A NEW MODEL MOBILE LEARNING MANAGEMENT SYSTEM BASED ON MOODLE IN UNIVERSITY

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ABSTRACT: Learning model is changing the development of information technology. Conventional learning becomes collaborative and self-sustaining by utilizing the internet, mobile and wireless technologies. It needs the change of acceleration in the learning process, which leads to being more effective, efficient, and optimal. In this paper, we construct the new model mobile learning management system support service based on Moodle application for the future. Under the support of the mobile moodle technology, the system can be accessed that emphasizes the approach aspects of design, function and user interface. The method used the research and development approach (R&D) with ten steps. By this results, a new model has been come suitable for using in the applying DIVA syntax display, information search, virtual problem solving, appraisal and support the individualized independent learning.

Keywords: Model, Mobile Learning Management System, Moodle.

1. INTRODUCTION

Based on the Education for All Global Monitoring Report (EFA-GMR) issued by UNESCO awareness of a survey on the monitoring of education outcome in 2014 Indonesia ranked 57 out of 115 countries. From 76 countries in Indonesia's 2015 PISA test at 69. It shows the quality of education in Indonesia is still relatively low, whereas education as the progress of a country[1], beside education as one of the determinants of the progress and successor of the young generation.

In Law No. 20 of 2003 on National Education System Article 3 stated that "National Education aims to develop the potential of learners to become human beings who believe and piety to God Almighty, noble, healthy, knowledgeable, skilled, creative, independent and become a democratic and responsible citizen.

The survey conducted by online magazine Tech in Asia and marketing research firm Markplus Insight, Indonesia is the most promising technology market in Asia. The survey revealed that in 2016 netizen in Indonesia reached 88.1 million Internet people, up 51 percent to the number of 132.7 million internet users in 2017. But, it used to access the internet of 69 percent, 31 percent through mobile desktop devices or tablet. Users of social media service Indonesia keep the third position of the world after Brazil and the United States.

Students who are underachieved not caused by the lack of ability but due to lack of motivation to learn therefore students are not trying to direct all his abilities. One way teachers in improving motivation to learn are to use mobile-based learning media[2]. This is in line with[3] states that mobile-based learning as an alternative has unique characteristics that can be used anywhere and anytime.

One of the subject experiencing problem in learning is programming algorithm, because in that course of algorithms and programming in the department of informatics management is a core course that must be mastered by every student, in fact students are not used to shaping thinking pattern in analyzing programming logic just as recipient of information, and still the low understanding and motivation of students about this course due to problem by understanding abstraction concept in the programming and algorithm that affect the learning hail lessons studied.

The use of Mobile Learning Management System (LMS) model in learning will improve the interaction between lecturer and student in information exchange and learning material. LMS is the basis from extensions that can be added to meet the complex need of the University's institution. Learning Management System used mobile technology, allowing users to interact with the system and its users using mobile devices such as PDAs, cell phones etc. This extension arises the problem of a new learning model that we have to deepen in order to understand if the media alter and enhance our knowledge of the computer.

Learning Management System is software for administration, documentation, material search, activity report, giving of online learning activity

training material connected to internet, application with LMS concept is able to track, send content and ensure student attendance and track student achievement.

Mobile learning management system (MLMS) is a model of learning result of integration between Problem Based Learning and Creative Problem Solving which is develop to be a new model in vocational education. As we know that the model Problem-Based Learning and Creative Problem Solving model requires mastery of knowledge in critical thinking and creative in solving the problem, but from these two models, there is a weakness that the student difficult to analyze the problem with different capabilities.It is necessary to develop interaction with mobile learning management system model.

The result integration between the Problem Based Learning and Creative Problem Solving model resulted in a new model called Mobile Learning Management System. The step of developing Mobile Learning Management System model consists of four procedures, namely (1) Display; (2) Information Search; (3) Virtual in Problem Solving; (4) Appraisal. In essence, the learning steps are applied to develop student thinking to think critically, creatively in solving problem, therefore, students are able to think meaningfully, by working alone, finding their own way and constructing new knowledge and skill which they have.

In improving the learning process of course programming algorithm is needed to develop mobile-based learning model as a solution. The model has been developed is mobile learning management system model where that is adopted or elaboration from two models that are learning problem-based learning model and creative problem-solving model to produce mobile learning management system model with DIVA syntax order.

Problem-Based Learning Model is learning a model with students' learning approach to authentic problems so that student can develop their own knowledge, cultivate higher and inquiry skills, establish student and increase self-confidence[4].

The purpose of Problem Based Learning or problem-based learning helps develop students' problem-solving skills by covering question or problem, focusing on the interdisciplinary linkage, authentic investigation, collaboration and producing work and demonstration. Problem-based learning is not designed to help the teacher provide as much information as possible to the student.

The creative problem-solving model is defined as a framework for thinking both individually and group by finding an idea, developing the idea, formulating, solving the problem, producing and analyzing new idea that implemented these ideas in the form of effective action programs.

Two model of Problem based learning and creative problem solving can solve the problem in the learning process of algorithm and programming that is model of learning of mobile learning management system that able to develop the creative idea and critical of a student in creating and solving problem and case on course algorithm and programming.

2. LITERATURE REVIEW

Learning model should be supported by five components, which include; syntax, social system, reaction principle, support system and instructional effects and accompanist[5].

The development of learning model used in mobile learning management system by combining two models namely Problem Based Learning and Creative Problem Solving.

The essence of PBL is to present the student with authentic and meaningful issues, which serve as a springboard for investigation and inquiry. The detailing the steps of implementing PBL in learning there are 5 phases. The PBL model syntax is (1) Student orientation to the problem, (2) organizing student to learn, (3) guiding individual and group investigation; (4) developing and presenting the work; (5) analyzing and evaluating the problem-solving process.

Creative Problem Solving (CPS) model is a form of variation in problem-based learning because this model will be able to improve the creativity of student in solving the problem. The detailed the summary of CPS in learning there are 4 phases[6]. The syntax of the CPS model is summarized as follows:

a. Question formulation
b. Idea generation
c. Evaluation and action
d. Action Implementation

To implement the development of mobile learning management learning model system by using DIVA syntax is Moodle. It is an application change the learning media into a web form. The application allows students to enter the digital "learning space" to access learning materials. By using the moodle app, we can create learning materials, quizzes, electronic journals and others. Moodle itself stands for Modulator Oriented Dynamic Learning Management which can be accessed at http://www.moodle.org.

3. METHOD

The product development model used in this research is[7] development model on developing mobile leaning management system model with DIVA syntax only in the third stage of validation of expert team with FGD point from ten steps of research stage Borg & Gall development which

includes: (1) preliminary research, (2) research planning, (3) development of initial model, (4) expert test and initial field trial, (5) revision of initial field test result (7) main field test revision, (8) feasibility test/operational field test, (9) final revision of feasibility test results, (10) dissemination and implementation.

4. FINDING AND DISCUSSION

Based on the background and the theoretical basis that support a model of mobile learning management system, then developing model is visualized based on several factors, namely: (1) learning theory, (2) Interactivity, (3) learning model, problem-based learning and independent, 4) student learning style.

Mobile Learning Management System that will be developed for the course of Algorithm and Programming. It is conducted both face-to-face in the classroom and outside classroom full online-based mobile can be used PC and smartphone, the application used at portal www.lms-mobille.org which is obtained accessible on a web browser or Android or using smartphone that is installed first on the play store with the name of mobile learning applications. In Mobile Learning Management System model have 5 main syntaxes, namely (1) introduction and preparing the material, (2) providing information on the mechanism of learning in virtual learning based on mobile (3) Virtual Problem Solving Learning (4) Appraisal.

The Mobile Learning Management System learning model should be supported by five components, which include; syntax, social system, reaction principle, support system and instructional effect and accompanist.

4.1 Syntax

The new model of mobile learning management system based on Moodle as that save two models namely problem-based learning and creative problem solving till produce syntax with the implementation which is illustrated in the following table as follows:

Table 1. The model of DIVA syntax

Syntax	Activity
Display	1. Explain how to operate mobile learning that can be accessed on PC and smartphone on portal www.lms-mobile.org with accessed two version web and android. 2. Explain the syllabus, rps, learning objective and lecture rules and assessment that can be directly accessed by mobile learning. 3. Motivate student involved in selected problem-solving activities through creative and critical thinking.
Information based learning Inquiry	1. Encourage student to collect information systematically, critically and creatively; 2. Support student to determine and develop ideas for solving problems; 3. Support and motivate student to express opinion or ideas by analyzing information in contributing to understanding problem solving; 4. Supporting student starts learning activities by forming multiple groups and understanding their function and role in group.
Virtual Learning in Problem Solving	1. Encourage student to expect learning to be conducted in virtual learning process learning system in the classroom or outside by using application on the portal www.lms-mobile.org connected to the internet that can be directly accessed by lecturers and student. 2. Lecturer directly and guide students to explore and investigate to solve problem individually or in group. 3. Encourage student to be able to express the problem with strategies are suitable to solve the problem in the real life. 4. Lecturer offers opportunities for student to be able to solve problem by making a valuable contribution to the communication with virtual learning that is done on the portal in the form of chatting and teleconference. 5. Prepare academic skills by resolving cases such as: making relevant theory of studies and the process of making final report of case to the student.

	6. Encouraging student to solve problem in practice is given the task independently to the students either independently or supported by others in class by using full mobile application that can be accessed anytime with material that can be uploaded in the portal www.lms-mobile.org. 7. In completing and improving students' understanding, lecturers are conducting mobile-based online discussion process in order to consult students to lecturers knowing learning. 8. Encourage the student to prepare the work by collecting creative ideas with the process of analyzing the problem to create the work presented and discuss the results of the problem-solving. 9. Assist the student in planning and preparing appropriate works such as a report, video, and model and helping them to share the task with their friend. 10. Lecturer helps the student to analyze and evaluate giving an explanation and summarizing the subject matter either given in front of the class or providing independently to the student, so it will construct teaching and activities undertaken during the lecture. 11. Discussing the rubric of assessment will be used for assessment with evaluation in the form of quizzes and summary of inputs assessed by the lecturer integrated into the mobile assessment system
Appraisal	1. To reflect on what has been learned. 2. Evaluate learning experience.

4.2 Social System

Social system states how the role and relationship between lecturer and student as well as describe the underlying rule Social system on the mobile learning management system model is cooperation with creative thinking and critical in solving the problem in the course of algorithm and programming with mobile-based learning system.

4.3 Reaction Principle

The development of mobile learning management system model is seen based on the principle of reaction, namely how the attitude of the lecturer to the student because the lecturer act as a facilitator in the learning should be centered for the student. This is almost the same as the social system of synchronization in performing their respective roles.

In the implementation of learning model of mobile learning management system, students are divided into a small group in discussion with creative and critical thinking so that solution will arise in solving, while the lecturer act as facilitators or mentor who are ready to provide assistance if the student has difficulty in both individual and group.

4.4 Support System

The support system of the mobile learning management system model is the elements that can help the implementation or requirement and support what is needed outside the technical facilities of this model.

The Mobile Learning Management System model requires the support system listed below:

a. Computer.
b. Internet Network.
c. The ability of the participant to access with mobile learning, learning planning in the form of SAP, learning media and evaluation sheet.
d. Learning model book mobile learning management system.
e. Moodle by using hosting and domain www.lms-mobile.org.
f. Handbook of students and lecturers in using mobile learning management system model
g. Textbook
h. Video
i. An interactive simulation
j. Links to relevant material

4.5 Instructional Effect and Accompanist

The Mobile Learning Management System model has an impact on student impact, both in direct impact on learning. In learning algorithm and programming are scholarly and skill, with this course students, are expected to analyze a problem related to the logic that is implemented into a programming language. Most of these courses are an intensive exercise to improve students' ability to find a solution in logical problem

encountered in the algorithm and implemented into algorithm and programming.

5. CONCLUSION

The mobile learning management system model with DIVA syntax can be synergy in learning model of mobile learning management system based on learning management. Model mobile LMS can be accessed by using mobile-based moodle application to improve achievement on learning outcome. A new model mobile LMS based on Moodle can be controlled and construct student knowledge. A student can access the learning tool in mobile so that the learning process in advance and anytime by mobile.

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7. REFERENCES

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