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The Potential of Mobile Learning in Improving Students' Intention and Learning Readiness in Higher Education: A Systematic Literature Review Using PRISMA

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Abstract: In the modern technological era, mobile learning offers students enhanced flexibility and accessibility in education. However, Issues that impedes the implementation of mobile learning is the lack of student readiness to use this technology effectively, both in terms of technological skills and psychological readiness. In addition, there is still a gap in understanding the factors that influence students' intention and learning readiness in various higher education contexts. This study aims to explore the potential of mobile learning in improving students' learning intention and readiness. The method used is a Systematic Literature Review with a descriptive qualitative approach, following the PRISMA guidelines. Articles were collected from Google Scholar, Scopus, and Emerald Insight databases with the search keywords "mobile learning," "students' intention," and "learning readiness," covering publications from 2020 to 2024. The review process involved selection based on inclusion and exclusion criteria and thematic analysis of study results. This study found that students perceived the ease of use and technology benefits are the most important elements driving m-learning acceptance. Technology skills, psychological readiness, social support, perceived utility, convenience, and task-material compatibility are the important elements influencing students' learning intention and readiness. These findings are expected to guide the development of more effective technology-driven learning methodologies, particularly within Indonesian higher education. They also underscore the potential of mobile devices to enhance learning efficiency and enable personalized learning approaches tailored to individual needs.

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INTRODUCTION

In today's digital age, mobile learning has emerged as one of the innovative approaches in education that offers greater flexibility and accessibility for students. Rapid technological advances in the field of information and communication, as well as the introduction of technological devices such as notebook computers, wireless phones, and handheld equipment, have further transformed education (Buabeng-Andoh, 2021). In addition, these technological devices play an important role in helping students and teachers to get greater benefits from them (Kumar Basak et al., 2018). In other words, mobile learning allows students to learn anytime and anywhere, which can increase their motivation and engagement in the learning process.

With mobile learning, students can learn anytime and anywhere, which can improve students' intention and learning readiness. The use of mobile devices in learning allows wider access to materials and increases students' motivation to learn independently (Al-Hunaiyyan et al., 2018). This is supported by the Technology Acceptance Model theory developed by Davis (1989), which explains that technology acceptance by students is strongly influenced by perceived ease of use and perceived benefits. In addition, the Self-Directed Learning theory by Knowles (1975) states that learners who are ready to learn

tend to be more proactive in managing their learning process. Integrating mobile technology in education can create a more dynamic learning environment that responds to student needs.

However, the problem that is often faced in the implementation of mobile learning is the lack of readiness of students in using mobile technology for learning. Many students feel that they do not have enough skills to utilize mobile learning applications effectively. Students who should be able to optimize their learning but are not supported by the use of relevant learning media, will tend to become verbalistic (Amalia et al., 2021). This can result in low learning intention and engagement in the learning process. Students lack independence in learning, they do not take the initiative to look for additional learning resources beyond those provided by the teacher in class (Achmad Hamdan et al., 2020).

The condition is in line with Sidik & Syafar's (2020) research which states that there is still no common ground among higher education stakeholders on what factors influence students to use mobile learning in Indonesia. In addition, research by Lin et al. (2020) stated that it is essential to promote early learning readiness and willingness to use mobile learning to improve student knowledge, but it is difficult to design the right technology based on optimism and equality. Then, another parallel research from Yeh et al. (2023) which states that personality can indicate behavioral tendencies, which can then contribute to certain habits that increase learning effectiveness and thus can accurately predict long-term learning effectiveness.

Several studies have been conducted to examine the benefits of mobile learning in improving students' intention and learning readiness such as previous research proposed by Sidik & Syafar (2020); Lin et al, (2020); Yeh et al. (2023), which showed that mobile learning readiness and certain personality traits, such as conscientiousness, influence students' intrinsic and extrinsic motivation to use mobile learning applications. Such motivation positively influences the intention to use learning applications. In addition, Theory of Planned Behavior to analyze students' readiness to use mobile learning. The results show that perceived ease of use and technology support affect students' intention to use mobile learning. Then, students' readiness to adopt mobile learning is influenced by factors such as technology access, institutional support, and confidence in using mobile devices. However, many studies confine themselves to looking at particular factors without offering a comprehensive picture of how these elements interact in different social and cultural situations. Furthermore, most research focus on a specific demographic or region, limiting the generalizability of their findings. In Indonesia, there are still gaps in understanding the unique elements that influence students' readiness and motivation to utilize mobile learning technologies. This requires further investigation to guarantee that technology-based learning practices are not just adaptable but also sensitive to local demands. The researcher's goal with this review is to create a more comprehensive database of elements influencing students' learning goals and preparation. This is critical to advancing the creation of a more complete technological acceptance framework. Thus, this study aims to explore the potential of mobile learning in improving students' intention and learning readiness in higher education.

METHOD

This study used the systematic literature review method. Systematic literature review is a primary approach to synthesis with the aim not only to gather existing scientific evidence on the research question but also to support the development of evidence-based practice (Kitchenham et al., 2009). In this systematic review, the data collection used refers to the PRISMA method with a qualitative descriptive approach. The databases used in the search are Google Scholar, Scopus, and Emerald Insight, with the keywords entered, namely “mobile learning” AND “students' intention” AND “learning readiness” with document type restrictions on journal articles. In addition to open access restrictions, this study is limited to the year of publication of journal articles in the last five years, namely between 2020-2024 with a focus on qualitative studies. Next, each article was evaluated based on the inclusion of inclusion and exclusion criteria as per Table 1, where researchers assessed whether the source clearly met the criteria or not.

During the study selection procedure, inclusion and exclusion criteria were applied, and data was collected by two authors to ensure correctness and screen each record. If there was disagreement, the study was evaluated by another author until a consensus was reached. They also take steps to check the data with the first author, as appropriate. Zotero is an automation tool for managing references, and Excel

filters search results based on predefined parameters. As a result, this method assures that the data gathered is correct and meets the defined study standards. The following is presented in Figure 1. the results of the data search using the PRISMA diagram.

Table 1. Criteria for Inclusion and Exclusion

Criteria	Inclusion	Exclusion
Literature type	Journal article	Book, Book chapter, Proceedings, Conference paper
Language	English	Indonesia
Range of publication time	Through 2020 to 2024	Under 2020 to 2024
Accessibility	Opened access	With access
Study Area	Mobile learning and students' intention; mobile learning and learning readiness; higher education	Studies that have no relevance to the research topic to be studied

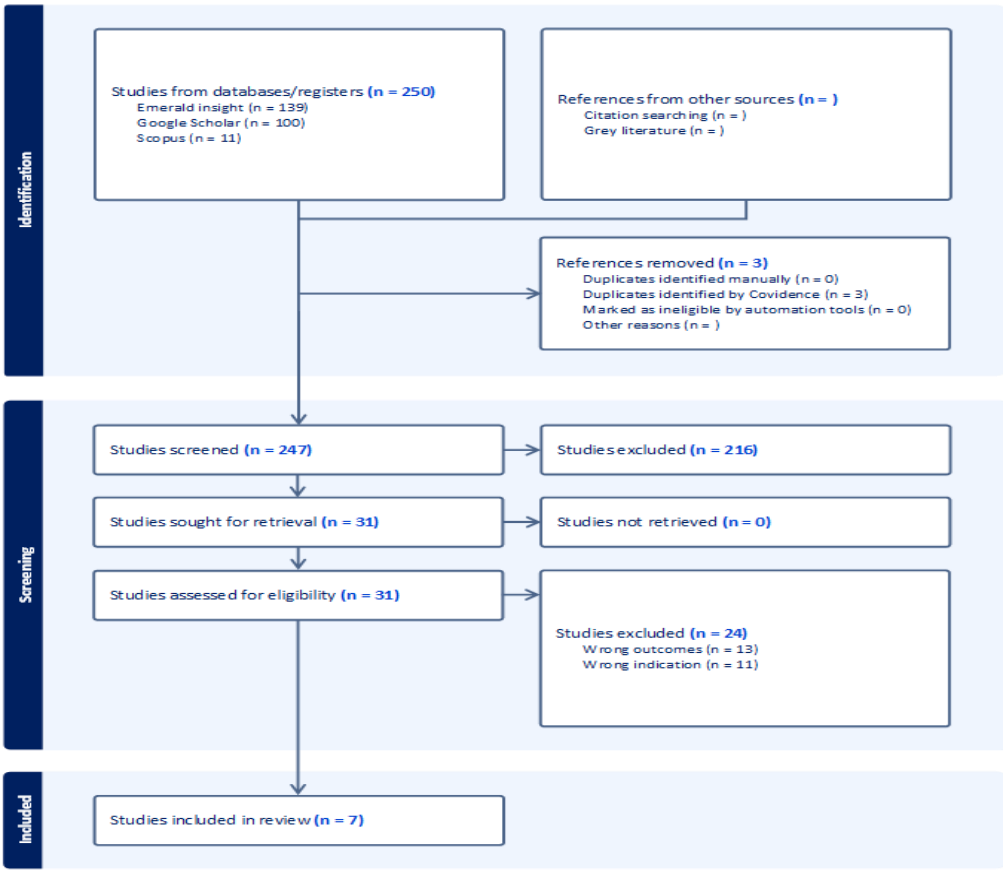

Figure 1. PRISMA diagram

In the identification phase, 250 documents were obtained: books, book chapters, proceedings, and conference papers in most fields of study, such as education, social sciences, and psychology. From these, during the eligibility phase, we read the titles and abstracts, using Covidence, a software for managing and streamlining systematic reviews, to determine the eligibility of the articles for inclusion with cross-review among authors. Three of the 250 documents were automatically removed due to duplication detected by Covidence, resulting in 247 documents being processed in the screening phase. Next, the abstracts of the article sections were screened to ensure their relevance to the topic under review, resulting in 216 irrelevant documents and 31 documents to be assessed for eligibility. After reading the full documents, there were 24 irrelevant documents, including 13 documents containing inappropriate study results and 11 documents that did not match the indications. Thus, 7 articles were included in this study.

RESULT AND DISCUSSION

The selection results obtained 7 inclusion articles with details as in the following Table 2. This study collects from several reputable journals indexed by Scopus that have shown significant relevance regarding the application of mobile learning in improving student intention and learning readiness. Some of the journals included in Q1 include Sustainability published in 2021 with a total of 155 citations, and Educational Technology Research and Development published in 2020 with 208 citations. The journal Computers & Education, also from 2020, recorded the highest number of citations among these journals at 265. In addition, the Asian Association of Open Universities Journal published in 2023, and PSU Research Review from 2020 had 43 and 112 citations, respectively, demonstrating their relevance in the context of open and innovative learning. The Journal of Research in Innovative Teaching & Learning, published in 2021, also contributes with 46 citations. Although there is one journal in Q3, the International Journal of Information and Communication Technology Education with 4 citations in 2024, thus providing a strong foundation to explore the potential of m-learning further. Figure 2 is a visualization of inclusion article data based on the number of citations and year of publication.

Table 2. Inclusion Result Articles

Title – Author (Year)	Educational Level	Country	Results
Exploring the factors affecting mobile learning for sustainability in higher education - Al-Rahmi et al. (2021)	Higher education students	Malaysia	The results of the students' attitudes towards using M-learning and their behavioural intentions to use M-learning show a beneficial impact on the actual use of M-learning as well as the long-term sustainability of M-learning in higher education. In addition, both male and female students were satisfied with perceived usefulness, perceived ease of use, perceived enjoyment, attitude towards use, task-technology fit, behavioral intention to use, perceived resources, and actual use of mobile learning for educational sustainability.
An investigation of the influence of intrinsic motivation on students' intention to use mobile devices in language learning - Sun, Y & Gao, F (2020)	Higher education students	China	The results indicated that although intrinsic motivation did not have a direct influence on students' behavioral intention in MALL, it had a positive influence on students' behavioral intention through the two intervening variables, perceived usefulness and task technology fit. Perceived ease of use, however, was not directly associated with students' behavioral intention, nor was it predicted by intrinsic motivation. The findings suggested proper instructional design that is aligned with and supports the language learning task was important to increase students' behavioral intention to adopt mobile devices for language learning.
Understanding higher education learners'	Higher education students	Vietnam	Results indicated the important roles of attitude and performance expectancy in

Title – Author (Year)	Educational Level	Country	Results
acceptance and use of mobile devices for language learning: A Rasch-based path modeling approach - Vo Ngoc Hoi (2020)			predicting learners' behavior intention and their usage of MALL. Moreover, the results of the study further cemented the role of attitude in explaining learners' acceptance of mobile devices in language learning. These aspects must be taken into account prior to and during the application of mobile devices in language learning, either at an institutional or individual level. The findings offered implications regarding the use of the UTAUT as an appropriate model for examining MALL acceptance, the improvement of technical and organizational supports, as well as the need for more empirical studies on the instructional approaches that foster the use of MALL.
Investigating Students' Intention to Use M-Learning: The Mediating Role of Mobile Usefulness and Intention to Use - Mohammed Abdullatif Almulla (2024)	Higher education students	Saudi Arabia	The paradigm of the study was evaluated using a structural equation modeling approach and was based on the UTAUT and TAM technology adoption models. The findings demonstrated that each element of the research model had a positive influence on learners' behavioral intention to use M-learning (BIM); it also showed the impact of that intention on long-term educational sustainability. The link between independent characteristics and users' enjoyment and adoption of M-learning is moderated by mobile usability and behavioral control to utilize M-learning. The results also showed that BIM and the utility of mobile devices increased the degree to which M-learning is liked. Mobile usability and BIM both favorably affect sustainable education in terms of user satisfaction and M-learning adaptation.
Combining technology readiness and acceptance model for investigating the acceptance of m-learning in higher education in India - Raj Kishor Kampa (2023)	Higher education students	India	This study reveal that eight constructs, namely optimism, innovativeness, insecurity, discomfort, perceived ease of use, perceived usefulness, attitude and behavioral intention, extracted from the technology readiness index and technology acceptance model, have contributed most to the readiness and acceptance of m-learning by the open and distance learning students. Structural equation model results show that these

Title – Author (Year)	Educational Level	Country	Results
			eight constructs reveal 78% of m-learning acceptance among open and distance learning students. The results show that technology readiness has a positive and significant effect on the perceived usefulness of m-learning, and the open and distance learning student's perceived usefulness of m-learning affects his/her intention to utilize m-learning for teaching and learning.
Student perceptions on using cell phones as learning tools: Implications for mobile technology usage in Caribbean higher education institutions - Tashfeen Ahmad (2020)	Higher education students	Caribbean	The results indicated an overall positive student perception toward cell phone usage as a learning tool and integrating cell phones into learning activities. More importantly, mobile technology is making demands on the system for learning styles, which are more highly personalized and customized to the learners needs. Learning is increasingly taking place outside formal learning environments, and hence, institutions will have to adjust to this new shift in delivery methods. Besides, higher learning institutions will have to build strong educational ecosystems driven by technology to meet the needs of this and specifically to cater to young millennial and Generation Z students' demand for educational services that are personalized and customizable.
Investigating the factors driving adult learners' continuous intention to use M-learning application: a fuzzy-set analysis - Hossain et al. (2021)	Higher education students	Bangladesh	This study was conducted in the context of adult learners' mobile learning applications, whereby the motivations for continued usage and the nature of technological innovation could differ. In this regard, findings from this study may not be generalizable to other technological contexts. The findings show learners' satisfaction with mobile learning applications usage combined with cognitive need and attitude were found to be core conditions reinforcing learners' continuance intention. In other words, the finding indicates that adult learners should not only use learning apps frequently, but they should also feel the ease of the service. Learners will always want to keep using a particular app that can help them improve their efficiency. Thus, confirmation of the usefulness of

Title – Author (Year)	Educational Level	Country	Results
			the service will satisfy the learner's need to create a positive attitude for continuance use.

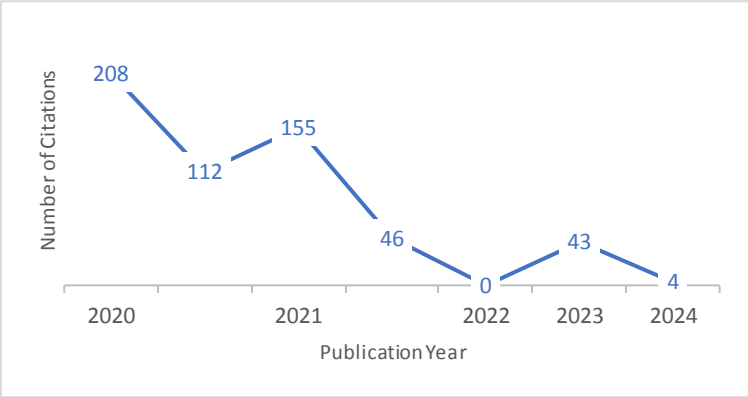

Figure 2. Graph of Research Data Based on Number of Citations and Publication Year

Besides, the concentration of studies is primarily in Asian regions such as China, India, Bangladesh, and Malaysia, indicating a strong interest in the use of mobile learning technologies in higher education in these countries. This geographical distribution confirms that many studies were carried out in developing countries with large student populations, as illustrated in Figure 3.

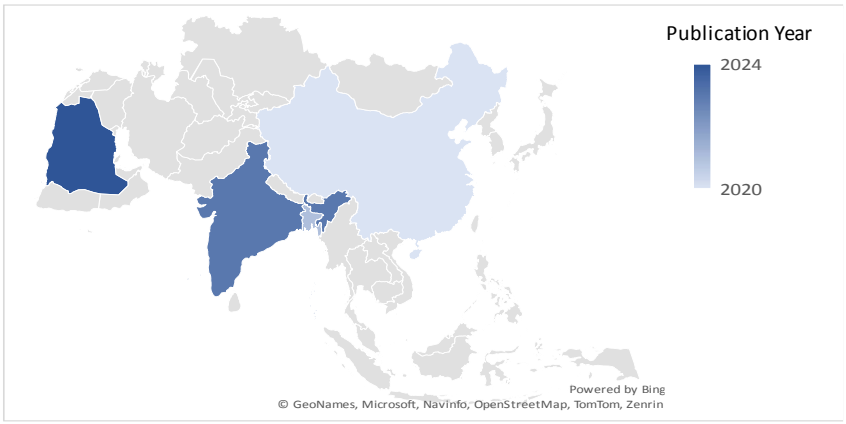

Figure 3. Visualization of Study Distribution from Inclusion Article Results

Furthermore, based on the data collected, it appears that the overall participation of men and women in this study is quite diverse. This diversity not only reflects cultural differences and the accessibility of mobile learning in each country, but also paints a clear picture of gender participation in mobile learning research. By mapping this data, we can identify potential patterns, such as whether certain countries have a higher proportion of men than women participating in mobile learning research. This can provide insight into how each country's social and cultural context influences the adoption of educational technology. The following is a sample chart of the inclusion article results displaying the sample size by gender in Figure 4.

Mobile learning is learning that occurs when students have access to information anytime and anywhere as they use mobile technology to engage in real actions as part of their learning activities. The mobility and flexibility of mobile computing devices allow students to contextualize their learning efficiently, apply what they learn to real-world challenges, and customize their own learning. M-learning allows students to access their learning materials through wireless networks that can be accessed anytime and anywhere, this highlights the researcher's assumption of the importance of mobile learning (Al-Rahmi et al, 2021). M-learning transforms learning strategies into student-centered ones that can

foster meaningful and holistic learning experiences. In addition, M-learning gives educators access to a wide variety of pedagogical methods, including group work, quizzes, and educational games, all of which can be used to cater to students' learning style preferences (Alturki & Aldraiweesh, 2022). To understand the factors that influence M-learning adoption, many researchers use the technology acceptance model (TAM) and the unified theory of technology acceptance and use (UTAUT) (Almulla, 2024; Al-Rahmi et al, 2021; Hoi, 2020). Based on the comprehensive analysis of the seven articles, it was found that most authors used the TAM model to determine the adoption factors of M-learning.

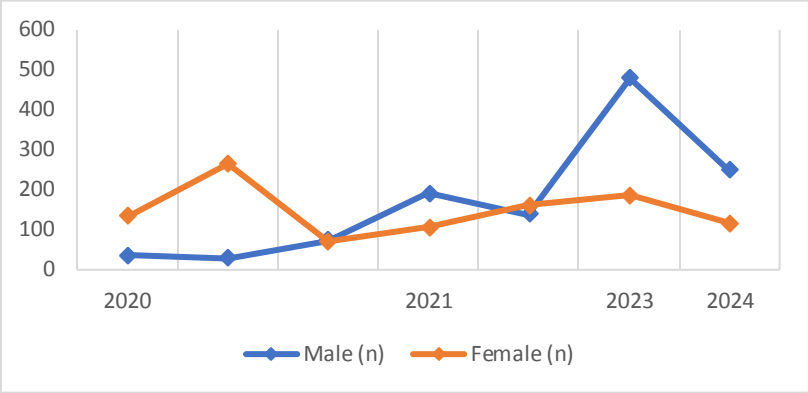

Figure 4. Sample Graph of Inclusion Article Results by Gender

Factors Affecting Students' Intention and Learning Readiness for Mobile Learning

This article specifically discusses the factors that influence students' intention and readiness to learn in mobile learning. According to the seven articles, there are several factors that influence students' intention and readiness to learn in mobile learning, such as using their own mobile devices (Ahmad, 2020). The ease and habit of students to use their own mobile devices will reduce the worry of implementing mobile learning. This relates to students' skills and psychological readiness. Using their own mobile devices and feeling that they have the necessary technical skills to start and complete the task, students are confident that they are psychologically prepared to implement M-learning. This suggests that students who are used to using mobile devices and have access to M-learning are not afraid to use it in class and they find it very beneficial. Students with adequate technological skills show a high level of motivation and readiness to operate their mobile learning. Meanwhile, students with lower technology skills tend to find it difficult to participate in mobile learning. Of course, this is related to students' psychological condition towards their learning intention and readiness to do mobile learning (Mutambara & Bayaga, 2021).

In addition, in the context of mobile learning in higher education, students' intention and readiness to learn are influenced by encouragement or support from lecturers or people they respect in the institution. Students tend to be intentional or motivated to use mobile learning if they get a lot of support or motivation from lecturers to do so. This happens because lecturers may give a positive picture of the use of mobile learning for students, and the influence given by lecturers motivates students to use the same things as their lecturers. In this case, it can be interpreted that the social environment can influence students' intention and readiness to learn mobile learning (Kaliisa et al, 2019).

Other factors that influence students' intention and readiness to learn mobile learning are perceived usefulness (PU), ease of use, convenience, and suitability of materials and tasks. When students realize the effectiveness of mobile learning, the ease with which they can follow mobile learning and the availability of organizational and social support indirectly influence them to continue their intention to follow mobile learning (Al-Rahmi et al, 2021). Perceived usefulness (PU), ease of use, convenience, and suitability of materials and tasks are related to students' need to fulfill cognitive satisfaction. According to research conducted by Hosain, et al (2020), students will feel intention and motivation if the mobile learning fulfills their learning needs and develops skills. The availability of easily accessible and unlimited learning materials and resources in mobile learning is perceived to make it easier for students to find the knowledge they want to know and implement the theory by connecting with their daily lives. The perceived ease of use combined with cognitive needs create sufficient conditions for confirmation and satisfaction

with mobile learning that leads students' attitude to use it continuously. According to user satisfaction theory, cognitive needs positively influence students' satisfaction with mobile learning (Aliberti et al, 2019; Loetscher et al, 2019).

Equally important factors that influence students' intention and readiness to learn in mobile learning are the accessibility, flexibility, interactivity, and personalization offered by mobile learning (Sánchez-Prieto et al., 2019). Accessibility, in this case, can be interpreted as ease of access by both students and teachers. Provide materials, learning resources, and assessments that are easily accessible to students so that they can be helped in the application of m-learning according to their learning outcomes. M-learning supports flexible learning in the sense that it can be accessed anywhere and anytime by using handy devices such as mobile phones, tablets, and laptops. In the implementation of m-learning, teachers use various learning resources and teaching materials such as videos, snippets of news articles, and digital readings that are not fixated on textbooks so that students are more interested in participating in learning because of the interactive learning and can match the student's learning style or personalization (Viberg et al., 2021). The use of such technologies facilitates collaboration and communication, enhances creative and interactive learning styles, and develops tools and applications to aid the delivery of educational content. Mobile learning makes it easier for students to communicate, interact, engage in discussions, save and record material for later use, and process information better (Sun & Gao, 2020). Mobile learning can provide significant potential in helping to create new learning styles and methods. For example, mobile devices can be used to design collaborative, contextualized, and constructivist learning with student learning independence (Kampa, 2023).

The Potential of Mobile Learning to Improve Students' Intention and Learning Readiness in Higher Education

The results of this systematic literature review study indicate that the potential of mobile learning (m-learning) in improving students' learning intentions and readiness in higher education is significant. Other evidence supports this finding, such as the study by Al-Rahmi et al (2021), which found that students' positive attitudes toward m-learning contribute to the actual use of this technology for continuing education. In addition, Almulla (2024) also showed that variables such as usability and intention to use m-learning have a positive influence on students' behavioral intention to use this technology. These findings indicate that the implementation of m-learning not only increases student engagement but can also contribute to broader educational sustainability.

Good student learning intention and readiness positively influence the success of mobile learning implementation. Based on the factors that influence students' intention and readiness to learn mobile learning, it shows that the combination of these factors, such as perceived benefits and service confirmation, with students' cognitive needs will develop a significant positive condition toward the success of mobile learning. This will lead to students' attitude to continuously use or follow mobile learning (Aloqaily et al., 2019). In addition, students' satisfaction with the learning method can lead to their desire to continue their activities in mobile learning. If students are satisfied with the teaching and learning materials that help them improve the required skills and knowledge, their intention to continue participating in mobile learning will increase.

When compared to previous research, this study highlights an important contribution to existing knowledge regarding m-learning acceptance. Research by Hoi (2020) showed that attitude and performance expectancy are the main predictors of students' learning intentions in the context of mobile-assisted language learning (MALL). Our findings are in line with these results but also extend the understanding by emphasizing the importance of learning readiness as a key factor in the context of higher education. This suggests that despite progress in understanding the factors that influence m-learning acceptance, there is still room for further exploration of how learning readiness can be integrated into technology acceptance models.

Research Advantages and Limitations

However, there are limitations to the evidence included in this review. One of the main issues is the small sample size in some of the studies analyzed, such as the study by Ahmad (2020), which only included 145 participants, where the small sample size may limit the generalizability of the findings. In

addition, some studies may have biases related to the population studied, such as only involving students from certain institutions or certain countries, which may affect the representativeness of the results. As for potential bias in study selection, the search strategy may not fully cover all existing relevant research. For example, if it only uses certain databases and does not consider publications on other platforms, that may lead to selection bias.

The implications of the results of this study are significant for future educational practice and policy. This study found that the integration of m-learning in the higher education curriculum can increase students' learning intention and readiness, so educational institutions need to consider policies that support the use of this technology. In addition, the results of this study can serve as a guide for future researchers to explore further other factors that influence m-learning acceptance and how this technology can be optimized to improve students' overall learning experience. On the other hand, educators should provide well-defined content, monitoring procedures, and performance assessments should be maintained for students in higher education. Prioritizing interactive features such as virtual discussion forums and learning communities will help them get actual feedback on their skill and knowledge development. Thus, students' cognitive needs will be met and the intention to continue following mobile learning will increase (Fagan, 2019).

CONCLUSION

The primary objective of this systematic literature review was to explore the potential of mobile learning in enhancing students' intention and learning readiness in higher education. The findings indicate that students' perceptions of the ease of use and benefits of technology are critical factors influencing their acceptance of m-learning. Specifically, elements such as technological skills, psychological readiness, social support, and perceived utility emerged as significant contributors to students' learning intentions and readiness. These results align with existing theories, such as the Technology Acceptance Model, which emphasizes the importance of perceived ease of use and usefulness in technology adoption. Overall, this study provides valuable insights into how mobile learning can be effectively integrated into higher education to foster a more engaging and supportive learning environment.

Despite the contributions made by this study, it also highlights several gaps and trends within the existing literature. Many previous studies have focused on isolated factors influencing m-learning acceptance without providing a comprehensive understanding of how these elements interact across different cultural contexts. This review contributes to the existing knowledge by synthesizing findings from multiple studies and emphasizing the need for a more nuanced understanding of students' motivations and readiness to engage with mobile learning technologies. By bridging these gaps, the review enriches the understanding of how m-learning integrates into diverse higher education systems and offers a more comprehensive perspective on its adoption. Furthermore, it underscores the necessity for further research to address these gaps, particularly in diverse educational settings like Indonesia.

These findings have broad implications for instructional approaches, institutional policies, and future research paths. To accommodate varied learning styles, educators must create interactive, flexible, and resource-rich settings when incorporating m-learning. Policymakers could consider investing in infrastructure and training programs to improve technological readiness among both students and educators. Future research should focus on cross-cultural studies and the development of a comprehensive model that integrates readiness, intention, and sustained engagement. In addition, future research should focus on longitudinal studies that assess the long-term effects of m-learning on student performance and motivation across different educational contexts, particularly in Indonesia. That way, m-learning not only fits current educational needs but also evolves to address emerging challenges in global education and contributes to the broader discourse on technology integration in education.

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