



Development of MOOC Content in Educational Information Communication Technology Courses

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Abstract. The purpose of this research and development is to produce interactive MOOC content using the Embed Code in educational communication information technology courses. This research uses the development method which refers to the theory of Borg and Gall. This development research procedure includes several stages including: (1) needs analysis; (2) development planning; (3) developing a lecture system with online course-based learning videos; (4) product validation tests are carried out by experts; (5) carry out product revisions based on expert validation tests; (6) conducting product trials; (7) evaluate the trials that have been carried out; (8) carry out product revisions based on the evaluation results of product trials; (9) carry out the implementation. The results of this study are that MOOC content makes students enthusiastic about learning. The MOOC content in this educational information communication technology course discusses many applications that can be used in education.

Keywords: MOOC · Educational Information Communication Technology Courses · Embed Code

1 Introduction

The Moodle platform learning management system (LMS) has been widely used in various agencies. The Moodle platform is famous for its many features. The features in the Moodle platform LMS exceed the features in other LMSs such as Edmodo, Google classroom, Schoology, etc. Moodle-based LMSs have very complex setups. This can facilitate better and more effective online learning.

State University of Malang developed an LMS based on the Moodle platform called MOOC. MOOC uses a user friendly Moodle template. The features contained in this LMS are also very many. There are 23 features that can be used to facilitate online learning. There is also a feature for web-meeting using BigBlueButton which can be used directly by lecturers and students without having to register a new account. When compared to LMS with other Moodle platforms, MOOC is included in an LMS that has many features. This is one of the innovations of State University of Malang in the field of learning.

During this pandemic, lecturers at Malang State University are required to use MOOC in learning. Training on the use of MOOC has often been carried out. A policy regarding the use of MOOCs has also been launched. However, there are still lecturers who have not used MOOC optimally. Some lecturers only use a small part of the features in MOOC. The most widely used features in MOOC are Labels, Assignments and Forums. Actually it doesn't matter if the lecturer only uses a small part of the features in MOOC because the most important thing is to maximize these features so that online learning can be facilitated and run better.

One example of maximizing the features in MOOC is using the HTML code edit function in the Label feature. Embed Code is code created by third-party websites such as YouTube or Twitter, which users can copy and paste into their own web pages. This embedded code will then display the same media, app or feed on the user's web page as it did in the original source. HTML is an acronym for Hypertext Markup Language. HTML allows a user to create and organize paragraph sections, headings, links or links, and blockquotes for web pages and applications. HTML is one of the most basic languages used on the web, used to design and style web pages [1–3].

Most use of the label facility is still limited to displaying writing only. Even though this label feature can contain many things with very diverse content because this feature supports HTML code. By using HTML code, lecturers can make the appearance of the LMS more attractive and more interactive. This feature allows lecturers to embed other applications into the MOOC by entering the application's embed code into the HTML edit in the Label feature. Embedding this application can enrich existing facilities at MOOC which will later affect the learning process and impact on student learning outcomes. Embed code can make HTML display attractive because it embeds applications from third parties [4–10].

Interesting applications to embed in MOOC are Nearpod and Ed-puzzle. This application has very powerful interactive features. In the Nearpod application there are interactive boards, discussion walls, quizzes, game-based evaluations, interactive material simulations, 3D form media, VR, videos, PPT, material texts, etc. The advantage of this application is that it can contain many facilities in one package for each meeting. This application also allows synchronous and asynchronous learning to occur [11–14]. The use of this application has been widely used and researched. Hakami, (2020) suggests that the use of the Nearpod application can facilitate student activity in online learning. The Ed-puzzle app can turn passive videos into interactive ones by embedding questions, polls, and affirmations while the video is playing. Embedding this application in the MOOC will increase student motivation to study and deliver maximum material.

2 Methods

The development method used refers to the theory of Borg and Gall. This development research procedure includes several stages including: (1) needs analysis; (2) development planning; (3) developing a lecture system with online course-based learning videos; (4) product validation tests are carried out by experts; (5) carry out product revisions based on expert validation tests; (6) conducting product trials; (7) evaluate the trials that have been carried out; (8) carry out product revisions based on the evaluation results of product trials; (9) carry out the implementation.

The analysis was carried out by gathering information from the field and literature studies. Needs analysis is carried out to find out whether the product is really needed to be developed. Development planning is done by first designing product specifications. After the product specifications are compiled, it is continued by designing lecture content for one semester, then proceed to create learning content. At this stage the researcher will use the label feature on MOOC UM. The following shows the Label option in MOOC UM. Through this feature embedding using em-bed code can be done. Product development is carried out based on product specifications that have been made. This development will involve various parties, namely course lecturers, module content developers, video content developers, Nearpod and Edpuzzle application expert technicians and MOOC developers. Product validation tests will be carried out by several experts, including design experts to validate the developed learning videos, material experts to validate the developed lecture materials, and learning experts to validate the developed lecture content. This product revision stage is based on the results of the expert validation test. The results of expert validation will be used as a reference in product development in order to produce a feasible product. Product trials were carried out on PGSD Study Program students, the KSDP FIP Department, Malang State University. From the product trials that have been carried out, qualitative data are obtained from questionnaires and interviews. The data is evaluated to be used as a reference for making final revisions. Revision of the final product is carried out based on the evaluation results of product trials. The results of this final product revision are ready to be implemented and used. The finished product will be applied to online lectures using MOOC.

3 Result and Discussion

The MOOC content developed refers to the RPS that was previously developed. RPS in the educational information communication technology course was developed in eight meetings. Before entering the first meeting there is an opening which contains the introduction of the lecturer and a brief description of what will be learned in this course. Also pinned is the lecturer's wa number and social media address so that students can contact the lecturer easily. In this section, attendance links and webmeeting links are also embedded which will be used in synchronous online learning.

At meeting 1 a lecture contract was given and an explanation of this lecture. A YouTube video is embedded to inform students about what material students must master in this lecture. The second meeting contains applications that can be used in offline learning. The applications studied included Prezi, Focusky, Canva, and Power Point. The application is an application that is used to display presentations in front of the class. The prezi application allows lecturers to make presentation views with the concept of zooming in and zooming out. The prezi application is suitable for use by teachers in explaining material in the form of concept maps. The focusky application has almost the same features as Prezi, so this application is suitable for explaining concept map material. The Canva application has features similar to Power Point, it's just that the Canva application has many good templates available to make it easier to create attractive presentations.

The 2nd meeting contains explanations and the use of applications for online learning. At this meeting students will study the nearpod application, google classroom. The

MOOC development at the second meeting used the embed code feature from videos on YouTube. The video is embedded in the MOOC to provide tutorials on using the nearpod application in learning. The embedded video tutorial contains a complete tutorial starting from creating an account to using the application in learning.

The 3rd meeting contains explanations and the use of applications to make learning videos. The applications studied included Powtoon and filmora. The powtoon application can easily create animated videos without having to make animations first. This is because the Powtoon application has been given characters along with several animations that can be used such as animations explaining, typing, thinking and being happy. The Filmora application is used to edit videos easily. The Filmora application can also be used as a screen recorder which allows teachers to record laptop screen displays to be used as teaching materials.

The 4th meeting learns about applications for creating interactive media. Interactive media will increase student activity in learning. Therefore this material is very important to be mastered by students. The applications studied are nearpod and edpuzzle. Both of these applications are able to create interactive learning media.

The development at meeting 5 at the MOOC relates to the use of applications for ice breaker. The application at meeting 5 is an application for making quizzes that will eliminate student boredom in learning. The applications studied in this meeting are quizzz, kahoot, and Quizlet applications. This application can make quizzes online which will make students excited to study again.

Meeting 6 students will study the application to provide a learning evaluation. The application in meeting 6 is SEB (Safe Exam Browser). This application is very appropriate for use in evaluation because users cannot open other applications on a laptop besides the SEB application. This will avoid cheating students in working on evaluation questions.

Meeting 7 contains a discussion about the use of technology in learning. This discussion will broaden students' knowledge of the use of technology in learning. At meeting 8 students will get an evaluation of the learning that has been carried out before.

The finished MOOC development will then be registered for the community to follow. By registering this course on the UM MOOC platform, the public can take part in this lecture without having to be a UM student. This lecture is also free both registration and implementation. So that this can be a lecture solution that is in accordance with the Massive Online Open Course concept.

Data collection is carried out during lectures which are carried out online. Respondents consisting of 30 students were given a questionnaire using the Google form. The Google form consists of 10 statements with a Likert scale. Based on the results of the questionnaire given to students, the data is presented in Table 1.

Based on Table 1, it is known that in the statement that students are happy with learning using MOOC, a percentage of 84% is obtained. In the second statement regarding the use of MOOC can make students active in learning obtained a percentage of 81%. The third statement is about students wanting to do lectures with MOOC again, obtaining a percentage of 79%. The fourth statement about students being able to interact with friends online when using MOOC gets a percentage of 88%.

Table 1. Questionnaire recapitulation

No	Statement	Percentage answered agree
1	Statement 1	84%
2	Statement 2	81%
3	Statement 3	79%
4	Statement 4	88%
5	Statement 5	87%
6	Statement 6	87%
7	Statement 7	86%
8	Statement 8	84%
9	Statement 9	84%
10	Statement 10	85%

In the fifth statement, namely about students being able to interact with lecturers online when learning using MOOC obtains an 87% percentage. The sixth statement regarding the use of MOOC in lectures allows students and lecturers to interact in two directions to get a percentage of 87%. The seventh statement regarding the use of MOOC in lectures allows students to interact in two directions with their friends to get a percentage of 86%.

In the eighth statement related to MOOC having fun features to use in online learning to get a percentage of 84%. The ninth statement regarding the use of MOOC in lectures can increase student involvement in online learning to get a percentage of 86%. The tenth statement regarding students' opinions about the use of MOOC is very suitable for online learning to get a percentage of 85%.

Based on the results of the questionnaire, data was obtained that the highest percentage obtained from all of these statements was 88% in statements about students being able to interact with friends online when using MOOC. This is because MOOC has a discussion forum feature that allows students to interact with other students and with lecturers. This feature allows students to provide discussion topics which can later be responded to by both classmates and lecturers. Responses that have been given can also be given feedback. This feature is almost the same as the comment feature on social media such as Instagram or YouTube.

The lowest percentage is 79% in student statements wanting to do lectures with MOOC again.

The use of MOOC in lectures will make students active in online learning. Student activeness in learning will have an impact on student learning outcomes [15–17]. In line with Putra's research which states that interactive learning will activate students so that student learning outcomes are maximized. Learning that activates students will make students interested in learning so that students' motivation to learn increases [18–20].

4 Conclusion

Based on the development carried out, this MOOC content is developed using the label feature. This feature allows adding an embed code so that third-party applications can be added to the LMS. The use of embed code indirectly adds features that are not limited to the LMS because online-based applications certainly provide an embed code feature. Embedded applications include YouTube, nearpod, and edpuzzle. Based on the previous discussion, it was found that this MOOC content made students enthusiastic about learning. The MOOC content in this educational information communication technology course discusses many applications that can be used in education. This content is expected to provide knowledge related to creative applications that teachers can use in teaching both online and offline. The development of MOOC content is intended to facilitate online learning for everyone. Course participants in the Education ICT course are not only for UM students but can be attended by everyone.

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