STUDENT PERCEPTION TO THE USE OF AYU APPS IN TEACHING AND LEARNING

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Abstract

This study aimed to investigate students' perception of the use of AYU applications in teaching and learning. A survey was conducted among 420 students to gather their opinions on the application's usability and effectiveness. The findings of the study show that students strongly agree that the attractive, clear, and simple front page of the AYU application makes them interested in using it in their learning activities, with a mean value of 4.45 and a standard deviation of 0.63. The students also perceive the application as easy to use via mobile phones, with a mean value of 4.49 and a standard deviation of 0.67, indicating high agreement. Furthermore, students agree that the AYU application can be used without the help of others, with a mean value of 4.36 and a standard deviation of 0.75, suggesting that the application is user-friendly and accessible. The study also found that students agree that the application only takes a short time to use, with a mean value of 4.35 and a standard deviation of 0.70, indicating that the application is efficient and effective in delivering learning content. Overall, the study's findings suggest that the AYU application is well-received by students, with positive perceptions of its usability, accessibility, and effectiveness in teaching and learning. The study highlights the potential of mobile applications in enhancing the learning experience and emphasizes the importance of user-friendly and engaging interfaces in promoting students' interest and motivation in using educational applications.

Keywords: *AYU application, mobile phones, user-friendly, promoting students's interest*

INTRODUCTION

In recent years, mobile learning (m-learning) has transformed education, offering flexibility and accessibility to students globally. Mobile learning, defined as educational experiences facilitated through portable devices like smartphones, tablets, and laptops (Criollo-C et al., 2021), has seen rapid advancements in technology integration, particularly since 2017. Features such as internet connectivity, multimedia support, and interactivity enable it to cater to diverse learning needs (Bernacki, 2020). However, despite these advancements, understanding students' perceptions and engagement with m-learning platforms remains underexplored, particularly in localized contexts such as Malaysia.

Recent studies highlight how mobile learning can enhance personalized learning through AI-powered customization and adaptive technologies (Dai & Ke, 2022) and gamification elements like badges and leaderboards to increase motivation and engagement (Nikkhoo et al., 2023). Innovations like augmented reality (AR) and virtual reality (VR) have further revolutionized mobile learning environments (Yu et al., 2022). However, while these technologies promise transformative impacts, their practical application in specific platforms, such as Ayu Apps, remains under-researched.

The lack of empirical evidence on how students perceive and interact with Ayu Apps, a prominent mobile learning platform in Malaysia, presents a critical gap in the literature. While general studies confirm the potential of m-learning to enhance critical thinking, problem-solving, and retention of knowledge (Hussin et al., 2018), there is limited research on its effectiveness in improving learning experiences, academic performance, and satisfaction within the context of teaching and learning (Kumar & Pande, 2023). This gap highlights the need for localized investigations to guide educators, policymakers, and developers in optimizing mobile learning technologies.

This study aims to achieve three key objectives: to examine students' perceptions of Ayu Apps as a tool for teaching and learning, to assess its impact on students' learning experiences and academic performance, and to evaluate their satisfaction with its integration into the educational process. However, the study is limited to the Malaysian educational context, which may affect the generalizability of the findings to other regions. Additionally, it focuses on specific student demographics, potentially overlooking variations across different educational levels and institutions, and may not fully account for the rapid technological advancements in mobile learning platforms like Ayu Apps. Despite these limitations, the study is significant as it addresses a critical gap in understanding student engagement with Ayu Apps, providing valuable insights for educators, app developers, and policymakers. These insights can guide the optimization of mobile learning tools to enhance educational outcomes, improve user experiences, and ensure effective integration into teaching and learning practices.

The Cognitive Theory of Multimedia

The cognitive theory of multimedia is based on the idea that people learn better when information is presented using multiple sensory channels, such as visual and auditory, simultaneously (Mutlu-Bayraktar et al., 2019; Vu et al., 2022). This theory draws from cognitive science and focuses on how the human mind processes and retains information. Richard Mayer's Cognitive Theory of Multimedia Learning (CTML) is a framework that explores how people learn from multimedia presentations, focusing on how the design of multimedia materials can impact learning outcomes. Mayer's theory is based on principles from cognitive psychology and educational research. It emphasizes the cognitive processes involved in learning from multimedia content.

Mayer's theory provides guidelines for designing effective multimedia learning materials (Mayer, 2017; Noete et al., 2022). It suggests that instructional designers should consider the limitations of working memory, leverage the strengths of different sensory channels, and present information in a coherent and meaningful way to optimize learning outcomes. By aligning multimedia design with cognitive processes, educators can create more effective and efficient learning materials (Khalil & Elkhider, 2016; Çeken & Taşkın, 2022). Richard Mayer, a prominent researcher in this field, proposed the Cognitive Theory of Multimedia Learning (CTML). According to Wang and Lajoie (2023) applying the cognitive theory of multimedia learning involves designing instructional materials that leverage the strengths of different media formats while being mindful of cognitive load. For example, using animations or diagrams alongside spoken explanations can facilitate better understanding than text alone. The goal of this theory is to optimize the design of multimedia materials to align with how the human brain processes information, thereby enhancing learning outcomes.

On the other hand, Jerome Bruner was a prominent psychologist known for his contributions to cognitive psychology and educational theory (Mayer, 2021). His cognitive theory, often referred to as the "theory of cognitive development," focuses on how individuals actively construct knowledge and understand the world around them. Overall, Bruner's cognitive theory emphasizes the active role of learners in constructing knowledge, the importance of different modes of representation, and the significance of social and cultural contexts in learning. His ideas have had a significant impact on educational practices, especially in promoting hands-on, experiential learning and acknowledging the role of social interaction in cognitive development.

In the realm of multimedia education, both constructivism and cognitive theories play significant roles in informing instructional design and learning experiences (Basit et al., 2021). Constructivism advocates for active learning, where learners engage with multimedia materials actively. In line with Abdulrahaman et al. (2020) finding, multimedia can provide various interactive elements—videos, simulations, or interactive modules—that allow learners to explore and construct their understanding actively. Multimedia can be designed to connect new information with learners' prior knowledge. Constructivism emphasizes the

importance of building upon existing mental frameworks. Multimedia materials can present information in ways that encourage learners to relate it to their prior experiences or knowledge. Multimedia also can facilitate collaborative learning environments. Online platforms with multimedia elements can enable group discussions, sharing perspectives, and collaborative projects, fostering social interaction and knowledge construction among learners (Al-Samarraie & Saeed, 2018; Carrillo & Flores, 2020).

An effective mobile learning experience often combines aspects of these theories, considering the subject matter, learners' needs, and the app's functionalities. Designers and educators might blend theories to create a more holistic and engaging learning environment that maximizes the benefits of app-based education. Constructivism and Social Constructivism are two learning theories that emphasize active participation, interaction, and the construction of knowledge by learners.

METHODOLOGY

This study employed a descriptive statistical approach, as outlined by Hamzani, et al. (2023), to elucidate a phenomenon by analyzing variables or factors that may not have been previously explored. Specifically, the survey method was utilized as the descriptive research technique in this study. According to Chang et al. (2020), survey research is designed to measure variables related to a phenomenon without necessarily investigating the underlying causes. The data obtained were analyzed using descriptive statistics to provide insights into the variables studied.

To evaluate the effectiveness of the AYU application in teaching and learning, a cross-sectional survey was conducted among school students across Peninsular Malaysia, Sabah, and Sarawak. A stratified sampling method was adopted, categorizing students based on their geographical zones within each state. The identification of the study population was a critical step in this process, encompassing both the target population (students in government schools) and the administrative population. Considering the practical challenges of directly sampling from the target population, researchers often establish an administrative population frame for efficient management (Rashid et al., 2021; Karunarathna et al., 2024).

In this study, stratified sampling ensured representation across zones, with respondents grouped according to their school placements. Table 1 provides an overview of the geographical distribution of respondents and the number of participants from each state. This approach facilitated the systematic collection of data, ensuring that insights gained were reflective of the diverse educational contexts across Malaysia.

Table 1 : Location of the cross-sectional survey study

No	Zone	State	Number of responden
1	North	Pulau Pinang	16
2	North	Perak	164
3	North	Perlis	2
4	North	Kedah	9
5	South	Kelantan	6
6	South	Negeri Sembilan	74
7	South	Melaka	18
8	South	Johor	17
9	East	Terengganu	11
10	East	Pahang	12
11	West	Selangor	61
12	West	Kuala Lumpur	6
13	Sabah	Sabah	11
14	Sarawak	Sarawak	13
		Total	420

FINDINGS

Students' perceptions of AYU applications were measured based on twelve categories. Based on Table 2, the findings of the study show that students strongly agree that the attractive, clear, and simple front page makes them interested in using the AYU application in their learning activities with value (M=4.45, SP=.63). The next students' perception is that the AYU application via mobile phone is easy to use with a value (M=4.49, SP=.67) of their perception on this part also shows high agreement. Students were also found to agree that this application can be used without the help of others with value (M=4.36, SP=.75). In addition, students were found to agree that this application only takes a short time to use with value (M=4.35, SP=.70). Table 2 shows student’s perception about ayu application.

Table 2 *:* Students Perception About AYU Application

No	Statement	Percentage and Frequency					MEAN	SD
		SD	D	M	A	SA		
1	This application helps students' self-learning.	2% (1)	2% (1)	5.9% (25)	37.1% (156)	56.3% (237)	4.48	0.66
2	This application is suitable for use as a learning material.	2% (1)	0	5.9% (25)	34.9% (147)	58.7% (247)	4.51	0.65
3	This application can be used without the help of others.	5% (2)	1.7% (7)	10.5% (44)	37.5% 158)	49.6% (209)	4.36	0.75
4	This application provides the necessary knowledge quickly.	2% (1)	0.5% (2)	5.0% (31)	38.7% (163)	55.3% (233)	4.49	0.65
5	Users are free to explore information in AYU apps.	0.7% (3)	1.2% (5)	5.7% (24)	39.4% (166)	52.7% (222)	4.45	0.67
6	Users are free to exit the application at any time.	0	0.2% (1)	6.9% (29)	37.8% (159)	54.9% (231)	4.46	0.67
7	The application is user-friendly.	0.7% (3)	0.5% (2)	5.5% (23)	34.0% (143)	59.15% (249)	4.51	0.68
8	Learning using this app is fun.	0.2% (1)	0.5% (2)	8.1% (34)	34.9% (147)	56.1% (236)	4.46	0.70
9	Information is presented in a simple and attractive style.	2% (1)	0	5.7% (24)	34.0% (143)	59.9% (252)	4.52	0.67
10	This application takes a short time to use.	0	1.0% (4)	10.5% (44)	40.9% (172)	47.5% (200)	4.35	0.70
11	AYU apps through mobile phones are easy to use.	1.4% (6)	2% (1)	5.5% (23)	34.9% (147)	57.7% (243)	4.49	0.67
12	The attractive, clear, and simple front page interested me in using AYU apps in my learning activities.	0.2% (1)	0.2% (1)	7.6% (32)	39.0% (164)	52.3% (220)	4.45	0.63
	Average	**1.4%**	**0.8%**	**5.8%**	**36.9%**	**55%**	**4.46**	**0.68**

The students' perception regarding the freedom to exit the application at any time demonstrates a high level of agreement, with a mean (M) of 4.45 and a standard deviation (SP) of 0.67. Similarly, the perception of the application being user-friendly also garners high agreement, with a mean of 4.51 and a standard deviation of 0.68. Moreover, students perceive learning through this engaging application positively, as evidenced by a high level of agreement with a mean of 4.46 and a

standard deviation of 0.70. The presentation of information in a simple and interesting manner also receives high agreement, with a mean of 4.52 and a standard deviation of 0.67. Additionally, the perception that the application provides knowledge quickly is widely shared among students, with a mean of 4.49 and a standard deviation of 0.65. Furthermore, there is a consensus among students that the application is suitable for learning materials, reflected in a mean of 4.51 with a standard deviation of 0.65. Lastly, students express high agreement regarding the application's contribution to self-learning, with a mean of 4.48 and a standard deviation of 0.66.

DISCUSSION

This study advances the body of knowledge in educational technology by demonstrating the innovative integration of mobile learning applications, particularly the AYU app, into teaching and learning environments. Unlike traditional mobile learning research, which often focuses on general usability and accessibility (Chen, 2020), this study provides empirical evidence on the efficacy of a specialized app designed to enhance student engagement, motivation, and self-directed learning in language acquisition. The AYU app introduces a unique feature set—such as customizable interactive learning modules and real-time analytics—that allows educators to tailor instruction to individual learners' needs, creating a dynamic, data-driven educational experience.

Theoretically, this research extends the Theory of Cognitive Multimedia Learning by Mayer (2005) by exploring how mobile-specific interactive elements, such as gamified quizzes and multimedia annotations, facilitate deeper cognitive processing and retention of language concepts. Additionally, it contributes to the Theory of Uses and Gratifications by investigating how the intrinsic motivational features of AYU align with students' preferences for autonomy, competence, and relatedness in mobile learning (Okumuş Dağdeler, 2023). These extensions provide a contemporary framework for understanding learner interactions in mobile-based environments, bridging gaps between traditional and digital pedagogical models.

IMPLICATIONS

The findings suggest that the AYU app transcends its role as a mere language learning tool, acting instead as a transformative platform that reshapes how students engage with educational materials. By employing an interactive and gamified design, the app facilitates a shift from passive consumption of content to active learning, encouraging students to explore, solve problems, and reflect independently (Pham, 2022). A standout feature of AYU is its integration of real-time feedback mechanisms and personalized pathways, which adapt dynamically to individual learners' progress, ensuring efficient and context-sensitive learning experiences.

This transformative potential becomes particularly impactful when the AYU app is embedded into formal curricula. Its ability to deliver content in various formats, including videos, text, and multimedia annotations makes it highly accessible to diverse learner profiles, accommodating different levels of proficiency

and learning preferences (Alwafi, 2022). Furthermore, the app aligns with the demands of modern education by supporting hybrid and flexible learning models, breaking down barriers imposed by traditional classroom constraints. This inclusivity, coupled with its adaptability, highlights its scalability as an educational innovation.

Mobile learning, or m-learning, serves as the broader framework within which the AYU app operates. M-learning is widely recognized for its accessibility, convenience, and adaptability, allowing learners to overcome barriers such as geographic limitations and time constraints (Aljawarneh, 2020). By offering educational resources anytime and anywhere, m-learning addresses the needs of individuals unable to access traditional educational settings due to logistical or personal challenges. This inherent flexibility has positioned m-learning as a cornerstone of modern, inclusive education.

Central to mobile learning is its capacity to deliver highly personalized learning experiences. Adaptive learning algorithms embedded within m-learning platforms analyze learners' progress and tailor content and pacing to meet individual needs (Gumbheer et al., 2022). This personalization not only optimizes learning outcomes but also ensures that the process aligns with each learner's unique capabilities and goals. Such tailored approaches exemplify how technology can individualize education, making it more effective and engaging.

The flexibility afforded by mobile learning further underscores its transformative potential. Learners can engage with content during their commute, breaks, or at home, enabling education to seamlessly integrate into busy lifestyles (Gumbheer et al., 2022). For working professionals or individuals managing multiple responsibilities, this flexibility is invaluable, allowing them to pursue lifelong learning without disrupting their routines. Moreover, mobile platforms incorporate multimedia tools, such as videos, simulations, and interactive quizzes, which enhance engagement and foster active participation (Shahid et al., 2019). These interactive features not only make learning enjoyable but also encourage deeper comprehension through hands-on experiences.

Another critical advantage of mobile learning is its cost-effectiveness. By reducing the reliance on physical infrastructure, such as classrooms and textbooks, and leveraging digital resources that are often free or low-cost, m-learning provides an economically sustainable alternative to traditional education (Saikat et al., 2021). Additionally, its potential for lifelong learning enables individuals to continuously upskill or explore new interests, further democratizing access to education across socioeconomic boundaries.

Mobile learning also fosters inclusivity by catering to diverse learning styles and needs. Accessibility features, such as screen readers, voice commands, and subtitles, make educational resources available to learners with disabilities. Additionally, m-learning transcends geographical boundaries, connecting learners worldwide and promoting cross-cultural collaboration (Aljawarneh, 2020). This global connectivity enriches the learning experience, exposing learners to diverse perspectives and fostering a more interconnected educational environment.

Finally, the data-driven nature of mobile learning platforms provides a

significant advantage for educators and instructional designers. These platforms collect valuable data on learner interactions and progress, offering insights that can inform teaching strategies and enhance learning outcomes. By leveraging this data, educators can identify areas of difficulty and adjust instruction to meet learners' needs more effectively. Thus, mobile learning not only enhances accessibility and engagement but also revolutionizes education by empowering learners with personalized, flexible, and inclusive tools. Platforms like AYU exemplify this revolution, highlighting the potential for mobile technology to redefine educational paradigms for the 21st century.

CONCLUSION

Based on the findings of the study, it can be concluded that the AYU application has a positive impact on students' learning activities. The students strongly agree that the attractive, clear, and simple front page of the application makes them interested in using it, and they find it easy to use with a simple and user-friendly interface. The application also provides necessary knowledge quickly and presents information in a simple and attractive style, making it an effective learning tool.

Furthermore, students perceive the application as a valuable resource for self-learning, and they appreciate the freedom to explore information and exit the application at any time. The application's ease of use and accessibility through mobile phones contribute to its popularity among students.

Overall, the AYU application has the potential to enhance teaching and learning activities by providing an engaging and user-friendly platform for students to access learning materials and develop self-learning skills. The study's findings suggest that the application is well-received by students and has the potential to improve their learning experience.

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