

THE DEVELOPMENT OF BLENDED LEARNING KIT USING SOCIAL MEDIA EDMODO ON GLOBAL WARMING TOPIC

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Abstract

In general, blended learning is an educational program that combines several technologies (such as internet and smartphone), and learning methods/models (face-to-face and virtual) in one teaching/learning process. Therefore, blended learning is categorized as an innovative learning process and it is believed can develop student's skills in critical thinking, processing information, and in information and communication technology (ICT). The research carried in this "skripsi" document applied blended learning by combining face-to-face learning in class and virtual learning using *Edmodo* that can be accessed by the teacher and the students via their smartphones. The Global Warming topic was chosen as the learning material in this work. *Edmodo* is a web-based social learning network that intentionally designed for teachers and students to interact in a virtual learning process. The ADDIE model was adapted to develop the learning kit. In this kit, the aspect of validity, practicability, and effectiveness were described. The kit was tested via one-shot case study to the twenty-five numbers of students in the Science-5 class, SMA Negeri 6 Surabaya. The result revealed that: (1) the overall learning kit are very valid; (2) the aspect of practicability is excellent; and (3) the aspect of the effectiveness are excellent because 92,00 % of the students have passed the minimum standard score and 81,34 % of them gave positive response to the learning process.

Keywords: learning kit, blended learning, *Edmodo*

INTRODUCTION

The professional competences including ICT skills, critical thinking and processing information skills are absolutely needed in the 21st century. Those kinds of skills are only able to be developed via integrating technologies into teaching and learning process (Nazarenko, 2015). The ability to understand the concept is important in physics learning, so it needs an interesting media for learning to be memorable and the global warming is one of the physics topics that can be categorized as an abstract matter.

One of the learning media that can develop the ICT skills, free and accessible nowadays is the internet including utilize the social media to conduct a virtual learning. There are several advantages using a social media as learning tools. The use of social media allows students' interaction with content; interact with instructors and student colleagues wherever they are located (Gikas & Grant, 2013). The use of media can stimulate students' thoughts, feelings, attention, and interests in the learning process so that is expected to improve students' knowledge and understanding of learning (Rochmah & Madlazim, 2013).

Based on the pre-experimental research study in the SMAN 6 Surabaya, it was found that the learning process

there were mostly conducted by the electronic devices and several software that is accessed via student's personal computers such as *Quipper*, *Moddle*, and *Wondershare*. The further information based from the questionnaire responses, 48,94 % of the sample said that the activity to give opinion in learning physics were in the average and 54,21 % of them were cannot feel free to have a discussion in physics class.

Any researchers had been conducting a learning that integrates electronics media to the learning process. Based on research that has been conducted by Pandu Prasajo and Supriyono (2015), they conducted a physics learning process using Just-In Time Teaching learning models with *Facebook* and the results revealed that the students' learning outcomes is increasing and the observations, collecting data, and communicating skill can also be trained.

To support teaching and learning process in class, the interaction between teacher and students, students to students, and students to the learning sources had to be increased. Those interactions can be developed by integrating such a learning method that combines technology inside the learning process (Rosmiati, et al., 2013). The learning that conducts and integrates any technologies and several methodologies in one learning

process is called blended learning. It can also be explained by combining the face-to-face learning and virtual learning process (Husamah, 2014).

Edmodo is a web-based social networking that has various features which can be conducted as a face-to-face learning supplement, such as sharing videos, notes, documents, and there also provided grade book so that the teacher can assess the students from *Edmodo*.

Global warming is one of the issues for the 21st century. It is caused by massive increase of greenhouse gasses, such as carbon dioxide, in the atmosphere, resulting from the burning of fossils fuels and deforestation. The Earth's temperature is controlled by the balance between the input from energy of the sun and the loss of this back into space. The energy received from the sun is the form of short-wave radiation. On average, about one-third of this solar radiation that hits the Earth is reflected back to space. Of the reminder, some is absorbed by the atmosphere, but most is absorbed by land and oceans. The Earth's surfaces become warm and as a result emits long-wave 'infrared' radiation. The greenhouse gasses trap and re-emit some of this long wave long-wave radiation and warm the atmosphere.

Based on the description, this study was conducted under the title "The development of blended learning kit using media social *Edmodo* on global warming topic"

METHOD

The research carried out in this article was ADDIE (Analysis, Design, Development, Evaluation, and Implementation) development model. The syllabus, lesson plan, student's worksheets, and assessment sheets were developed as a blended learning kit that feasible. Analyzing the Curriculum, the Global Warming topic, and pre-research problems were done as a very beginning step. Then it was followed by designing and developing a learning kit that applied blended-learning by combining a face-to-face learning and virtual learning using *Edmodo*.

The aspect of validity for the learning kit was explained from the experts' reviews and the implementation was examined to test the aspect of practicability and effectiveness by holding a course with one-shot case study in an 11th-grade Science class in SMAN 6 Surabaya. Teacher-students activities were observed and were used to describe the practicability aspect. Students' learning outcomes and response were used to describe the effectiveness aspect.

RESULTS AND DISCUSSION

The recapitulation of the two experts' assessment for validity aspect of the learning kit is shown on Table 1 below.

Table 1. Recapitulation of validity

Learning Kit	Category
Syllabus	very valid
Lesson plan	very valid
Students' worksheet	very valid
Assessment sheets	very valid

The overall learning kit was all very valid. It is explained that the developed learning kit were suitable to the 2013 Curriculum, the Global Warming course topic were well described, and the teaching-learning process were explained clearly and reasonable to be implemented.

The practicability aspect is described from the teacher-students activities during the course. The blended learning was applied in the two of three days so that the *Edmodo* is applied in the two meetings. The meetings were implemented using three different learning models and they are Cooperative Learning, Inquiry, and Problem-Based Learning for the 1st, 2nd and the 3rd meeting. Below is the recapitulation of them.

Table 2. Teacher's and Students' activities for the 3 meetings

Meeting	Category	
	Teacher activities	Students' activities
1st meeting	very good	very good
2nd meeting	very good	very good
3rd meeting	good	very good

The overall observation reports are very good except the category for the teacher activities in the 3rd meetings. It explains that the aspects for the teacher's activities could not be implemented as good as the others meetings. The PBL learning model was implemented in the 3rd meeting, and could not be implemented in a meeting. Many factors have to be concerned in PBL including the technology that is used by the student to deliver their ideas, the quality of group collaborations, and the teacher's fruitfulness to conduct the problem (Arends, 2012).

As the blended learning was applied, the virtual class *Edmodo* was also used to conduct the learning processes. The activities inside the *Edmodo* were various, including watching videos, reading articles, and downloading the learning materials, but then there was no trace left for the teacher to know which student had downloaded the contents and others. That was one of the several negative aspects for implementing *Edmodo* in a learning process. The kind of negative aspects can be persuaded by giving another task for the student to check whether the student had studied or downloaded the contents or not.

Students' learning outcomes were also measured to fulfill the aspect of the learning kit's effectiveness. Figure 1 below represents the students' learning outcomes frequency distributions.

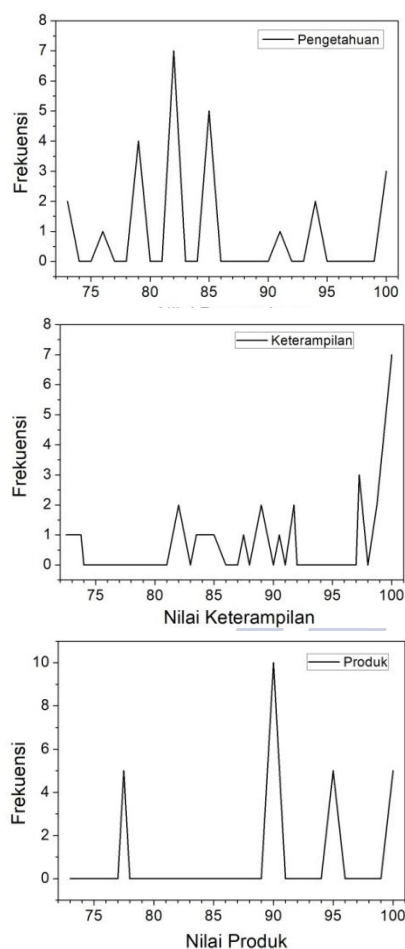


Figure 1. Students' learning outcomes frequency distribution

The minimum standard for student to pass was 76 (according to the SMAN 6 Surabaya) it means that 92,00 % of students had pass the minimum score.

The students' responses were also measured to complete the effectiveness issue. It is collected by giving questionnaires to the students. The results shows that 81,34 % of the students gave positive response to the blended learning process.

CLOSING

Conclusion

The overall blended learning kit is very valid. The learning kit practicability from the teacher's and the students' activities has the excellent category. The aspect of effectiveness explained by the students' learning outcomes and the response are in excellent category.

Suggestion

The used of *Edmodo* for the learning supplement is needed to be given in a various activity so that the teacher can also see which student has access the content or not. Similarly, it is necessary to hold another one meeting before the blended learning process using *Edmodo* is

implemented. One meeting for explaining the use of *Edmodo* can make the learning process become more fluent.

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