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The Role Of E-Learning As A Learning Resource In Enhancing Academic Performance

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Abstract

Introduction/Main Objectives: This study investigates the role of e-learning platforms as learning resources and their impact on academic performance among students at Polytechnic Kuching Sarawak. E-learning, delivered via institutional intranets or the Internet, has been widely recognized for its benefits, yet questions remain regarding the extent to which students truly benefit from these platforms.

Background Problems: The research addresses the question: Do e-learning platforms significantly contribute to learning effectiveness and positively influence students' academic performance?

Research Methods: A quantitative approach was employed using an online questionnaire distributed randomly to 97 students at Polytechnic Kuching Sarawak. Descriptive analysis was applied to assess students' level of agreement regarding the usefulness of e-learning platforms and their perceived impact on academic achievement.

Finding/Results: The findings reveal that most students agree e-learning platforms serve as valuable educational tools. Furthermore, the majority of respondents indicated that these platforms positively affect their academic performance, suggesting that e-learning enhances accessibility and supports effective learning.

Conclusion: The study concludes that e-learning platforms play a significant role in improving academic outcomes and should be integrated into teaching strategies. The practical implication is the need for training programs for both students and lecturers to maximize the benefits of e-learning, aligning with the increasing adoption of digital learning in modern education. Future research should explore factors such as engagement, platform usability, and technological readiness to provide a more comprehensive understanding of e-learning effectiveness.

Keywords: e-learning, learning resources, academic performance

Introduction

Institutions of higher learning have evolved dramatically from traditional pedagogical models to current methods that use computer technology to support knowledge delivery to students. E-learning, or web-based electronic learning, has significantly replaced classroom and book-based learning. E-learning enables students to learn independent of their physical location, in contrast to traditional learning methods (Hashemi-Pour & Lutkevich, 2024). One of the best methods for teaching and learning is e-learning. Researchers stress that with distance learning and e-learning integration, education delivery can now be expanded nationally rather than being restricted to a single campus (Encarnacion et al., 2021). According to Singh and Mishra (2020), students who regularly use e-learning materials outperform those who are taught using traditional techniques, indicating that e-learning has a major impact on student performance.

E-learning has grown in popularity in higher education since the Covid-19 pandemic (Hassan et al., 2021; Rahman et al., 2021). A number of e-learning platforms have been developed for educational purposes. To aid in the teaching and learning process, Polytechnic Kuching Sarawak has implemented a number of e-learning technologies, including CIDOS, online courses, and virtual reality. But the question of how much e-learning benefits pupils still stands. How much does e-learning help students learn? Some pupils might not make full use of these resources. Due to issues like limited access, ICT proficiency, and self-motivation, some students continue to use traditional techniques and are less engaged in online learning. Research has indicated that e-learning commitment and involvement among students are still at a level that has to be addressed (Nordin & Singh, 2016; Hassan et al., 2021). Thus, the purpose of this study is to determine how students use e-learning as a learning resource. Additionally, the project intends to create training for instructors and students to promote learning in line with the growing use of e-learning in the classroom. In order to become proficient in the several digital platforms that are utilised, lecturers must also improve their technological skills (Quah et al., 2021; Rahman et al., 2021).

This study was conducted to Determine how Polytechnic Kuching Sarawak students use e-learning platforms as learning materials and determine how e-learning affects Polytechnic Kuching Sarawak students' academic performance.

Encarnacion et al. (2021) claim that e-learning has the power to change education by replacing traditional classroom-based methods with web-based ones. Through increased access to educational resources and easier communication between students and teachers, e-learning improves the teaching and learning process (Ma'alip et al., 2021; Hassan et al., 2021). Learning becomes more dynamic and interesting when e-modules are used, especially when learning a language (Yazid et al., 2023). Students' higher-order thinking abilities are also enhanced by collaborative learning platforms and technology like Google Classroom (Kasim & Tasir, 2022). E-learning encourages active engagement in the learning process and supports student-centered learning strategies (Thomas & Surat, 2021). According to some research, students who use e-learning have strong communication skills and believe the system will help them in their future employment (Noh et al., 2022). However, issues like the requirement for ongoing teacher training, low levels of engagement, and adjusting to new technology must be addressed (Quah et al., 2021; Jamidi & Surat, 2021). In general, students gain from e-learning as long as it is accompanied by continuous attempts to improve teaching and learning techniques (Yussof et al., 2021; Hassan et al., 2021). In addition to technology, student motivation and self-efficacy are essential for successful e-learning (Jamidi & Surat, 2021; Makhtar et al., 2021).

The purpose of this quantitative study was to evaluate the impact of e-learning on pupils. Ninety-seven Politeknik Kuching Sarawak students participated in the survey. A self-created

questionnaire that had been examined by academics and approved by Politeknik Kuching Sarawak's Research, Innovation and Commercialisation Unit (UPIK) served as the research tool. The following Cronbach's alpha values were found: (a) E-learning Platform's Function as a Learning Resource (11 items = 0.947) and (b) E-learning's Effect on Academic Performance (5 items = 0.902). This suggests that it is very reliable and appropriate for use in research. A five-point Likert scale was used to collect data online, and random sampling was used. According to Ngadiman et al. (2019), descriptive analysis determined the students' agreement levels using mean values, which were interpreted as follows: 1.00–1.99 (Weak), 2.00–2.99 (Low), 3.00–3.99 (Moderate), and 4.00–5.00 (High). Relationships between the research variables were also identified using linear regression.

Research Methods

The study adopted a quantitative research design to examine the role of e-learning platforms as learning resources and their impact on academic performance among students at Polytechnic Kuching Sarawak. This approach was chosen because it allows for objective measurement of students' perceptions and the relationships between variables. The research focused on two main constructs: the functionality of e-learning platforms as educational tools and their influence on academic achievement. By employing a structured questionnaire, the study aimed to capture students' level of agreement on these aspects and provide empirical evidence to support the growing adoption of e-learning in higher education.

Data collection was conducted using an online questionnaire, which was distributed randomly to 97 students enrolled at Polytechnic Kuching Sarawak. The questionnaire was developed by the researchers and validated by the institution's Research, Innovation, and Commercialisation Unit (UPIK) to ensure content accuracy and relevance. Reliability testing confirmed the robustness of the instrument, with Cronbach's alpha values of 0.947 for the construct measuring the role of e-learning platforms and 0.902 for the construct assessing academic performance impact. These values indicate high internal consistency, making the instrument suitable for research purposes.

Responses were recorded using a five-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." Descriptive analysis was applied to determine the degree of agreement among students, with mean scores interpreted according to established ranges: 1.00–1.99 (Weak), 2.00–2.99 (Low), 3.00–3.99 (Moderate), and 4.00–5.00 (High). This analysis provided insights into students' perceptions of e-learning as a learning resource and its effectiveness in supporting academic success. The use of descriptive statistics ensured clarity in understanding the overall trends and patterns in the data.

To further explore the relationships between variables, linear regression analysis was performed. This statistical technique allowed the researchers to identify the extent to which e-learning platforms influence academic performance and determine whether the observed relationships were significant. By combining descriptive and inferential analyses, the study provided a comprehensive evaluation of e-learning's role in modern education. The methodological rigor applied in this research ensures that the findings are reliable and can serve as a basis for future studies and institutional strategies aimed at enhancing digital learning experiences.

Result

a) Respondents' Demographics

A total of 97 students—32% female and 68% male—voluntarily took part. The Diploma in Electrical and Electronic Engineering accounted for 33% of the total, with the Diploma in Electronic Engineering (Communication) coming in second at 23.7%. 52.6% of respondents had a GPA between 3.01 and 4.00, and the majority (53.6%) were in semesters 3–4.

b) The Role of E-Learning Platforms as Learning Resources

All the items scored higher than the mean of 4.00, indicating good agreement, according to the data. The top three items were: - Online access to worldwide learning materials (M = 4.392) Revision is simpler (M = 4.351). Saving money thanks to digital accessibility (M = 4.340) Students overwhelmingly agreed that e-learning lowers learning expenses by doing away with the need for physical materials and travel, allows them to access a variety of worldwide resources, and allows them to revise flexibly.

c) The Impact of E-Learning on Academic Performance

Every item is received score higher than the average of 4.00. The top three things were: - Using e-learning to complete assignments more efficiently (M = 4.299) A greater desire to study (M = 4.289) Overall academic performance has improved (M = 4.237). Students overwhelmingly is agreed for that e-learning to improves task completion, motivation and subject comprehension, all of its which have a favourable impact on their academic achievement.

Discussion

The conversation clearly shows that Polytechnic Kuching Sarawak students view the e-learning platform as a crucial learning resource. Descriptive analysis provides strong support for this result, with all measured items pertaining to the platform's role achieving a "High" degree of agreement (mean > 4.00). Students have selected accessibility and flexibility as the most important roles. The majority of students concur that e-learning makes it possible to access a wide range of educational materials from all over the world online Min=4.392, hence increasing opportunities for learning without regard to geography. Second, the platform is highly regarded for making lesson revision easier (Min=4.351), giving students the freedom to review content whenever it's convenient for them.

Lastly, the platform offers real financial advantages since it enables students to reduce their educational expenses Min=4.340 by using digital resources and avoiding travel to the school. Receiving prompt performance feedback, utilising interactive learning resources, and having complete control over study time are other crucial elements that have received high agreement. The original study issue about how much students gain from the platform is directly addressed by this confirmation of e-learning's function.

Alongside its function as a resource, the study also supported the general belief that e-learning improves students' academic achievement. A "High" degree of agreement was also attained for each of the five items indicating academic impact. The biggest support came from students who said that e-learning improved their ability to finish practical academic activities (Min=4.299). Furthermore, it was believed that the platform significantly contributed to students' increased diligence and consistency in their studies (Min=4.289). Students generally strongly agreed that e-learning directly enhances their academic performance (Min=4.237) and

increases their self-confidence prior to tests (Min=4.216). This set of studies specifically addresses the second goal, which is to determine how e-learning impacts academic achievement.

The results support the notion that e-learning outperforms traditional methods in terms of student performance and are in line with earlier studies (Singh & Mishra, 2020). The confirmed ability to access resources at any time and from any location lends credence to the notion that e-learning provides location-independent learning experiences (Hashemi-Pour & Lutkevich, 2024). Importantly, the present results show that the platform works well to encourage self-motivation among the active Polytechnic Kuching Sarawak user base. This could be a sign of either successful institutional implementation or successful respondent self-selection. Prior research has observed that e-learning student engagement and commitment frequently necessitate attention (Nordin & Singh, 2016; Hassan et al., 2021).

The study's recommendation for training students and teaching staff is consistent with other research showing that teachers must become more tech-savvy to effectively use these platforms (Quah et al., 2021; Rahman et al., 2021). Consequently, the study provides tangible, empirical evidence of e-learning's positive impacts and applicability in modern educational settings in addition to validating its theoretical benefits.

Conclusion

The study found that e-learning, which has become an essential learning tool, has a major impact on the academic performance of Polytechnic Kuching Sarawak students. Even though the advantages of e-learning are widely acknowledged, this study highlights the need to ensure that students fully benefit from it. The findings show that e-learning improves task completion, lowers learning costs, boosts motivation, makes it easier to access global learning resources, and encourages revision. According to the study, both lecturers and students need to undergo systematic training in order to support learning that is consistent with e-learning-based instructional strategies.

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