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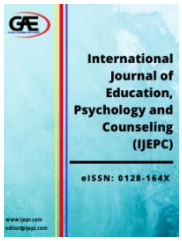

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A SCOPE REVIEW ON MOBILE LEARNING ADOPTION IN EDUCATIONAL INSTITUTION IN MALAYSIA DURING THE PANDEMIC COVID-19

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Abstract:

This article aims to survey the scope of mobile learning in educational institutions in Malaysia during the Covid-19 pandemic. M-learning is a suitable alternative method used during the Covid-19 pandemic for students to learn at home. The review focuses on implementing remote teaching for engineering laboratory courses during pandemic Covid-19—article journal selected from the Science Direct and Web of Science (WoS) database. The articles were evaluated, reviewed, and analysed through eligibility process. Technology elements can make students more fun in learning, motivated and skilled through mobile learning. This study can prepare students to apply the device in a broader learning process to acquire new knowledge and skills regardless of time and place. This paper recommends that further studies look at how learning material quality factors can influence students' decision to accept m-learning in the Covid-19 pandemic crisis.

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Keywords:

Scope Review, Mobile-Technology, Secondary School, Covid-19.

Introduction

Mobile learning is defined as learning by using gadgets and technology such as laptops and mobile phones as a learning medium. M-learning also can be seen as a revolution from e-learning and blended learning. The application of mobile devices in learning was the art of using technology in education to increase the learning experience among the students. During the pandemic, mobile learning allowed the students and teachers to choose the effective learning medium according to their situation. The usage of the devices widely gives the teachers and the students facilities to use mobile learning effectively. In May 2021, UNESCO tragically revealed that due to the COVID-19 pandemic, 90% of the world's school-aged children had their education disrupted, with 26 countries experiencing a total shuttering of their traditional, classroom-based school systems (Human Rights Watch, 2021; UNESCO, 2021). In mobile learning, the quality of the learning depends on both students and teachers. Teachers have to provide the material, learning activities, and facilities to produce effective learning with students' different abilities (Lai et al.,2016).

On the other hand, students need to strive to achieve learning materials by themselves without depending too much on internet sources and teachers only. In addition, communication and interaction among students and between teachers and students will be more effective with m-learning. Communication and interaction are implemented through various social sites such as WhatsApp, Instagram, and Telegram. The virtual interactions between teachers and students through social sites can evoke learning fun (Moorthy et al., 2019). As a result, students' motivation will increase to continue using it as a learning medium even when communication occurs outside of school hours. Indirectly, students are encouraged to obtain learning materials and receive the sharing of materials directly from the teacher without being bound by time limits and physical class.

Malaysia discovered the first case of COVID-19 on 25th January 2020 and followed by the first fatal case on 17th March 2020 (Gates, 2020). With the increasing number of people infected with the virus, the Government of Malaysia enforced a Movement Control Order (MCO) on 18th March 2020 to break the chain of COVID-19. It affected all educational institutions, including schools and higher learning institutions. All the academic premises are closed due to MCO. Activities of teaching and learning face-to-face are not allowed (Gates, 2020). This article aims to review mobile learning adoption during the pandemic COVID-19 in educational institutions in Malaysia. The review will lead by the following research question:

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What is the effectiveness of mobile learning adoption during COVID-19?
The question's implementation includes the point of mobile learning in Malaysia during Covid-19.

Methodology

According to Munn et al. (2014), conducting a review scope is to identify the available evidence in each area, justify and analyze knowledge gaps, and be a precursor to the systematic review. Hence, in selecting the article to review, the systematic approach is adopted to ensure the article reviewed focuses on the research question and confirms the quality of the article. This review focuses on implementing remote teaching for engineering laboratory courses during pandemic Covid-19—article journal selected from the ScienceDirect and Web of Science (WoS) database. The ScienceDirect and WoS database has the most extensive abstract and citation database of diverse subject areas and documents such as journals, books, and conference proceedings. The researchers chose the ScienceDirect database because it has full-text articles from journals and books, primarily published by Elsevier. Most importantly, those three databases provide a quality paper to use in this review. The review process was conducted as per below:

Identification

The initial step in the review process is identification. This process included identifying keywords for information retrieval purposes. The keyword used to search for documents in databases also referred to the thesaurus to find the word with the same meaning to enrich its conclusion. The keywords used in advance to search for a Scopus article are Article Title-Abstract-Keyword ("Mobile Learning" OR "m-learning" OR "mobile-technology") AND ("Secondary school" OR "educational institution") AND ("COVID"). The process produced 208 documents. For the Science Direct database, the keyword used in advance in document research is "mobile learning", "secondary school", and "Covid" and their performance for 26 documents.

Screening

Screening is a process for including or excluding items based on the criteria selected through the database. In the selection process, Wos restricted database criteria to document type: Article, Source type: Journal and year of publication: 2020-2022 and resulted in 18 documents. The requirements for the Science Direct database were limited to the types of articles: research article, magazine article and year of publication: 2020-2022 and resulted in 26 papers. The total number of documents from three databases that have limited the search criteria is n=11. The process continues by amalgamating findings to exclude redundant sections from the three databases. The process has left 11 numbers of articles.

Eligibility

Eligibility is a process for manually excluding articles following the specific criteria set by the author. The papers are reviewed thoroughly from the summary, and if the content does not meet the requirements will usually be banned. In this review, the requirements for the selected paper should directly discuss the adoption of mobile learning in schools of educational institutions in Malaysia during the COVID-19 pandemic. Upon reading the summary of the 11 articles, the researchers found that four issues of the article met the criteria.

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Data Abstraction and Analysis

The remaining articles were evaluated, reviewed, and analyzed after the eligibility process; the results discussed in detail in this article the reviews based on specific subjects that matched the research question. Table 1 presents the list of items selected as a result of the eligibility process.

Table 1: Details of Selected Article from Eligibility Process

Article Title, Author/s, Publication Year	Journal Name
The use of mobile learning in teaching and learning sessions during the covid-19 pandemic in Malaysia (Khalid, F., & Abd Samad, M. R. 2021)	Education Sciences
Application of m-learning in covid-19 pandemic situations: concepts and components (Tengku Kasim, T. S. A., & Miasan, N. A. 2021)	Journal of Social Sciences
Use of mobile technology to generate digital learning during movement control command PKP (Omar, M. A., Ismail, S. N., & Rathakhrishnan, M. 2021)	Journal of Education
A systematic review of the benefits and challenges of mobile learning during the COVID-19 pandemic (Saikat, S.; Dhillon, J.S.;Wan Ahmad,W.F.; Jamaluddin, R.A. A. 2021)	Educational Science

Findings

This paper will highlight findings from some articles related to mobile learning during the Covid-19 pandemic in Malaysia's academic institutions. The review will consist of the following research questions: How effective is mobile learning in the context of Covid-19? Some articles describe various approaches to mobile learning during a pandemic.

Mobile learning is not related to space, time and location and is mobile in function and technology. This concept emphasises that mobile learning enables users to facilitate the learning process without being linked to the physicality of the classroom. The mobility aspect is classified into three parts in the implementation of m-learning.

Table 2.: Related Article based on Eligibility Process During Covid-19

	Related article	Eligibility Process
1	Technological Mobility	Advancement of wireless technology
2	learning mobility content	Delivery of mobile learning content
3	Implementation mobile learning	Student mobility

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Table 2 shows related article based on eligibility process which is evaluated and analyses based on its content. Technological mobility refers to the advancement of wireless technology. Second, learning mobility refers to the delivery of mobile learning content; and third, student mobility, i.e. the presence of students who are not related to time or place (Khalid & Samad, 2021). Therefore, these three aspects should be mobile in the implementation of mobile learning.

M-learning, the quality of learning depends on two parts, i.e., teachers and students. Teachers need to carefully prepare materials and plan learning and facilitation activities to produce effective learning by considering differences between students (Lai et al., 2016). Meanwhile, students should strive to obtain learning materials outside the standard from books and teachers alone. Furthermore, communication and interaction between students and teachers will be more effective when using m-learning (Naveed et.al., 2021). The virtual interactions between teachers and students through social sites can evoke learning fun (Moorthy et al., 2019). As a result, students' motivation will increase to continue using it as a learning medium even when communication occurs outside of school hours (Saikat et.al.,2021).

Indirectly, students are motivated to obtain learning materials and receive materials directly from teachers without being constrained by the time and physical limitations of the classroom. Asrizal (2021) points out that interactions may occur bilaterally between teacher and student or between teacher, student and learning material. Vavoula et al. (2005) indicate that mobile technology promotes communication among teachers, students and the learning materials. Therefore, collaborative learning strategies are appropriate for m-learning as students become constantly active in teaching and learning sessions. Comprehensive learning makes students always able to compete with their peers, making learning more significant.

M-learning can improve student collaboration and foster interaction between students and their educators (Joko et.al, 2020). It also allows students to learn, collaborate and share ideas using the Internet and technology. Text messages in learning can provide support, motivation, and continuity; warnings and reminders; summary of the content; introduction, tips, and reviews; study structure guide (Omar, Ismail & Rathakrishnan, 2021).

Disabled students are also able to benefit from this training. This M-learning helps these students with disabilities and helps them take distance learning using their mobile devices. According to Hanbidge & Tin (2020), education allows students to broaden their knowledge in various contexts and develop an understanding of themselves. Tengku Kasim & Miasan (2021) state that mobile technology has become an integral part of the educational process in educational institutions as it brings many opportunities and challenges to students and members academically.

M-learning can support social knowledge building by enhancing critical thinking, creativity, collaboration, and communication within site and help build learning networks. It also actively encourages students to participate in all activities. Teaching and learning materials in the learning media include graphics, animations, text, audio and video to encourage students to interact with them (Naveed et.al., 2021). Mobile also provides hands-on discussions with groups and support from online content professionals.

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Discussion

This section refers to the findings. The results show that teachers used various learning platforms to reach their learning goals during the COVID-19 pandemic. Amongst those are Facebook, WhatsApp, Telegram, Zoom, Google Classroom and others. A study conducted by Omar, Ismail & Rathakrishnan, (2021) revealed that students do not have a problem continuing the online learning process using m-learning because the preparation of students in the learning process is at an elevated pace. A study by Wahyudin, Yuli, Ali and Muhlas (2020) corroborates this assertion and found that implemented e-learning effectively during the COVID-19 pandemic. Their study recommends the importance of developing ideas for the implementation of e-learning.

However, several research studies also identified challenges in e-learning in the application of virtual learning. A survey by Mohd Razali, Zanaton Ihsan & Fariza (2021) found that e-learning for students is less efficient due to economic constraints in facilities and infrastructure. The study also revealed that students are not technologically ready concerning Internet access or the lack of information resources on the provision of mobile technologies today. Based on the characteristics of the equipment and the m-learning environment, several components need to be considered in the successful implementation of it. The form of its performance will affect the students' level of understanding to receive the partner or teaching from the teacher.

Communication can take the form of text messages, audio vocals, video recordings or video calls. The selection of forms of communication also entails the selection of suitable applications for interaction between teachers and students. For example, during videoconferencing, the exchange takes place in person online using applications such as Google Meet, Microsoft Teams, Webex or Zoom. Thus, m-learning facilitates teachers and students in terms of space and time but should carefully plan learning content, implementation of activities, and evaluation to optimise the teaching and learning sessions.

Learning through mobile devices can help students obtain information promptly. Just one click of information is available at your fingertips. High instantaneous rates assist high-speed communication technologies using fibre optics are widely used in 50 developed countries today. Lai et al. (2016) indicated that students could answer specific questions quickly using m-learning. M-learning is very important today, particularly in the area of education (Omar, Ismail & Rathakrishnan, 2021). There is ample evidence and research that m-learning can enhance learning. Mobile technology helps students raise awareness about the technology, make conversations, participate in social media, find answers to their questions, facilitate teamwork, enable sharing knowledge, and utilise their learning outcomes.

M-learning can support social knowledge building by enhancing critical thinking, creativity, collaboration, and communication within site and help build learning networks. It also actively encourages students to participate in all activities. Teaching and learning materials in the learning media include graphics, animations, text, audio and video to encourage students to interact with them (Naveed et.al.,2021). In Malaysia, m-learning is still very early compared to other countries. However, local researchers have a growing interest in exploring the potential of these applications to improve the quality of teaching and learning. To further enhance m-learning among m-learning students in primary and secondary schools needs to be studied in more depth to see the effectiveness of m-learning during the covid-19 pandemic.

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Conclusion

This paper aims to provide an update on the adoption of mobile learning in Malaysian educational institutions during the COVID-19 pandemic. In this review, the research question was "What is the effectiveness of moving to mobile learning during COVID-19? Based on the results of earlier studies, one can conclude that the implementation of m-learning is an additional requirement in the education of the new millennium. The role and requirements of the apparatus are a simple change in the teaching and learning process which can have a practical impact on students. The technology element can make students more entertained in learning, motivated and competent by mobile learning.

This study may prepare students to apply the device in the broader learning process to acquire new knowledge and skills regardless of time and location. Although there were challenges in using mobile learning during the Covid 19 pandemic, the benefits and need to use it outweighed the challenges. Indirectly, it shows a highly positive acceptance among students to use m-learning. As such, m-learning is an advantageous method of learning during COVID-19. The researchers suggest that the subsequent study looks at how the quality factors of learning materials can influence students' decision to accept m-learning in the covid-19 pandemic crisis. The study's findings help shape the trend in digital learning in the future by using mobile smart devices.

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