Prosiding 6

by Lis Kartika

Submission date: 08-Apr-2019 10:13PM (UTC-0700)
Submission ID: 1108770878
File name: Prosiding_6.pdf (222.25K)
Word count: 2974
Character count: 16469

The Analysis of Learning Model Interaction Based On Project Based Learning Integrated WhatsApp Messenger as Mobile Learning to the Students Learning Outcomes and Critical Thinking Skills

Ir. Sulistyaning Kartikawati, MM., M.Pd
FKIP, Universitas PGRI Madiun
Kartikawati@unipma.ac.id

Abstract: The purpose of this study was to determine the interaction of learning model based on Project Based Learning integrated WhatsApp Messenger as a mobile learning to the learning outcomes and critical thinking skills of students. This research method used Experimental Method with pretest-postest control group design. The sampling of procedure used cluster sampling technique consisted of VA class as experiment class as much as 17 students and VB as control class which are 17 students. The data collection techniques used observation, documentation, interviews, questionnaires, and tests. Statistical analysis in this study used t-test analysis to find the interaction of application of learning model based on Project Based Learning integrated WhatsApp Messenger as mobile learning to the learning outcomes and students' critical thinking ability. The results showed that the value of t-test was 8.462. The t-table means that there was an interaction of application of learning model based on Project Based Learning integrated WhatsApp Messenger as a mobile learning toward learning outcomes and students' critical thinking ability. The t-table of 1.745 with a significance level of 5% indicates that the value of t-test was greater than t-table, it means that there was an interaction of learning model based on Project Based Learning integrated WhatsApp Messenger as a mobile learning to the learning outcomes and critical thinking skills of students.

Keywords: Project Based Learning, WhatsApp Messenger, Mobile Learning, Learning Outcomes, Critical Thinking Skill

1. PRELIMINARY

Starting from the process of learning that seemed unattractive, making the students saturated in the classroom, less enthusiastic and less able to absorb the material, then this research is realized as an attempt to improve the teaching and learning process in the classroom. Besides, it is also empowered using technology to improve the quality of education. Therefore, education experts seek to create effective and efficient ways of learning and teaching to be applied by educators. There have been many innovations in the teaching and learning process that are applied, ranging from learning in a comfortable classroom to learning in the open by utilizing whatever is in the environment, learning process based outcame / product using the development of modern technology based on Mobile learning. Mobile Learning (M-Learning) is the time to be optimized to improve the quality of a learning process. It aims to make the learning process can be interesting and can improve the understanding of the students.

Based on the results of observation, researchers found low learning outcomes and low thinking skills of learners. This is obtained from the questionnaire results distributed to students, to find out how the response of students to the subjects of Industrial Management. Based on questionnaires distributed to 17 students, it is found that students are still difficult to understand the material well, it is difficult to apply in everyday life, and it is still

difficult to determine when to use appropriate and correct procedures.

Responding to the above problems it is necessary to have a learning model that can create student involvement in teaching and learning process to develop thinking skills and grow ability to make one product according to concept procedure. Familiarize scientific work is expected to foster habits of thinking and acting that reflect, mastery, knowledge, skills, scientific attitude, and of course produce products / works, so in itself the learning model will result in increased knowledge, skills, scientific attitude, and can produce products / works as a result of learning.

Based on research Lillian Buu (2012), the role of M-Learning can create a conducive academic atmosphere because learners can learn wherever and whenever. Implementation in learning is able to present a relaxed learning atmosphere. Between learners and educators have a good emotional closeness, more open to feedback on problem, and more importantly the intensity of communication through social media makes the number of new ideas related to the learning given.

Referring to these conditions, WhatsApp Mesenger integrated M-Learning to be the right solution. Social media like WhatsApp Messenger is a media favorit for teenagers. A questionnaire of 25 students in the Electrical Engineering Education Department was randomly drawn, showing that 24 people (96%) used WhatsApp Messenger and only 1 person (4%) did not use it because of unsupported smartphones. The media is able to send messages quickly, attach video, image, audio, location, create groups, easily send files in the form of files in the form of various extensions such as microsoft word, powerpoint, portable document format and lighter software without the help of supporting applications. According to Amry (2014), WhatsApp Messenger is a mobile learning technology that can help learners to learn community, easy to build knowledge by sharing with other group members through short messages, and ease of online interaction quickly between learners and teachers.

Appropriate learning method used to address the above problems is by the method of Project Based Learning (PBL). This learning model requires students to have good communication and group process skills. This learning model trains students to build the ability to think independently and critically and train students in solving a problem in the group. The concept of learning is appropriate to apply if it refers to the characteristics of Industrial Management materials that demand learning in theory, practice, application, and produce products / works.

In line with the research conducted, Project Based Learning (PBL) is a learning method which is one of the goals to improve critical thinking ability. Critical thinking is a mental activity in looking at a question and thinking that emphasizes making the right alternative answer. Such capability should be developed in students who are useful for solving problems related to the lesson. Therefore, the ability to think critically should be developed by educators to improve learners' learning outcomes.

Learning outcomes serve as a reaction to the learning process undertaken by lecturers during learning activities, especially those related to learning methods. Learning outcomes in the end is strongly influenced by the selection and use of appropriate learning methods and in accordance with the teaching materials that will be delivered. Learners can achieve optimal learning outcomes if the educator is appropriate in using the method of learning.

2. RESEARCH METHODS

a. Research Stage

Research stages refer to Gravemeijer & Cobb (2006) consisting of preparing for the experiment, design experiment, retrospective analysis.

b. Research Sites

This research was conducted in Electrical Engineering Education Study Program of PGRI University of Madiun.

c. Population

Population in this research is student of semester 5 (five) in Electrical Engineering Education Study Program. The samples were 17 students as experimental class. Sampling procedure in this research using purposive sampling technique. In its application, all students have equal opportunity to be studied. All students are already using smartphones as a communication medium, so the learning method by using WhatsApp Messenger is easy to implement.

d. Research Design

In this study, the approach used is experimental research using Control Group pretest-posttest design. Sampling procedure in this research using purposive sampling technique. The sample of research class / experimental class is given treatment by Project Based Learning (PBL) method using WhatsApp Messenger as M-learning. After the learning process in the experimental class is implemented, then the calculated value of the average achievement (gain). The independent variable in this research is the application of Project Based Learning (PBL) method with WhatsApp Messenger as mobile learning. While the dependent variable is the result of learning and critical thinking ability.

e. Data Collection Technique

1) Observation Method

Data collection using observation method is used to measure the extent of social media utilization for students, observation of library about social media utilization both from print media, website, and also National and International Journals, and measuring student ability during learning process.

2) Documentation Method

Documentation method is used to search for or gather evidence and supportive information in this research. In this study the method of documentation is used to collect data on the value of 4th semester students (four) Prodi Pendidikan Teknik Elektro. The value is used as a reference to see the equality in the research group making.

3) Interview Method

The interview process is carried out freely, by placing a situation of open and informal and unstructured places and processes, but leading to the focus of the research problem. Interviews were used to collect data on the utilization of social media for education and students' views of the model.

4) Method Of Questionnaire

Questionnaire method is used to obtain data how far the utilization of social media among student and used to know student response to model applied. Questionnaire used comes from various aspects that have been poured in the lattice. Questionnaire This student response was prepared by choosing one of the answers among the four answers that are available with the following weight: strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1. As for negative statements with the opposite weights.

5) Tes Method

The test method is performed on the knowledge aspect test instrument. Taking the test used the test instrument in the form of multiple choice form test. After the instrument is given to the students, the score can be obtained quickly, objectively and includes the material being taught. Aspects measured are 6 (six), namely the aspects of memory (C_1), aspects of understanding (C_2), aspects of application (C_3), aspects of analysis (C_4), aspects of synthesis (C_5) and evaluation aspects (C_6).

f. Data Analysis Technique

Analytical techniques used in this study are:

1) Questionnaire Analysis

Consists of a preliminary questionnaire of social media utilization and student responses to the methods applied. The data analysis technique is done by computing the average total score of each component using the equation:

$$\bar{X} = \frac{\sum X}{n}$$

2) Tes Data Analysis

Analysis of test result data used to measure student's knowledge ability data obtained from pretest and posttest in the form of multiple choice questions. Student's pretest and posttest data were tested for normality and homogeneity as prerequisite analysis test. The results of the prerequisite test are used as the basis for further testing using t test on cognitive learning outcomes and students' critical thinking skills.

The hypothesis proposed is that there is influence of the implementation of Project Based Learning (PBL) method with WhatsApp Messenger as a mobile learning towards learning outcomes and students' critical thinking ability. Criteria of decision making are:

a) If the significance value is less than 0.05 then H_0 is rejected
b) If the significance value is greater than 0.05 then H_0 is accepted.

3. RESEARCH RESULT

a. Student Learning Outcomes Before Treatment (Pretest)

Data on the evaluation of the students of Electrical Engineering Education semester 5 academic year 2016/2017 shows that the average learning outcomes of the subjects of Industrial Management is still low (66.8). Pretest results from 17 students there is 1 student with less category, 13 students enough category, and 3 students with good category. The data shows that the learning process of Industrial Management course is not optimal.

b. Student Learning Outcomes After Treatment (Postest)

Data on the evaluation of the students of Electrical Engineering Education semester 5 academic year 2016/2017 after doing the treatment in the learning process by using the method of Project Based Learning (PBL) with WhatsApp Messenger as mobile learning shows that the average learning outcomes of the subjects of Industrial

Management there is an increase (84.4). This indicates that there is a significant increase in mean value

c. Results of Critical Thinking Ability Before Treatment (Pretest)

Data of evaluation result to critical thinking ability of Electrical Engineering student of semester 5 academic year 2016/2017 shows that average in the subject of Industrial Management is still enough (71,0).

d. Results of Critical Thinking Ability Before Treatment (Postest)

Data on the evaluation of students' critical thinking ability in Electrical Engineering Education semester 5 academic year 2016/2017 after doing treatment in learning process using Project Based Learning (PBL) method with WhatsApp Messenger as mobile learning shows that the average value of critical thinking ability at the subject of Industrial Management has an increase from 71.0 to 79.5, This shows that there is a significant increase in average value.

4. ANALYSIS

a. Test of Normality and Homogeneity of Learning Outcomes

From the results of normality test pretest student learning results obtained L calculate of 0.150 with L table of 0.213 which shows that L count is smaller than L table, meaning the samples are normally distributed. As for the posttest obtained L calculate of 0.109 and L table 0.213 then L count smaller than L table, meaning the samples are normally distributed. From pretest and posttest homogeneity test obtained F arithmetic 1,437 with F table 2,333. This shows F count smaller than F table, meaning homogeneous sample.

b. Test of Normality and Homogeneity of Critical Thinking Ability

From result of test of pretest normality of student's critical thinking ability obtained L count equal to 0,147 with L table equal to 0,213 which show that L count smaller than L table, it mean normal distributed samples. As for the postest obtained L calculate of 0.109 and L table 0.213 then L count is smaller than L table, meaning the samples are normally distributed. From pretest and postest homogeneity test obtained F calculate 1,745 with F table 2,333. This shows F count smaller than F table, meaning homogeneous sample.

c. Test t for Student Learning Results

From result of t test of student learning result obtained t count equal to 8,462 with t table equal to 1,742 which indicate that t count bigger than t table, meaning that there is influence between method with result learn.

d. Test for Student Critical Thinking Ability

From the test result t students critical thinking ability obtained t count equal to 15,671 with t table equal to 1,742 which indicate that t count bigger than t table, meaning that there is influence between method with student critical thinking ability.

5. DISCUCCION

The results of the research and the results of the analysis show that the application of Project Based Learning (PBL) method with WhatsApp Messenger as mobile learning has a positive impact in improving learning outcomes. The application of whatsapp as mobile learning provides learning innovation that stimulates active student learning. Gadget owned has a positive function as a medium of learning. In accordance with Amry research (2014) that the implementation of WhatsApp Messenger social networking as effective mobile learning is applied when combined with the learning process. Social networking helps students actively by communicating with fellow learners and educators, easily building knowledge indefinitely.

The cognitive learning outcomes based on the independent samples test between the experimental class and the control class appear to be very significant. Based on the mean grade of the experimental class has a higher mean value of cognitive learning outcomes than before the treatment. This shows that the cognitive learning outcomes of students using WhatsApp Messenger integrated learning method of Project Based Learning (PBL) is better. Interaction between students and lecturers becomes more flexible. Lecturers are able to easily supervise students, interact, monitor developments, motivate, provide alternative solutions to the problems faced by students. Unequal student ability can be facilitated with groups through WhatsApp Messenger monitored by lecturers.

6. CONCLUSIONS AND SUGGESTIONS

a. Conclusions

The results showed that there is a significant influence between the use of Project Based Learning (PBL) method with Whatsapp Messenger as a mobile learning on learning outcomes and students' critical thinking skills.

b. Suggestions

1) A long-term process can be developed and evaluation system based on WhatsApp. Assessment is done online with the rules specified by lecturers to train students' self-reliance. Problems can be tailored to the thinking skills of each student.
2) It is necessary to develop a learning model that integrates social media to motivate students in learning so that the development of social media becomes positive, not to be feared, and can be used as a means to improve learning outcomes.

7. BIBLIOGRAPHY

Amry, A. 2014. The Impact of Whatsapp Mobile Social Learning on the Achievement and Attitudes of Female Students Compared with Face to Face Learning in the Classroom. *European Scientific Journal,* 10 (22), 116-136.

APJII. 2015. Indonesia Internet Users. Laporan Asosiasi Penyelenggara Jasa Internet Indonesia. Diakses pada 1 April 2015, dari http://www.apjii.or.id/v2/read/page/halaman-data/9/statistik.html.

Arikunto, S. 2010. *Prosedur Penelitian*. Jakarta: Rineka Cipta.

Barhoumi, C. 2015. The Effectiveness of WhatsApp Mobile Learning Activities Guided by Activity Theory on Students' Knowledge Management. *Contemporary Educational Technology Journal,* 6 (3), 221-238.

Dewi, Rizki Puspita, et al. 2012. "Penerapan model group investigation terhadap hasil belajar materi bahan kimia di SMP." Unnes Journal of Biology Education (1):3.

Johnson, Y., dan George D. 2014. The Impact of Whatsapp Messenger Usage on Students Performance in Tertiary Institutions in Ghana. *Journal of Education and Practice,* 5 (6), 157-164.

Sarrab, M., Elgamel, L. dan Aldabbas, H., 2012, Mobile Learning (M-Learning) and Educational Environments. *International Journal of Distributed and Parallel Systems*, 3 (4), 31-38.

Slavin, R. E. 2010. Cooperatif Learning: Teori, Riset dan Praktik. Bandung: Nusa Media.

Susilo, A. (2014). Exploring Facebook and Whatsapp as Supporting Social Network Applications for English Learning In Higher Education..

Winda, Miraningsih, dkk. 2015. Penerapan Model Pembelajaran Kooperatif Tipe Group Investigation Untuk Melatihkan Keterampilan Berpikir Kritis Siswa Pada Materi Pokok Asam Basa Kelas Xi Mia Sman 2 Magetan. *UNESA Journal of Chemical Education*, 4 (2), 281-287.

Zhang, Long, et al. 2010. "The application of mobile learning in higher education reform." *Computer* 6: 012.

Prosiding 6

ORIGINALITY REPORT

13%	2%	1%	11%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Universitas PGRI Madiun Student Paper	10%
2	Submitted to Universitas Negeri Semarang Student Paper	1%
3	H Pratama, I Prastyaningrum. "Effectiveness of the use of Integrated Project Based Learning model, Telegram messenger, and plagiarism checker on learning outcomes", Journal of Physics: Conference Series, 2019 Publication	1%
4	jurnal-online.um.ac.id Internet Source	1%
5	eprints.umpo.ac.id Internet Source	1%

Exclude quotes	On	Exclude matches	< 15 words
Exclude bibliography	On		