The effectiveness Google Classroom in completing the development project of teaching materials for preservice teachers of Biology

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Abstract. The purpose of this study is to analyse how the impact of using Learning Management System (LMS) through Google's classroom application in improving academic performance of prospective biology teacher students in completing projects related to developing digital teaching materials in ICT subjects in Learning Biology. In addition, this study also aims to develop online lecture methods for prospective biology teacher students to utilize digital technology, produce digital lecture methods and designs in biology classes in ICT learning courses with the Google Classroom LMS in an effort to facilitate the completion of projects to develop digital teaching materials for prospective biology teacher students. The method used to achieve these objectives is the development of the ADDIE model (Analysis, Design, Development, Implementation and Evaluation) which is directed to develop methods for developing lecture in networks for prospective biology teacher students to utilize digital technology. By describing the results of this study, it is hoped that it can be used as a basis for designing LMS-assisted learning models with Google's classroom application that is effective, efficient, and can build learning independence for prospective biology teacher students.

1. Introduction

One effort that can be done to improve student academic performance is to create flexible learning, with the principle of learning anytime, anywhere, and through any device. This can be done by utilizing learning support platforms or applications, such as Learning Management Systems (LMS) [1]. One LMS Application is Google Classroom. Google Classroom is an internet-based service provided by Google as an e-learning system. This service is designed to help teachers create and share assignments with students paperless [2]. Google Classroom also has the ability to make automatic copies of assignments made by students. Lecturers can also check each assignment collected by students in a virtual class that has been created. The benefits of Google Classroom are: a). Easy setup, lecturers can add students directly or share codes with their classes to join, b). Time-saving, simple and paperless task flow enables teachers to quickly create, examine and grade assignments in one place, c). Improve organization, students can see all of their assignments in the assignment page and all material is automatically stored in a folder in Google Drive, d). Improving communication, classrooms allow lecturers to send announcements and start discussions directly, e.) Affordable secure funds, Google Classroom does not
contain advertisements, never uses user content or student data for advertising and is free [3,4]. The concept of education has undergone a major shift, in recent times, from teacher-centric to learner-centric. Earlier, teachers played the role of knowledge providers, but now their role has expanded. There is a lot of emphasis on integrating technology in the classroom through innovative teaching strategies that focus on enabling students to achieve the desired learning objectives [5]. Technology facilitates increasing student engagement [6], which is critical to obtain the desired learning objectives [7].

The formulation of the problem in this research is How the student response to learning to use Google Classroom on completion of the project of digital teaching materials teaching biology? The aim of this study was to determine the response of students to use Google Classroom learning and knowing the quality of products produced through lectures in the network through Google Classroom LMS.

2. Methods
The preparation of this article uses a descriptive method. The descriptive method does not make comparisons of these variables in other samples, and looks for the relationship of these variables with other variables [8]. This article analyzes students' responses to Biology Learning ICT courses using Google Classroom. The instrument used was a student questionnaire response instrument using Google forms. A total of 53 students who contracted media and ICT courses were observed to strengthen the data analysis.

2.1. Data collection technique
Direct observations were made to the campus of the biology study program FTK UIN SGD Bandung. Observations were made while learning media and ICT courses took place in biology education study program classes. This observation was conducted to explore various information about the effectiveness of using Google classes for prospective biology teacher students while learning in class. The findings obtained in the form of positive responses in the form of enthusiasm in the question and answer discussion in working on this google class project. Then the next data is captured using questionnaire distributed to students. The questionnaire in question is to gather responses regarding the effectiveness of using Google Classroom for prospective biology teacher students in attending Biology ICT Learning lectures. Other data collected in the form of interviews were conducted with lecturers whose aim was to find out the learning method used, the obstacles faced by lecturers in giving lectures on the network using Google Classroom LMS. In addition, interviews were conducted with a number of prospective biology teacher students to find out the advantages and disadvantages of using the Google Classroom LMS, which are more or less similar to those expressed through the questionnaire.

3. Results and discussion
Network online design uses the Google Classroom LMS generated through research and development consisting of initiation, discussion, question and answer, and structured assignment material. The initiation design in the network was developed referring to the RPS (Semester Lecture Plan) for Biology Learning ICT courses. The design of activities in the development of networks is designed in three types of activities. (1) Passive participation: study the initiation material and additional reading provided in the Google Classroom LMS. (2) Active Participation: Discuss topics prepared by the lecturer (3) Assignments / lecture projects through the Google Classroom LMS. So the LMS application through the positive Google Classroom helps in learning. The form of lecture design can be seen in Figure 1 below.
Figure 1. Design of Biology learning ICT lectures that cover project initiation, activities and tasks.

In the picture explained that learning in the classroom can be replaced with learning in the network. The features created can be outlined in detail so that even though learning in the network through Google classes remains effective and students can still participate actively in learning.

Products from biology student teachers in ICT division courses include biology teaching practice and student evaluation program using Quiziz, digital teaching materials in the form of Infographics with powtoon Focussky and learning biology.
Table 1. Results of digital teaching material products for prospective Biology teacher students given through LMS Google Classroom lectures.

| Project            | Example of a Digital Teaching Material product that is produced | Information                                                                 |
|--------------------|---------------------------------------------------------------|----------------------------------------------------------------------------|
| Digital Evaluation | Quiziz application                                            | https://quizizz.com/admin/quiz/5ddcf0fbfe18001b8e1a11/struktur-dan-fungsi-tumbuhan-itbio2019 |
|                    | Focus Sky application                                         |                                                                            |
| Presentation Slides| Powtoon application                                          | https://www.powtoon.com/c/cnD5m5ZWdknu1/m                                    |
|                    |                                                               |                                                                            |

Student responses to learning by using Google Classroom in basic Biology Learning ICT courses as presented in Figure 2 below.
The applications taught in ICT courses are very helpful in the learning process and to be applied again when going to teach. Learning becomes fun

Very good, because it increases knowledge about technology that can help students prepare interesting technology-based teaching materials

A lot of new knowledge can be used as teaching materials or learning media based on 4.0, where children will find it easier to focus in front of the class if there is something "strange" and interesting.

Alhamdulillah get new references to be applied in the world of education... Thank you

Figure 2. Student responses to learning by using Google Classroom in basic Biology Learning ICT courses.

This research also shows the performance of Google Classroom supporting learning in ICT Biology Learning courses because with this Google Classroom students are facilitated to save documents such as material or important tasks sent through Google Classroom, so that if students have not had time to print the required documents, they can access first first through the classroom, respectively. In addition, students are also facilitated to obtain announcements given by lecturers quickly (real time) so that they become effective and efficient in terms of time. The Google Classroom media is effectively used by lecturers to deliver material to students [9-11].

4. Conclusion
Based on the findings of the analyzed data it can be concluded that the Biology Learning Class Product Design development of ICT Learning through the LMS Google Class (Learning Management System) approximately about 50% get a good response from students both in terms of methods, projects and evaluation tools used, so it can be concluded that learning through the Google Class LMS in Biology Learning media and ICT subjects can be implemented well and can be developed according to the content content needs of learning. Learning development through the Google Class LMS is expected in the future to be able to be used by prospective biology teachers as consideration for conducting banded learning in schools so that learning objectives can be achieved.

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