THE CONCISE LATEST REPORT ON THE USE OF MOBILE LEARNING TO SUSTAIN OPEN AND DISTANCE EDUCATION: LITERATURE REVIEW AND BIBLIOMETRIC ANALYSIS

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Abstract

Currently, numerous universities use an open and distance education system. In various countries especially in the Asian continent, there are many universities using mobile learning as learning aid media in learning process, Universitas Terbuka is one of them. However, the Speedtest Global Index reports that the speed of Indonesia's mobile internet network is 21.35 mbps in July 2021, compares to other countries in Southeast Asia, Indonesia's mobile internet speed is the slowest. Therefore, a bibliometric analysis was carried out to evaluate whether the application of mobile learning in the higher and distance education system in Indonesia was appropriate. As a recommendation, the results of this analysis provide further guidance and provide new arguments for the application of mobile learning in Indonesia.

Keywords: bibliometric analysis, open and distance education, mobile learning

1 INTRODUCTION

The COVID-19 pandemic has led to increased online learning at all levels of education, from kindergarten to higher education. Indeed, in the last 2 decades several universities have offered online education, but distance learning methods have become an absolute must, especially when face-to-face learning is discontinued for the common good. Distance learning, also known by various names such as distance education, e-learning, mobile learning, or online learning, is a form of education in which there is a physical separation between teachers and students during the teaching and learning process (Simonson, 2016). Distance learning is also an instructional practice that effectively utilizes various tools and technologies to enrich the student learning experience (Klein, 2016) and to facilitate student-faculty (especially with lecturers) and student-student communication (Simonson, 2016). The minimum technology requirements for distance learning are a computer, mobile device (cell phone), or webcam, some form of listening device, a video conferencing application such as WebEx or Zoom, a Microsoft Windows or Apple operating system, and a stable internet connection with a speed of approximately 56K (56,000) or more (Al-Tamimi, 2003).

Data on the number of universities/comparisons/increases in the number of distance learning methods. Advantages and disadvantages of distance learning methods. Compare with universities in Indonesia. Universitas Terbuka?

Keegan (1980); Perry and Rumble (1987) were the initial researches of the concept of distance education (distance education, distance learning) with the main characteristics: a) the separation of lecturers and students during the teaching and learning process; b) use of educational media (print, audio, video and computer); c) the important role of educational organizations in planning, preparation of study materials and student services; d) the availability of two-way communication; and e) individualization of the learning process (self-study). In Indonesia, the Universitas Terbuka (UT) is a state university that provides education through an open and long-distance system through various media, such as print media (modules) and non-printed (audio/video, computer/internet, radio broadcasts, and television).

It can be concluded that the learning system at UT does rely on technology. The materials, discussions, and assignments are carried out through Online Tutorials (Tuton).

2 METHODOLOGY

In order to develop the bibliometric analysis, we counted on three sources of information: (1) international research journals, (2) internet search engines with keywords related to mobile learning in higher and distance education, and (3) the knowledge of the authors about the analyzed areas.

This section consists of three parts. The first provides an overview of the adoption and implementation of mobile learning, then it followed by a critical and analysis of existing mobile learning models and frameworks, and lastly, a framework for higher and distance education system in Indonesia informed by critical findings is delivered.

The results of the synthesis of studies related to mobile learning in universities are presented in Table 1.

Table 1. Summary of Mobile Learning Research Developments from 2005 - 2022

No	Researchers	Subject/Population/ Sample	Research Variables	Method
1	Lee and Chan (2005)	First year undergraduate students of information technology.	The affective and cognitive benefits of mobile learning and podcasting.	Action research case study in two cycles.
2	Menkhoff and Bengtsson (2011)	Undergraduate students of entrepreneurship and business networks.	Pedagogical experiences with using mobile phones, wikis, and other mobile learning approaches.	Evaluative-exploratory case study

No	Researchers	Subject/Population/ Sample	Research Variables	Method
3	Fuegen (2012)	Research results/articles related to the use and impact of mobile devices and mobile technologies on distance education.	Impact of mobile technologies on distance education.	Study of literature
4	Ally and Prieto-Blazquez	Research results/articles related to the use and impact of mobile learning in higher education.	Impact of mobile learning applications in higher education.	Study of literature
5	Ranieri and Pachler (2014)	Workshops of mobile learning in adult education conducted in Italy and Britain.	The potential of mobile learning in adult education with a particular focus on identity formation and self-representation.	A case study approach
6	Bray and Tangney	54 students in three secondary schools	The impact of a transformative, mobile technology-mediated approach, RME, and a particular model of 21st century learning facilitates the development of mathematics learning activities to increase student engagement and confidence	Explanatory case study with multiple embedded units and a pre-experimental design
7	Borba, et al (2016)	Five sub-areas of research, important trends of development, and illustrating them using case studies: mobile technologies, massive open online courses (MOOCs), digital libraries and designing learning objects, collaborative learning using digital technology, and teacher training using blended learning.	Identifying recent advances in research on digital technology in the field of mathematics education	Literature survey
8	Oyelere, Suhonen, Wajiga, and	142 third-year undergraduate students in a Nigerian university	The application of the design science research approach in the course	Experimental method

No	Researchers	Subject/Population/ Sample	Research Variables	Method
	Sutinen (2017)		of developing a mobile learning application, MobileEdu, for computing education in the Nigerian higher education context	
9	Sarrab, Al-Shihi, Al-Manthari, and Bourdoucen (2018)	The results of applying the proposed set of educational requirements on three different M-learning systems. Instructional designers and educational software developers may find the requirements useful in the development of M-learning systems.	Standards for learning and mobile application software quality and guidelines.	Literature study
10	Grant (2019)	Research results/related articles.	The principles of mobile learning; definition, design, and implications for future research and instructional design.	Literature study
11	Alasmari and Zhang (2019)	The Saudi higher education students enrolled in all of the twenty-eight public universities in Saudi Arabia	Learning Expectancy (LE), Effort Expectancy (EE), Social Influence (SI), and characteristics of mobile learning	Mixed-method research
12	Pinto, et al (2019)	Research results/related articles.	(a) identify the most relevant journals that publish literature in this feld, (b) calculate the authors' average productivity and identify the most productive authors, and (c) discover the most significant trends in this academic feld, through statistical and co- occurrence word analyzes of the titles	Bibliometric analysis

No	Researchers	Subject/Population/ Sample	Research Variables	Method
			and the keywords used to index papers	
13	Bai (2019)	Scholarly peer-reviewed journal articles that were published between 2010 and 2017	(1) original research was reported; (2) data-based research in which data collection and analysis were described; (3) positive learning outcomes were reported; (4) mobile technology was used by students for learning; (5) mobile devices were limited to iPads, iPods, PDAs, tablets and mobile phones; (6) studies were conducted in K-12 and higher education settings	Literature study
14	Hall and Connolly (2019)	Papers that highlight key features of infrastructure in relation to mobile learning within teacher education and related areas (2014-2019).	Infrastructure in relation to mobile learning within teacher education and related areas	Literature study
15	Li, Zhao, Herencsar, and Srivastava (2021)	Teachers and students of sebior high schools in Shanghai	The main body and scope of collaboration, constructs a man-machine collaborative resource sharing model with large scale man-machine cooperation as the main model	Experimental research
16	Gounder and Kumar (2021)	103 papers retrieved from six different databases	The use of mobile learning applications in higher education institutes to; i) identify publication trends, ii) types of mobile learning applications used, and iii) categorize the research papers published	A systematic mapping study

No	Researchers	Subject/Population/ Sample	Research Variables	Method
17	Okai-Ugbaje, Ardzejewka, and Imran (2022)	Studies conducted over four years (2018-2022), including the outcome of two empirical studies conducted in a Nigerian university	Mobile learning framework that considers the sociocultural and socio-economic contexts of low-income economies	Literature study

3 FINDINGS AND DISCUSSION

The text included in the sections or subsections must begin one line after the section or subsection title. Do not use hard tabs and limit the use of hard returns to one return at the end of a paragraph. Use as many sections/subsections as you need.

4 CONCLUSION

The conclusion needs to be concise and coherent.

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