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Design Seamless Learning Environment in Higher Education with Mobile Device

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Abstract. Mobile learning functions to facilitate student learning because it has characteristics that are practical to carry anywhere, so mobile learning has its interests. With mobile learning, learning is more flexible and effective. The consideration of the effectiveness of mobile learning-based learning demands the importance of research on the development of cutting-edge learning models to help students and educators to make learning easier and provide learning motivation for students in higher education. This research is descriptive quantitative research with data collection techniques using a questionnaire. This research was conducted from April to June 2020 in the PGMI Nurul Jadid University. The research population is students of the PGMI who are still active in the 2019/2020 academic year. Mobile learning based on mobile devices is in the useful category with a frequency of 28 and a percentage of 75.67, the rest is in the fairly good category, a frequency of 3 is obtained with a percentage of 8.10%, in the very good category a frequency of 4 is obtained with a percentage of 10.82%, and less, obtained a frequency of 2 with a percentage of 5.40%.

1. Introduction

Learning concepts and theories currently emphasize not only on social interaction between learners and learners with their learning environment [1]. However, the emphasis is on the learning process that can arise naturally because the learner is an active agent in the process [2]. In this 21st century, it is time for students to be allowed to choose their learning method and style so that students can determine when and where they will study [3]. Therefore, the pattern of interaction between learners, learners and learning resources, learners and the learning environment concerning the synergy of learning in the real world and cyberspace requires the right design of the transition between learning scenarios and contexts. This paper discusses the concept and design of Seamless Learning.

Basically in seamless learning, learners are allowed to collaborate and interact in various ways with peers, learning resources, and the real world (physical word) [4]. Besides, this interaction is also carried out through a virtual world (virtual word). Thus it can be said that today's society is needed with seamless learning design.

Mobile learning (m-learning) is learning that utilizes technology and mobile devices [5]. In this case, these devices can be PDAs, cell phones, laptops, tablet PCs, and so on. With mobile learning, users can access learning content anywhere and anytime, without having to visit a certain place at a certain time. So, users can access educational content regardless of time and space [6]. A mobile device (also

known as a cellphone, handheld device, handheld computer, "palmtop", or simply a handheld) is a pocket-sized computing device. Its trademark has a display screen with a touch screen or mini keyboard [7]. So, mobile learning is needed for students, because it can make it easier for students to learn wherever and whenever. Mobile learning also has characteristics that are practically carried anywhere, so mobile learning has its interests [8]. With a mobile that is connected to the internet, it is possible to explore any world, including searching for learning materials.

2. Seamless Learning

Seamless Learning is a learning model that contains the concept of continuity and continuity in the learning process that occurs without time and space limits [9]. Learning without borders is a learning approach that has the potential to include learning models that cover many areas of the daily life of students [10] and supported by various technologies, from virtual classrooms to e-learning.

Seamless means continuity that takes place smoothly. The term seamless learning was not first associated with the use of technology in learning [11]. It was only in 2006 that defined seamless learning as continuity in learning with various scenarios using mobile devices [12]. The definition of seamless learning by experts is indeed, but in general, this concept refers to the transition between context and learning scenarios that occur as smoothly or smoothly as possible [13].

3. Mobile Device

Android, Inc. was founded in Palo Alto, California, in October 2003 by Andy Rubin, Rich Miner, Nick Sears, and Cris White to make mobile devices more sensitive to location and owner preferences [14]. Android Inc., wants to create a mobile device that better understands its owner. Android uses code names in alphabetical order, with the naming of snacks that are food or soft drinks.

Communication Technology Smartphones (smartphones) is the latest generation of mobile computing equipment that combines communication technologies such as cell phones and computers [15]. Smartphones can be analogous to a small network computer with a shape like a cellphone. There is no standard definition of a smartphone. For some, a smartphone is a phone that runs on the entire operating system software that provides a standard and basic interface for application developers [16]. In other words, a smartphone is a mini-computer that has the capability of a telephone.

4. Mobile Learning in Higher Education

The use of mobile devices (mobile) has become the main need to support productivity today. Until January 2019, access to information via the internet by adults was still dominated by mobile devices using smartphones [17]. Mobile devices have often been used to support the learning process, from communication, information retrieval, accessing the college system and even as a tool for keeping notes during lectures [18]. Not a few teachers/lecturers take advantage of technological advances by using the internet as online learning or what we usually hear about online learning. So, mobile learning is also needed in higher education, because it can make student learning easier [19].

Mobile devices are believed to have become one of the devices that are considered to help simplify daily activities and increase productivity [20]. Almost all tertiary institutions in Indonesia implement mobile learning as a tool to help facilitate students in the learning process. This easy form of mobile learning is that it can make it easier to manage data, provide information quickly, precisely and accurately [21].

5. Research Method

This research is descriptive quantitative research with the data collection technique using a questionnaire. This research was conducted from April to June 2020 in the PGMI at Nurul Jadid University. The population of this research is 125 students of the PGMI who are still active in the 2019/2020 academic year. The research sample was taken 30%, namely 37 people. In this study, the research instrument used was a closed questionnaire containing a list of questions with various alternative answers based on a Likert scale. The research data describes; 1) students' understanding of

mobile device-based seamless learning designs, 2) the benefits of mobile device-based seamless learning designs in student learning, and 3) student readiness in mobile device-based seamless learning designs. Data obtained from questionnaires that have been distributed to 37 respondents then obtained the results of data analysis using a Likert scale.

6. Result and Discussion

Based on student learning outcomes in learning students are encouraged to find, change, and check new information received and revise agreements that are no longer appropriate. The basic concept of learning is dynamic [22]. Students must build their knowledge. In this process, the teacher can enable students to find their ideas and provide flexibility in trying to prove and analyze. Reinforced qualitative data through observation and interviews of teachers and students and general Islamic boarding schools that carry out integrated learning of Islamic values and science and their use.

The data obtained from a questionnaire that has been debated to 37 respondents then obtained the results of data analysis using the Linkert scale including students' understanding of the benefits of mobile device-based seamless learning designs in student learning and student readiness in mobile device-based seamless learning designs in the following table.

Table 1. Results of Data Analysis on Mobile Device-Based Seamless Learning Design

Interval	Category	F	%
$X>52$	Very Worthy	4	10,82 %
$44<X<52$	Worthy	30	81,08%
$36<X<38,5$	Pretty Decent	3	8,11 %
$28<X<36$	Not Worth It	0	0%
$X<28$	Not Feasible	0	0%
Total		37	100%

Based on the table above, it can be concluded that students' perceptions of the benefits of Android-based mobile learning are in the beneficial category with a frequency of 28 and a percentage of 75.67, the remaining% is in the fairly good category, a frequency of 3 is obtained with a percentage of 8.10,%, in the very category both obtained a frequency of 4 with a percentage of 10.82% and less obtained a frequency of 2 with a percentage of 5.40%. Students' perceptions of their readiness to use Android-based mobile learning were measured through a questionnaire containing 16 statements using a Likert scale with a score of 1 to 4.

Research has shown the need to modify and revise the curriculum in universities to deal with the revolution in technology. Technology is a very important source for maintaining and gaining knowledge. Research has shown that seamless learning can provide faster response rates and new flexibility in the educational process [23]. This responsiveness is facilitated by easy content updating, instructions can be personalized, information can be accessed information can be distributed and content can be standardized.

Increased application of technology will increase students' understanding of content and skills development in areas such as analytical reasoning, problem-solving, information evaluation and creative thinking [24]. The use of information and communication technology in education continues to develop various strategies and patterns [25]. It can be grouped into e-Learning systems as a form of learning that utilizes electronic devices and digital media, as well as mobile learning (m-learning) as a form of learning that specifically utilizes mobile communication devices and technologies [26]. The very high penetration rate of mobile devices, the relatively easy level of use, and the price of increasingly affordable devices, compared to personal computing devices, are driving factors that are increasingly expanding the use or application of mobile learning as a new trend in learning, which forms a learning paradigm that is can be done anywhere and anytime.

The concept of mobile learning brings the benefits of the availability of teaching materials that can be accessed at any time and the visualization of interesting material. The term M-Learning or Mobile Learning refers to the use of handheld devices such as PDAs, cell phones, laptops and information technology devices that will be widely used in teaching and learning. In this case, we focus on mobile devices (cell phones). The purpose of developing mobile learning itself is a long-life learning process. Students can be more active in the learning process, save time because if it is applied to the learning process, students do not need to be present in class just to collect assignments. The task is simply sent via the application on the mobile phone which will indirectly improve the quality of the learning process itself.

7. Conclusion

Seamless learning design is very important and needed by society considering that with the development of technology, seamless learning is also needed so that students can carry out learning activities without being limited by time and space. The Mobile Learning model is a manifestation of the readiness of all organizational components to adopt e-learning. The Mobile Learning Model is not only used to measure the level of readiness of institutions to implement e-learning. But what is more important is that it can reveal which factors or areas are still weak and require improvement and which areas are considered successful or strong in supporting the implementation of e-learning. The Mobile Learning Model at the analysis stage is used to compile the material needs that become the baseline for the design, development stage, and implementation. At the evaluation stage, the Mobile Learning model is used to measure success and determine achievement for the improvement process in the next period.

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