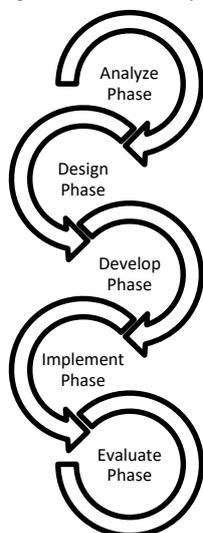


Figure 1. ADDIE Model

Analysis Phase

At this stage, the analysis phase involves several determining processes and identifies the problems that need to be resolved. After a problem can be identified an analytical process will be carried out to find out what causes or factors are related or that cause the problem. The analysis process covers the

problems faced, product requirements include the objective of developing the product (Halim et al., 2012). In addition, the phase of analysis is the basis of all phases in this instructional design model. To develop the MOOC for catering programs at the Muar Vocational College, researchers have set some research objectives as in 1.4. Based on the objective of the study, researchers need to design an interactive learning through the MOOC, develop it as one of the ABBM and test the level of flexibility in its use in learning. During this phase, the researcher set user targets for the development of this MOOC. Among the main focus of the target are educators in catering and respondents for this study which consists of students of catering programs, especially Vocational College of Muar, Johor.

Design Phase

At this stage of the process, it explains the overall view of the design, structure, teaching approaches, types of media and technologies to be used, content and script/storyboard. This phase is crucial for planning strategies in developing teaching and outlining how to achieve teaching goals. Development needs to acquire appropriate learning objectives and it should be based on the use of learning materials in Vocational Collage according to the prescribed syllabus. In addition to learning notes, the design of activities, training and quizzes/tests should also be developed. According to Lee, Hsieh, & Hsu (2011), development should be appropriate and check the way or method of delivery of information in the software to be more user-friendly. Among the things that need to be emphasized in this design phase are content design and script/storyboard design.

Development Phase

This stage involves real system implementation by using all appropriate media and technology elements based on requirements. Built based on analysis and design phase. The purpose of this phase is to produce lesson plans and learning materials (Davis, 2013). During this phase will be developed, the teaching steps as well as the media to be used in teaching and other required documents. According to Hishmuddin (1987), the output in the design phase will be input to the development phase. The

multimedia project development work will be done according to the agreed-upon specifications. Each development will be tested to ensure that it is consistent and effective.

Implement Phase

At this stage, the teaching materials that have been prepared will be used or implemented in real terms. In this phase, testing was also made. Testing will be made on MOOC which will be developed by the researcher. The completed MOOC development project will be tested on users to identify errors during the project development process. In the event of a mistake, the repair will be made before it is fully delivered to the target user for use. All syllabus, activities, discussions, references, and notes will be included in the MOOC platform at <https://www.openlearning.com/> in stages.



Figure 2. Open Learning

Evaluate Phase

This phase is an advanced phase of the implementation phase. This phase is evaluated from two aspects of assessment, namely (i) usability assessment, and (ii) conformity assessment (Nordin et al., 2016). Instead, the main purpose of this phase is to detect weaknesses and failures in the development process and operating system. As such, three experts comprising MOOC specialists, multimedia specialists and technical and vocational (catering) experts to evaluate and verify MOOC functionality developed through the expert confirmation form to be provided. Additionally, the usability of MOOC development was assessed through a questionnaire given to 60 students.

Population and Sample Study

According to Thomas et al. (2010), the population is the target group of researchers in which the group to whom the results will be

generalized. The population in this study involved 155 students taking a catering program at Muar Vocational College. The sampling was the respondents selected to represent a population (Goodman, 2011). The sampling method that used is purposive sampling which consists of third year and fourth-year students taking the Diploma in Catering Arts of 60 who took the subject of Food and Beverage Presentation

Validity and Reliability of Instruments

Validity and reliability are important to ensure that the findings are credible and unquestionable (Csikszentmihalyi & Larson, 2014). To ensure that the questionnaire can be used, the validity must be made first. The validity used in the study is the validity of the content and the validity of multimedia. The researcher has obtained three experts to determine the validity of the questionnaire which has been developed. The three experts consisted of a MOOC expert, a multimedia expert, and professor in vocational education (catering).

The reliability of the instrument is a measure to determine the consistency of the score against each item found in the questionnaire form. This is to preserve the accuracy of the questionnaire instrument from having any problems and data obtained accurately. To see the reliability of the questionnaire, an internal methodology was used Cronbach Alpha method. Based on the analysis that has been made, Alpha Cronbach's value is 0.997 and is at a high level (Ghafar, 2003).

All the items in the questionnaire were analyzed by appraising using four-point Likert scale scores based on a very disagreeing, disagreeing, agreeing and strongly agreeing. Item analysis refers to the range of mean scores such as Table 1 which determines the level of respondents' stance on items in question.

Table 1. Mean Score Analysis

Mean	Level
1.00 – 2.33	Low
2.34 – 3.66	Moderate
3.67 – 5.00	High

MOOC Literacy Analysis

Table 2. shows the results of MOOC literacy which is the respondents involved in

the questionnaire by item and finds the mean result obtained is moderate and it clearly indicates that respondents agree with this item. This shows the respondents' decision to answer the first question is positive and computer literacy among catering is good.

Table 2. Data Analysis of MOOC Literacy

No	Item	Mean	SD
B1.	I understand more about learning when using MOOC.	3.63	0.486
B2.	I know how to use the MOOC learning platform.	3.68	0.469
B3.	I am more likely to find information through MOOC's learning platform.	3.68	0.469
B4.	I'm more interested in learning to use MOOC than books.	3.55	0.502
B5.	I feel the MOOC application helps me practice SLT (Self Learning Time)	3.65	0.481
B6.	I am experienced in controlling the MOOC platform.	3.67	0.51
B7.	The information provided in the MOOC platform is clearly communicated.	3.73	0.446
B8.	MOOC can help improve my academic achievement.	3.75	0.437

Students Interest Analysis

Table 3. shows the results of students interest towards MOOC usage. The results found that the majority respondents strongly agreed on the items given and this clearly showed that students interest in the use of MOOC for learning was high.

Table 3. Data Analysis of Students Interest

No	Item	Mean	SD
C1.	I love learning to use the MOOC learning platform.	3.7	0.462
C2.	I like it when teachers use MOOC as a teaching aids tool.	3.78	0.415
C3.	I love to answer the questions in the MOOC.	3.73	0.446
C4.	I use MOOC's learning platform for all subjects.	3.72	0.454
C5.	I am ready to use the MOOC at any time.	3.73	0.446
C6.	I always take the opportunity to learn using MOOC.	3.67	0.475
C7.	I often use MOOC to get learning materials.	3.68	0.469
C8.	I feel the convenience in MOOC stimulates my learning.	3.73	0.446

Student Learning Style

Table 4. shows the results of the students learning style using MOOC. The results found that the majority respondents strongly agreed on the items given and this clearly showed that students learning styles while using MOOC for learning was high.

Table 4. Data Analysis of Student Learning Style

No	Item	Mean	SD
D1.	I often visit MOOC's website to find information.	3.7	0.462
D2.	MOOC helped me learn not to think time	3.75	0.437
D3.	I use the MOOC learning platform in daily tasks.	3.68	0.469
D4.	Information is easier to obtain when using the MOOC app.	3.7	0.462
D5.	I love to use MOOC applications in helping the learning process.	3.67	0.475
D6.	The MOOC app helped me to understand something learning.	3.67	0.475
D7.	I always invite my friends to join the MOOC app.	3.72	0.454
D8.	I love to learn to use the materials on the MOOC platform	3.72	0.454

DISCUSSION

The findings of this study show that computer literacy among catering students on MOOC application in VC Muar is at the moderate level for the whole item. This can be seen when some students agree that they know how to use the MOOC platform. According to Arsyad (2011), online e-learning sessions with computers are very easy to update as the latest content can be uploaded or downloaded to a user's computer. The findings also show that some students feel that MOOC's application helps them to practice self-learning time besides the information provided in the MOOC platform is presented clearly. Mohamad & Shariff, 2011) in their study found that online members involved in discussions and interacting effectively can set the tasks that are appropriate for them.

Besides, findings shows that some students agree that they understand more about learning when using this application. In online interaction, students are more interested in learning to use the MOOC platform than scientific books. This is supported by Manaf et al. (2015) student interaction with MOOC app is the kind of interaction between student and

interface. This is because the MOOC app makes it easier and more user-friendly because students and other users can access unlimited limits.

An interaction between students and the interface is very important because the on-line and easy-to-use interface of learning can attract students to actively participate in online learning (Manaf et al., 2015). Students are delighted and comfortable using computers and therefore they are more likely to seek information through the MOOC learning platform. It can be explained that multimedia has the potential to create a high-quality learning environment, with the ability to create more realistic learning contexts through different media (Nusir, Alsmadi, Al-Kabi, & Sharadgah, 2012).

With the rapid technology and sophisticated facilities provided in our country's institutions, it is extremely costly if not applied to multimedia elements especially the use of computers and MOOC for learning (Ismail et al., 2018). In conclusion, student acceptance of MOOC literacy is at a moderate level but needs to be improved to ensure the smooth implementation of the course using the MOOC application. The results of the analysis obtained from questions 1 to 8 have answered this question.

Moreover, this research found that the students interested when the teacher used MOOC as teaching aids. Then, the researcher found that the use of MOOC in the teaching and learning process in the classroom was one of the teaching aids that helped the teacher to increase the interest and performance of students in a subject (Sharif, 2012). Not only that, students also love to use this platform for learning. This is reinforced by Hew (2016) Brundiers and Wiek (2010), which states the use of MOOC in the learning process allows the classroom to meet the real world and enable students to find original information and materials, facilitating collaborative and facilitating multimedia materials to be easily created and disseminated.

Furthermore, students are ready to use the MOOC platform at any time. Thus, seeking information and teaching and learning materials via the internet or the website not only helps to increase the use of multimedia in diversifying multimedia facilities among teachers but also involving students to make the Internet a source of reference (Suryadi,

2007). From the perspective of students, internet usage and websites like the use of MOOC can encourage students to take advantage of learning using MOOC.

According to Ibrahim (2015), students should have shown high interest in classes using the website because it is easy to get information directly. Furthermore, students can ask questions and provide answers at any time and they can complete the training and assignments according to their own ability and suitability (MdYusof, 2014). Additionally, the increased interest in the students peaked when the information contained in the website from various levels of course and general allows students to be free to choose the appropriate information according to their level of understanding and ability (Arsyad, 2008). Karsidi (2013) stated that multimedia technology like MOOC has paved the way for new education. For example, drilling strategies where some attempts have to be made by the students. Learning using MOOC can provide immediate feedback to students. This will indirectly give a very positive reinforcement to the students' interest.

The results of the analysis obtained from questions 1 to 8 have answered the question of this study. In this regard, the researchers can conclude and argue that the student's interest in using MOOC is at a high level. Researchers argue that most items of student interest questions on MOOC use among catering students have shown that students are aware of the MOOC application facility in the learning process. This is in line with Bell's (2010) statement, through the multimedia software that is the use of MOOC, students are also more likely to understand and work to improve their mastery of the concepts they are teaching.

The findings show that catering students' styles in MOOC use are at high levels for the whole item. This can be seen when some students agree that they visit the MOOC's website to find information materials. Motivation in determining the learning style of learning is the overall ability to move someone who helps the learning method to ensure the learning technique so that the purpose of the individual or subject of learning can be achieved (Williams & Williams, 2011). Schunk, Meece, & Pintrich (2013), described that learning styles are very complex that can refer to the term acceptance of someone who characterizes

the existence of feelings and reactions. This can be seen when some students agree that the MOOC helps them learn not to spend time. This statement is supported by Vaibhav & Gupta (2014), where MOOC users can access without any time and place gaps. In addition, the findings show that students use the MOOC platform on daily basis. This statement is reinforced by (Tessier, Sarra-zin, & Ntoumanis (2010) through multimedia learning software that has the graphic, animation, audio and video elements that can provide motivation for learning, as well as providing more effective and complete explanations.

The findings of the next study show individual and group learning preferences driven by MOOC's use. The findings also show MOOC's application to help students choose the content of the lesson creatively as well as the desire to seek higher knowledge. According to Yahya (2013), students are increasingly likely to find the information needed through electronic-based facilities arising from the widespread dissemination of information. Multimedia technology has vast potential to improve the quality and efficiency of the learning process with critical and creative (Insyasiska, Zubaidah, & Susilo, 2015). In conclusion, student learning styles in MOOC use are high but need to be improved to ensure MOOC implementation among catering students. Results of the analysis obtained from questions 1 through 8 have answered the question of this study.

CONCLUSION

The findings provide information to researchers on the importance of using MOOC in the teaching and learning process, especially for catering program at Muar Vocational College. Besides, the MOOC literacy, student interest and learning style towards MOOC usage can enhance by using effective methods which can ensure the maximum level of learning of the students in addition to ensuring that the knowledge delivered by the teacher can be received effectively. Therefore, by using this MOOC platform can help students in improving performance and achievement in learning.

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