The Development of E-PAS Based on Massive Open Online Courses (MOOC) on Local History Materials

https://doi.org/10.3991/ijet.v14i09.10143

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Abstract—This study aims to develop e-PAS based on MOOC as E-learning media of Local History in Malang. It provides alternative learning based on the development and the use of information technology in obtaining learning objectives. In the development of E-Pas, a research and development approach was used with the ADDIE model. This model is one of the interactive learning processes with the basic steps of effective, dynamic and efficient learning, which consists of Analysis, Design, Development, Implementation, and Evaluation. Based on the results of the research and some validations and implementation tests that have been carried out during the E-Pas development process, it was found that the E-Pas development product was considered feasible to be implemented into a learning product. The percentage of data obtained from the validator and the results of the implementation test to the students shows that the E-Pas is feasible to use. In other words, the product that has been tested and validated can be one of the products that can be applied in the process of learning history, especially the history of Malang.

Keywords—e-PAS Development, MOOC, Local History.

1 Introduction

The high development of information technology in the last few decades has led to a change in way of life, work, and learning [1] especially in the world of education [2]. Increasing the use of information and technology media in the education process is one of the factors in achieving education targets globally as stated in the SDGs. In addition, education can be one of the most powerful and transformative tools for sustainable development [3]. The use of information and technology development products in the world also significantly shifts the traditional education paradigm [1] towards the internet of Thing [4], and is accessible to all [3]. In other words, the online learning paradigm is one of the important parts that must be considered by universities today as a step in transformative education that helps students to get material easily and openly [5].

As part of the ongoing internet of things era [6], online learning is like the Massive Open Online Course (MOOC) model as a medium to provide opportunities and improve the quality of teaching and learning [7] is a deep concern by education experts.

With MOOC, everyone has access to materials provided by experts and can get learning support with a variety of learning activities that are varied and rich in learning material [5].

The growth and use of mooc as a learning platform has increased several years, both from the courses offered and the number of learners who enroll in this program [8][9]. In 2016, there were more than 700 universities in the world that had used this learning platform [8]. MOOC is a familiar and sought after by many people due to free, openness and unlimited features provided [9]. There are at least several benefits in MOOC learning platform such as the use of innovative educational ideas and techniques, the presentation of all years of teacher knowledge and experience, and the attractive and interesting modules [10].

The development of e-PAS (Indonesia--E-learning Pembelajaran Sejarah—or E-learning for Learning History) is to provide the widest possible access to society, at a relatively low cost. In developing countries like Indonesia, it is important to build the quality of education for the wider community. Krause and Lowe in [11] stated that MOOC has the potential to make traditional universities open themselves in providing knowledge academically. This teaching system contribute to educational resources rationally by full open access provided [12]. Through the development of e-PAS based on MOOC, one can learn flexibly without being limited by certain space and time. The material provided is attractively packaged with a variety of teaching materials such as documentary videos, e-handouts, e-modules and various kinds of media such as Prezi, video scribe, interactive quizzes, digital maps, and others. e-PAS is also equipped with evaluation tools to measure the achievement of learning objectives in various forms, such as projects, problem descriptions, objective and subjective questions.

The targets in developing this innovation are students of history and cross history majors who want to understand more about the history of Malang. For example, students from the Fine Arts Department who want to develop batik from Singosari temple, first they can learn the history of Singosari through e-PAS. This is needed to provide basic knowledge and can utilize appropriate resources. In addition, this is also very necessary for history teachers who want to have more understanding of Malang History. Some history teachers in Malang Regency complain about the lack of resources that can be used in teaching history about cultural heritage in Malang more concretely, for example about Relief and its meaning in Jago temple can use e-PAS for learning. In addition to students and teachers, the general public can also register for courses on the e-PAS website that will be developed to gain knowledge about Malang History from trusted sources.

Malang, as a city with many historical relics has become one of the objects that attract students or others interested in learning history. Visits from several universities and students to sites in Malang prove that Malang has become a city that can be used as a material object in historical learning. Usually, before conducting a site visit, several History Education Study Programs such as the Historical Education Department, University of Jember (Unej), University of Indonesia (UI), UNTAG Banyuwangi and other universities in Indonesia choose the History Department, faculty of social science, University Negeri Malang (UM) to become a reference before they make a visit

to sites in Malang. This indicates a lack of comprehensive information about sites in Malang for the public, and also provides an understanding that not only students but history teachers also often have difficulty in finding learning resources that can be used as a reference source in providing knowledge about the local history of Malang. The problem is not the lack of resources, but access to learning resources that they find difficult to obtain. Most existing historical sources have been published for a long time, none of which are current sources of reference so that not everyone can easily get access to that information. This finding is based on the results of a discussion with the Malang City Teacher Association in April 2018.

Based on the 2017 History Department curriculum, a distinctive feature of UM's history learning is cultural history and Local History. Many history lecturers have competencies about Malang History from ancient times to contemporary, but not many of them have explored their abilities in MOOC learning. The MOOC concept is offered free of charge and is open to courses and access to a large number of students from anywhere in the world [2]. In the MOOC, participants do not need to officially register with certain institutions as they should register as students at a university. In MOOC participants who want to take part in learning through MOOC simply choose what material they like and MOOC also provides opportunities for participants to be able to follow as much material as the participants want [13].

This provides a great opportunity for the creation of comprehensive learning and provides opportunities for the opening of education for all. A person can register for free without having to become a college student who develops the MOOC. The main requirement must have an internet connection [14]. In this context, the History Department in higher education has a great opportunity to explore the potential of the richness of the past historical heritage into learning for the next generation through the use of the internet. Many research results about Malang have not been digitalized well. Based on these findings, it is necessary to develop a history of Malang learning with the development of e-PAS (*E-learning Pembelajaran Sejarah*) or e-learning for Learning History.

2 Method

Research Development is one of the methods used in researching and developing products for Innovation in Education. Development research is an effort to develop and validate products that will be used in education [15]. In developing this e-PAS learning innovation, using the ADDIE model consists of five stages such as Analysis, Design, Development, Implementation, and Evaluation [16]. The ADDIE Model Learning Design is one of the interactive learning processes with the basic steps of effective, dynamic and efficient learning [17]. This model was chosen because it was assumed by researchers as the right development model. The decisive stage in this development is the process of collecting data as a study material from the e-PAS system. Data collection is the most important stage because to get accurate data from several individuals and places [18].

For the evaluation stage, this study uses an evaluation model developed by Taylor & Handy [19]. The process of reflection through a discussion process to perfect the learner's understanding of the new material included in the learning process is very important to do in the development assessment [20]. This is related to the objectives of historical learning which includes three aspects such as knowledge, attitude development, and skill aspects [21]. In the same context, [22] suggests that an important element in historical learning is the reflection that students get into positive values that they believe. The development of attitudes can be developed through the meaning of historical learning by reflecting on important findings from the historical material learned by students [22]. The stages of development are as follows.

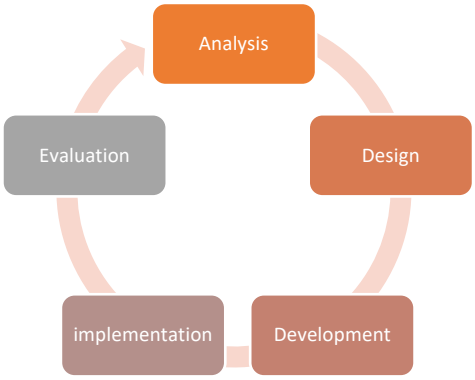


Fig. 1. The Development Stages

The figure describes several stages of e-PAS development on MOOC-based. The first step is Analysis. This activity is oriented toward identifying problems and gathering local historical sources both in the field and literature as study material for e-PAS content. Both of these activities were carried out in order to fulfill the achievement of the targeted activities that were to obtain data relating to all problems and data on local historical sources. The second step is design. This activity was carried out to compile study materials as e-PAS content in the form of written material, compile study materials as e-PAS content in the form of video material, and collaborate written and video material with the learning syntax in e-PAS. The achievement target in this activity is written material and video as a study material of learning syntax in e-PAS.

A development is the third step that refers to the material as a study material that must be validated by experts. The e-PAS design must be validated by learning technology experts and analyze the input from the validator. This is needed in order to obtain products and designs that are suitable and effective for use in learning. The fourth step is implementation. This step is a test step where the product development that has been produced and validated is used directly in the learning process involving students. As the final step of this development process is evaluation. This activity needs to be carried out to analyze the results of previous activities such as implementation until the product can actually be declared to be fully implemented.

3 Result and Discussion

3.1 Validation and evaluation

A product must be validated by experts before the testing phase is carried out on the results of the development. In this case, validation is carried out by two material experts and media experts. Both of them provide input and initial evaluation of this product which will be revised and refined on the development results of this learning innovation. In this validation, Ronald Ridhoi, M. Si as the material validator. He is one of the lecturers in the history department who researched with many local studies. Thus, he is fit to provide an evaluation and evaluation of the material contained in this development product. The second validator is M. Nur Fahrul L.K, M.Pd as a learning media validator. He is one of the history education lecturers who teaches History Learning Information Technology subjects. The validation by experts both material experts and media experts will provide recommendations that the product is feasible or not to use as learning content. Both the media and the packaged material are stated in accordance with material standards and the standard of learning media in the form of videos. However, there are some notes given which cover several things from the assessment indicators. Suggestions for improvements provided as input for improvement of final product development.

Some suggestions given by the expert team include; first relates to the material. There are four sub-parts that need to be improved, such as coverage or spatial needs to be expanded, the duration of time needs to be mentioned in the material, the presentation of material is presented in detail, and needs to be supplemented with various supporting images. The second suggestion is related to the media. There were three things that were criticized by the expert team, including video images needing to be completed with place names or names of historical, sound or audio site objects needing to be filtered to get clearer and clearer sounds, and the duration of time needed to be shortened, effective time is around 10-15 minutes.

The next activity is to revise based on expert suggestions. The results of the validation carried out by experts, both material and media provide the following assessment:

Table 1. Evaluation and Correction

Validator	Indicators	Suggestions	Correction
Material	Coverage / Spatial	The coverage or spatial should be in a wide area	The material coverage cannot be extended because of the research limitation in a research proposal.
	Temporal	The time should be clearly stated it in detail	It was fitted with the object site studied.
	Presentation	The material presentation should be shortened in detail and clearly stated	The material was simplified to focus on most supporting important information.
	Supporting	Add the video images as supporting media	All the video has been completed by related images
Media	Video Image	Complete the information such as name and place of the object	Supporting information on speaker on each video presentations were added to

			completely and clearly understand.
	Sound / Audio	The sound should be filtered to get a clear voice	The sound was filtered and added some feature such as dubbing to get the clear voice from the speaker.
	Time	Time duration should be effectively standardized 7 to 15 minutes.	The video that has a long time duration and has important point was shortened and divided into two episodes.

After the revision was carried out according to the table above, the validator gave a final assessment of the material developed. The data from the material validation shows a mean score of 86 (Good). Thus, it means that the material that has been developed is feasible to use, the data can be described in the following table.

Table 2. Material Validation

Aspects	Spatial	Temporal	Content	Supporting	Average
Material	82	85	90	87	86

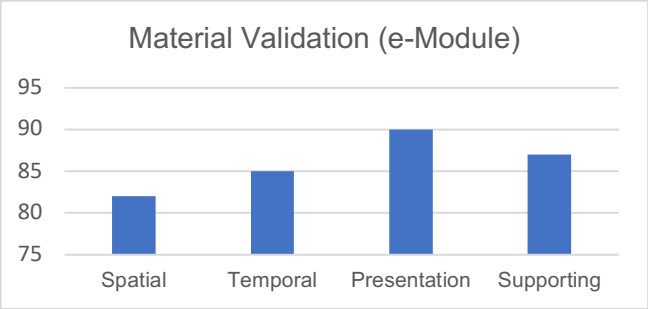


Fig. 2. Material Validation

Furthermore, to improve the media, after media repairs are made from the suggestions given by the validator in the first stage, then it is submitted back to the media validator to be tested both times. The results at this stage show an average value of 84 (Good). Thus, the media that has been developed is feasible to be used at a later stage.

Table 3. Media Validation

Aspects	Imagea	Audio	Duration	Average
Media	86	82	84	84

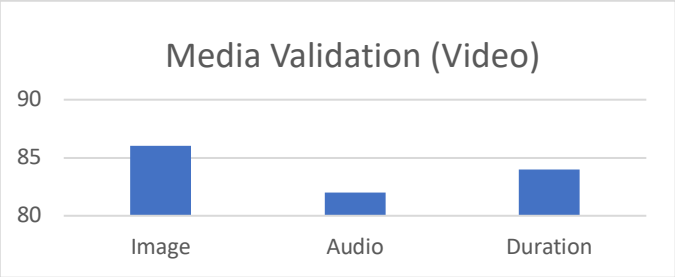


Fig. 3. Media Validation

The next stage is the testing phase involving 50 students. Learning devices tested consisted of E-Modules and Media Learning videos. Students use e-PAS content as a learning resource device. The last stage of the test, the students gave an assessment of the feasibility of e-Pas content. In general, the results of the assessment are as follows:

- The cover used needs to be re-layout that is more attractive and representative according to the content of the site being searched and avoid using dark colors
- There needs to be a product identity as a series in e-PAS content, it can be a logo or jargon
- Back sound for videos needs to use more interesting music and fast tempo so that participants can be more enthusiastic in using it as a learning resource
- Back sound for videos needs to be adjusted to the content or material discussed, to make it more attractive and representative

3.2 E-Pas completion

Based on the suggestions in the E-Pas implementation phase, finally, a logo is added which will become a benchmark for each product developed as well as the identity of this learning innovation development product. The logo as shown in the image below has a simple but meaningful appearance. Thus, for some appearance, the cover design is changed 100%.

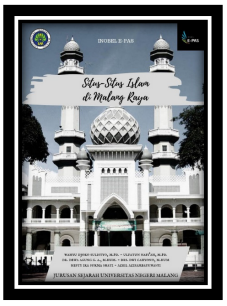
The next step is the addition of identities that are made as trademarks of the product of learning innovation development as well as displayed in all products. In addition, in the contents section, additional supporting images are added, names are accompanied by original photos taken directly on the object. The cover design was also replaced by adjustments to the contents, where for the results of this refinement, one of the images from the site of the Islamic mosque in Malang was taken. In addition, a module title from the title "the splendor in the Colonial City of Malang" was also conducted to become "Malang's Grandeur as a Colonial City". The title seems more flexible and representative.

For the video site, the history of the Hindu-Buddhist period with the theme "Tirtayatra" at this stage of improvement was made into two episodes with a duration of 15 minutes. This is based on advice from the validator and paying attention to the standard of correcting the duration of the video as a medium and source of learning.

In addition, a written statement is given as a sign of the names of the sites that were used as objects in the video. This improvement as a means for viewers is easier to identify the historical sites studied. The last is the use of music as a support back sound that is representative of the content or theme of the video. Both in the form of classical and contemporary music. Some illustrations of product enhancements and final results are as follows.

City of Colonial

History of Hindu-Buddha



Malang Great Mosque

E-Pas Logo

History of Tirtayatra

Spellman Bridge

Fig. 4. E-Pas

3.3 Implementation

The second implementation test was held on the 10th week of a lecture on October 10, 2018, room 503, building I1, Faculty of Social Sciences, State University of Malang (UM). This stage is implemented in the D offering class, class 2016, in the subjects of history and local wisdom. The implementation of e-PAS, in this context, is the stage of implementing the use or application of content both as a learning resource and learning media with the following stages. First, students apply e-PAS by accessing e-modules through Android. Students access the e-PAS e-module via a smartphone in the learning process that takes place both in class or outside the classroom. At this stage, students can access e-modules directly from their smartphone. Second, students apply e-PAS by playing the learning video. At this stage, students watch together e-PAS content in the form of learning videos. Third, Students evaluate e-PAS. At this stage, students provide an evaluation of the implementation of e-PAS as a whole in the learning system. In addition, students also provide an assessment

through the questionnaire that is shared and write the response in the comment's column.

Students, in the process of product implementation, provide responses and direct assessments of the learning experiences they get in class. The assessment covers 4 aspects such as e-PAS effectiveness as a learning model, completeness of e-PAS Content, the accuracy of Practical Learning Objectives in Use. The results of the last e-PAS evaluation in the class show the following results:

Table 4. Final Implementation Stage

Aspects	**A**	**B**	**C**	**D**	**Average**
Information	***Effectivity as a learning model***	***A Completion of the Content***	***Learning Accuracy***	***Practice in use***	
Percentage	84	84	87	83	85

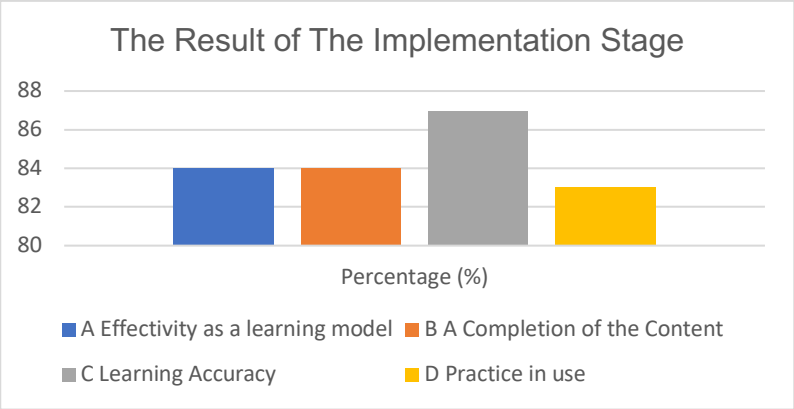


Fig. 5. The result of the Implementation Stage

The table and figure above explain the results of the assessment in the implementation process for e-PAS content. They also explain the average with a percentage score of 85. Thus, the implementation effectiveness scale shows a value of $80 \geq \alpha \leq 85$ which means it shows criteria B (Good). Therefore, it can be concluded that the E-Pas product, in terms of content, is worthy of being an effective source of learning.

4 Conclusion

MOOCs has revolutionized teaching and learning by offering products through Information Technology and alternatives connectivity that are feasible for education today. Interactive technology and the digital environment enable MOOCs to engage students in new forms of learning collaboration. With the high cost of education and accessibility issues, MOOCs are a practical alternative to learning models that can be widely implemented, especially the accessibility of learning in higher education. Through the development of e-PAS based on MOOC in learning local history, espe-

cially the history of Malang, provides wider opportunities for anyone who wants to learn history with easy and free access.

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Article submitted 2019-01-10. Resubmitted 2019-02-18. Final acceptance 2019-02-28. Final version published as submitted by the authors.