

# The Implementation of E-learning System at UIN Sumatera Utara in Response to Technology Challenge in Education

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**Submission date:** 07-Nov-2021 11:59PM (UTC+0700)

**Submission ID:** 1695516557

**File name:** The\_Implementation\_of\_elearning.pdf (827.38K)

**Word count:** 2671

**Character count:** 14946

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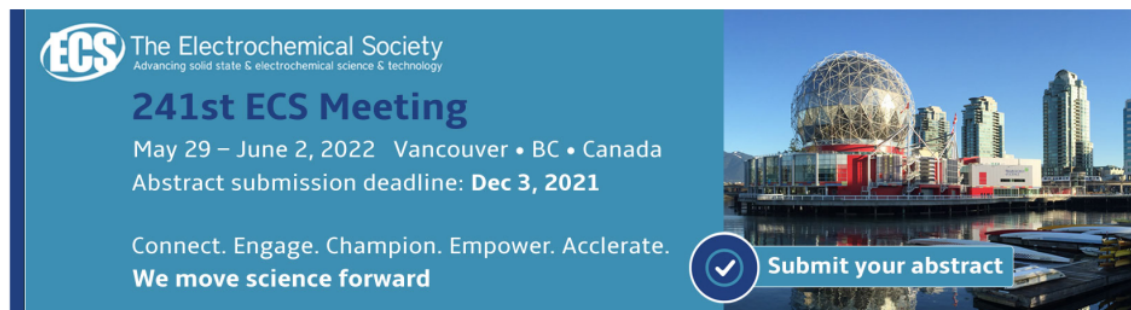
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To cite this article: Retno Sayekti 2018 *J. Phys.: Conf. Ser.* **970** 012026

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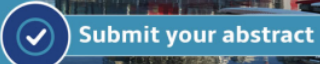


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# The Implementation of E-learning System at UIN Sumatera Utara in Response to Technology Challenge in Education

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**Abstract** – The objective of this study is to find out student patterns and perceptions of using a MOODLE-based e-learning system that was first used in 2014. The methodology involved was a survey to 165 respondents comprising of several classes of various subjects. This study investigates the intensity of student's use of e-learning; time choice; justification of time choice; span of time in using e-learning; choice of access place; medium or devices used to access e-learning; and activities conducted in e-learning. In terms of students' perspectives, the author tried to find out students thought and feeling in using e-learning. Finally, the finding suggests that students tend to use various devices to access e-learning in any place that provide speed internet access. This study also revealed that most of students feel that the learning process becomes more effective and efficient by using e-learning compared to the traditional learning system in class.

## 1 Introduction

The development of technology is affected many aspects of human life, education is of no exception. The implementation of information and communication technology in teaching and learning has been proven to increase the effectiveness and the efficiency of the teaching and learning process. Many researches on education technology found the improvement of students' achievement in learning through the implementation of technology in teaching.

Electronic learning or e-learning is a term used to describe the action of acquiring knowledge through computer network based environments. In the last decade, the development and implementation of e-learning have become a requirement for academic institution. That is because of the advantages eLearning brings to universities.

There are many application software that have been developed to accommodate the needs of learning activities while at the same time meet teaching requirements. These applications are known as Learning Management System (LMS). One of the most popular LMS available is Moodle, an open source e-learning system which is globally used nowadays.

This study is to explore students' pattern and perception on the use of e-learning system at Universitas Islam Negeri Sumatera Utara Medan (UINSU) since its first implementation in 2014. The main purpose of the study is to improve the system that meets the needs of learning so that it can finally improve students' academic achievement.

## 2 Literature Review of E-Learning

Electronic learning is not a new concept in education technology. This learning design has been in existence for a while and has been used globally around the world. Many researches have been done to investigate its usefulness to improve the quality of learning process. The following description will illuminate the advantages of e-learning and software used to facilitate the learning.

## 2.1 E-learning

E-learning has been defined as a media used for distance learning using computer technology usually Internet. [1] E-learning enables employees to learn at their work computers without travelling to the classroom. Nevertheless, the use of e-learning as media in teaching should be planned intentionally to use the network in teaching and learning in the classroom [2] E-learning also refers to anything delivered, enabled, or mediated by electronic technology for the explicit purpose of learning. The term includes: online learning, web-based learning, and computer-based training.[3]

E-learning can be used for both formal and non-formal education settings. The model can be used independently or mixed with a face to face learning activities. E-learning that used independently is merely called e-learning; while that which is mixed with a face to face learning design is always called a blended learning. The last mention concept of blended learning has been discussed in many research articles which show the effectiveness of this model. [4]–[6]

E-learning which stands for electronic learning, is a process of learning utilizing electronic devices, such as computer, laptops, notebooks, tablets, smartphones, which are connected each other through a network. The learning activities are administered by software called Learning Management System (LMS). There are many open source system for LMS which can be downloaded and develop as an e-learning facility for schools and university.

According to Bates (1995) in Zovic-Butorac [6] e-learning has four main advantages, they are (1) enhance interactivity between students and teachers, (2) time and place flexibility, (3) potential to reach global audience, and (4) easy updating of content as well as archivable capability.

Features of e-learning includes (1) Stores and/or transmits lessons on CD-ROM, local internal or external memory, or servers on the Internet or intranet; (2) Includes content relevant to the learning objective; (3) Uses media elements such as words and pictures to deliver the content; (4) Uses instructional methods such as examples, practice, and feedback to promote learning; (5) May be instructor-led (synchronous e-learning) or designed for self-paced individual study (asynchronous e-learning); and (6) Helps learners build new knowledge and skills linked to individual learning goals or to improved organizational performance” [7]

## 2.2 Moodle as an E-learning Platform

In this study, Moodle is one of e-learning platform chosen to facilitate e-learning in UINSU. The consideration of choosing Moodle over other LMS software is due to its completeness in accommodating learning experience of the students and of the needs of the teachers, beside its global popularity.

Moodle has been designed to be compatible, flexible and easy to modify. [8] It was developed based on pedagogical theory of constructivism. Moodle is an Open Source Software (OSS) under GNU Public License that explicitly allow anybody to freely use, modify, redistribute and even sell the software under the condition that the open source license is maintained. This type of system has already proven very successful in developing much of the basic software that makes the Internet possible. [8] As it is an open source software, it is a challenge for teachers to design their learning activities using Moodle. Skills in technology is needed to set capability of the software to meet instructional design.

An experimental study proved that Moodle can enhance the effectiveness of learning in the following aspects: (1) better shareable materials; (2) interactive forum and chat; (3) practice and assessment quizzes; (4) gathering and reviewing assignments; (5) recording grades and report; (6) attendance; (7) glossary; (8) shout box; and, (9) face to face. [9] Another study shows that it also provides benefit to both students and teachers.[10] In the side of students, Moodle can enhance the quantity of contents, the quality of the contents, easy access, practical activities, and novelty. On the teacher side, Moodle reduces efforts and increase teaching quality.

### 3 Research Method

This study employs a survey method utilizing questionnaire data collection instrument. The data collection technique for this study is dependent on questionnaires administered on researcher at UINSU. Data collected are analysed and presented descriptively to elaborate students' experience in using e-learning. Respondents were instructed in <sup>28</sup> questionnaires to offer information about their experiences and impact of using E-learning. This study aims to answer the question, "What is pattern and perception of students in using e-learning of UINSU?" The questionnaire were distributed to 165 undergraduate students in the 2014/2015 academic session. The survey were to find out information about students' experiences and perception of using e-learning at UINSU.

### 4 The Implementation Of E-Learning At Uinsu

The implementation and development of e-learning at UINSU has begun since 2014. This transformation is supposed to produce students and human resources which are excellent in academic by providing and utilizing an electronic based learning environment. Online technologies can also be leveraged to provide a faster collaborative and interactive engagement.

The e-learning of UINSU is available and can be accessed at <http://elearningiainsu.com>. The system was built using a Moodle version 2.6. This system enable students a lot of activities relating to their academic tasks. Below is the interface of e-learning of UIN Sumatera Utara.



Figure 1: Main Interface of E-learning UINSU

#### 4.1 Students' Pattern of Using E-learning

This study investigates students' pattern in using e-learning from some aspects such as (1) access time; (2) place; (3) device used; (4) activities while using e-learning. The majority of students tend to access e-learning at night with the justification that it usually provides more speed internet access. They maintain that access of e-learning at campus is always slow and leads to failure of access. Nevertheless, there are still some students prefer to open e-learning at campus just before the class begin with the reason of free internet access. Students' purposeful preference of time mostly depends on the activity to be done. If they want to submit assignment or answer the online test, they would prefer to have more speed and stable internet connection. In terms of duration, most of students spend 15 – 30 minutes to do various activities in e-learning, while only few of them spend 1 – 2 hours. The duration of time used in using e-learning is determined by students' skills in using technology and tasks assigned by the teacher.

In addition to time, place is also another consideration students' take when using e-learning. They prefer to access e-learning at campus due to free internet access provided. However, there are still some students who prefer to go to Internet café (*warung Internet or Warnet*) to have more stable Internet connection. Those who consider campus as best access place maintain that in addition to free internet access, they can also discuss with their colleagues to do assignment that they need to submit into the e-learning. They access e-learning at home only if they have data package on their

smartphone, or otherwise, Internet café would be their destination to go although they have to spend some rupiahs.

Most students prefer to use laptop to access e-learning (80%). This is because this device is considerably flexible in use due to its mobility capability while providing sufficient screen width to navigate in e-learning. Only is there very small number of students use their smartphone and Personal Computer (PC) to access e-learning. While smartphone becomes more affordable, those who use laptop some other time turn to their smartphone especially when they are mobile.

Students accessed e-learning for various purposes such as: (1) check syllabus or topics of the week; (2) download course resources; (3) submit assignment; (4) working on online test; (5) check grades; (6) setting their own profiles; (7) chatting with colleagues; and, (8) messaging to teachers.

#### 4.2 Students' Perception and Expectation on Using E-learning

To find out student perception and expectation as well as their obstacles in using e-learning, open-ended questions were proposed in the questionnaire. The open-ended questions are to dig students' opinion using e-learning based on their experience. The findings are as described below.

According to students, e-learning system provides more informative media in learning compared to the conventional learning system. With e-learning system, students can access anytime to find information regarding their courses to be more precise in working on their assignment. E-learning also provides references and materials for students to refer to at their own pace of learning, as such it enables individual freedom in understanding course materials. As the objectives of the course are written in e-learning, it is clear for students the target they need to achieve at the end of the program. The online test in e-learning provides immediate feedback so that students can see their grade right after answering the questions. This, according to them, encourage transparency in grading from the teacher and encourage students' motivation in test. In short, students view e-learning as an effective media to support the process of learning. They consider a learning as a practical and flexible media of learning as well as cost effective.

Aside from its advantage, students experience some obstacles during their access to e-learning. In terms of availability of speed internet connection, it is still a big problem students face in campus. The Internet connection in campus has always been unreliable, even no connection at all in some areas. Another technical problem is database error while in use. Power off during the access, is also another big problem.

Students' expect that e-learning system implemented in UINSU should be improved its accessibility and capability. In terms of infrastructure, UINSU should provide more reliable Internet connection if the use of e-learning is to be more effective. They also suggest that all courses should be made available in e-learning.

## 5 Conclusion

This paper explored graduate students' pattern and perception regarding the usage of e-learning at Universitas Islam Negeri Sumatera Utara Medan, Indonesia. Literature related to the role of e-learning in improving students' learning achievements, the benefits of e-learning in teaching, as well as discussion on how the e-learning should be designed, provided the foundation for the presentation of study methods and findings. Most participants in this study have positive attitude towards the use of e-learning at UINSU and concluded that e-learning had a positive influence on their learning performance, sense of community, comfort in the online classroom and on their self-awareness. Further studies need to be done, especially on the topic of collaborative learning environment.

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