Mobile learning in promoting student’s engagement

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Abstract. Students engagement is an important element in learning. Mobile learning is a learning media that can’t facilitate student’s engagement. The purpose in this study is to measure student’s engagement in problem solving behavior abilities; explanation; and analysis using mobile learning. In this research we used a qualitative research method with a case study approach combined with a literature study. Library studies are needed before or together with case study with the intention that when observers encounter difficulties in the field, they can refer to the theories that have been studied. Or you can compare truth from theory with real events in the field. The field survey was conducted as a first step to find out student involvement especially in 1) problem solving ability, 2) explain or re-express material in the student's language style, 3) analyze material. With field surveys, we will get a clear picture of how the learning simulation uses the student's involvement. The engagement of students shows a sufficient tendency to solve problem, explain learning material and analyze.

1. Introduction

Mobile learning is one learning model that involves mobile device [1,2]. Mobile learning is currently needed because of the flexibility, ease of access, and variety of cellular technology capabilities in the present [3]. The definition of mobile learning changes with the emergence of new technologies, therefore it must be able to be adapted to the basic elements and characteristics of learning and require appropriate handling [1]. This is in accordance a study, which examines the review of experimental studies in mobile learning, showing that many studies involve students in real world contexts and their activities are organized based on the curriculum [4]. The definition of mobile learning used in this paper is learning material that is conveyed using collaborative media that are not bound to place or time, it is important to consider the best strategies in learning to integrate mobile learning with collaborative learning [5].

Student engagement is an important factor in learning. Some researchers say that the term student engagement is called school engagement. Although there is a general agreement that student engagement or school engagement has a positive impact on students, a definition of student engagement or school engagement has not yet been agreed upon [6,7]. School engagement according to Fredricks, e.al is the involvement of students in the learning process in academic activities and non-academic activities that are seen through the behaviors, emotions, and cognitive displayed by students in the school and classroom environment [8]. School engagement consists of three dimensions, namely behavioral engagement, emotional engagement, and cognitive engagement. Behavioral engagement comes from the idea of participation or involvement, emotional engagement covers positive and negative reactions
to teachers, other students, class and school activities and cognitive engagement includes the desire to exert effort to be able to understand complex ideas and master difficult skills. Students engagement as an important thing in learning, in terms of perseverance, retention, achievement and achievement [9]. Engagement is a condition where the mind and heart are attached to learning, increases concentration, interest and enjoyment [10-12]. Handelsman et. al explained that from various definitions, student engagement as a whole can be seen from four factors. The four factors are engagement skills, emotional engagement, interaction, and engagement performance [13]. The student engagement dimension consists of three namely behavioral engagements, emotional engagement and cognitive engagement. In this study measurements were taken from the cognitive dimensions, namely the ability to solve problems, explain the material and analyze learning [14].

1.1. Research purpose
To measure student engagement in problem solving skills, ability to explain and analytical skills using mobile learning.

2. Research method
This research is qualitative research. The research used is descriptive qualitative research. Descriptive qualitative research is in the form of research with a case study method or approach. This research focuses intensively on certain objects that study it as a case. In this study the steps taken are conducting preliminary studies, literature studies, and observations [15].

The study was conducted at Institut Pendidikan Indonesia Garut, Information Technology Education Study Program, 2018/2019 academic year. The student group chosen as the research subjects were students of the Information Technology Education program, which involved as many as 33 students.

The subjects of the action actors are lecturers / instructors, students as research subjects who assist in data collection and all students from the Education Technology Information Study Program of the Indonesian Education Institute of Garut as subjects who receive the action. Qualitative research instruments are researchers themselves. Research must have the ability to record data in the form of behavior or appearance of data sources, because it must be recorded in writing without including interpretations, opinions and views. The researcher is the planner, data collection, analysis, data interpreter, researcher becomes the reporter of the research results.

3. Results and discussion
The preliminary study in this study was conducted to find out whether students need mobile learning in learning some subjects. Preliminary studies are conducted by conducting interviews and observations for students who take part in learning activities that use multimedia learning, because in IPI (Institute of Indonesian Education) arrowroot there are several courses that use multimedia learning. the research was conducted on the campus of the Indonesian Education Institute (IPI), the object of which is students who take several courses whose learning activities use learning multimedia. the instruments used in this study were questionnaires, interviews and observations.

Some of the results of preliminary studies conducted in this study are: 1). The learning media needed are media that can help students solve problems in learning. This is in accordance with the opinions of 92 students (82%) who stated that the media needed was one that helped solve problems in learning, 2). The learning media needed by almost all students stated that the media was online-based, 112 students (100%) gave the opinion that the media that was considered effective in solving problems in learning was media based online, 3). Student needs for media in learning appear in several aspects including that supporting learning media are media that are able to solve problems in learning starting from understanding problems, choosing plans for problem solving strategies, solving problems with correct concepts and verifying, to evaluating and interpreting the results of problem solving, as many as 95 students (85%) stated that mobile learning is very helpful in solving problems in learning, 4). The learning media needed are media that can help students in explaining learning materials both explaining verbally and in writing, students agree strongly with this statement (100%), 5). Learning that is
supported by learning media also helps students in analyzing learning, this was stated by 89 students (79%), 6). Learning media are also useful in directing the focus of learning expressed by 67 students (60%), 7). Students also state that learning media that are considered to be easy to support learning are those with the same function as communication media because they are easy to carry according to 86 students (77%).

Based on the preliminary study conducted, it can be concluded that learning media needed by students in learning are media that can support students in: solving problems in learning, explaining subject matter, and analyzing learning. While the form of equipment that is considered easy by students is online-based equipment, equipment that is integrated with communication devices. This is encouraging to conduct research on how equipment that is considered easy to use by students in learning, can improve several aspects, namely solving problems in learning, explaining subject matter, and analyzing learning, in accordance with the opinions of cognitive dimensions of student engagement. Equipment that is considered easy to use in learning in the form of media based online and integrated with communication tools namely mobile learning [16,17].

Observations involving 33 students in each study using mobile learning measured student engagement from the cognitive dimensions of problem solving skills, ability to explain, and the ability to analyze learning using mobile learning. In this study observations of student engagement on learning using mobile learning were carried out in learning three subjects related to basic subjects, educational subjects and information technology courses. The results of these observations are the average of each observation made. Observations made on 33 students by giving written examinations to measure problem solving skills include steps to solving problems (starting from understanding problems, developing problem solving strategies, solving problems, evaluating and interpreting the results of problem solving). Whereas to measure the ability to explanation and the ability to analyze it is determined from giving presentation assignments by giving arguments to each subject observed.

| Student engagement Indicators       | Student engagement assessment category (%) |
|-------------------------------------|-------------------------------------------|
|                                     | 0-50 | 51-79 | 90-100 |
| Problem solving ability             | 15   | 71    | 14     |
| Ability to explanation              | 18   | 68    | 14     |
| Ability to analyse                  | 23   | 65    | 12     |

The results of the observation showed that the three indicators of student engagement showed a sufficient tendency when students studied with the support of mobile learning. The results of the observations obtained show that for problem-solving ability is at the level of 71%, the ability to explain 68%, and the ability to analyze 65%. This shows that giving mobile learning contributes to student engagement especially in cognitive dimension student engagement.

Student engagement is important because student engagement shows the level of attention, effort, persistence, positive emotions, and commitment of a student in the learning process. Students will be more trying to understand and master the material that has been taught. By involving the side of affection, cognition, and social interaction in the learning process. So it can be concluded that student engagement is an action of students including behavior, emotional states, and cognitive activities carried out by students in academic activities at school.

4. Conclusion
This study is that mobile learning provides sufficient improvement for the three indicators of student’s engagement cognitive dimensions, namely problem solving behavior ability, explanation and analyzes. utilization or use of mobile learning towards student involvement especially at: 1. problem solving skills, students can improve or manage their learning independence by using mobile learning, they are trained to be more independent in managing learning activities while the task of the lecturer is besides
monitoring at all times is directing learning activities and providing stimuli to students to be able to develop more creative and innovative content. 2) the ability to explain material, besides being able to increase student motivation, the use of mobile learning is also able to help students re-explain the material in their language style because the use of this media is able to reduce verbalism that usually occurs in general (conventional) learning activities. 3) the ability to analyze material, on this ability student can improve their analysis to be more varied in accordance with the previous entry behavior including the creativity of each student and they are able to link these analyzes to phenomena that occur in real life.

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