Hybrid Learning in Malaysian Public Universities: Balancing E-Learning Platform Quality and Student Satisfaction

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ABSTRACT

Advancements in Information Technology (IT) have revolutionized various sectors, including education, with e-learning emerging as a pivotal medium in higher education. This study explores the determinants of e-learning success, particularly focusing on student satisfaction in Malaysian public higher institutions during the hybrid learning model, which includes two years of remote study followed by on-campus completion. Utilizing DeLone and McLean's IS Success Model, the study investigates the impact of technology, design, and e-learning environment on student satisfaction. A quantitative methodology was employed, involving 315 students. Results from Pearson correlation and multiple regression analyses reveal significant positive correlations between e-learning design, technology quality, and the e-learning environment with student satisfaction. Notably, technology quality exhibited the strongest influence, while the e-learning environment showed a weaker, non-significant relationship. The study concludes that enhancing e-learning platform design and technological infrastructure is crucial for improving student satisfaction. These findings offer valuable insights for educational institutions aiming to optimize e-learning platforms, addressing challenges such as

infrastructure limitations and accessibility issues, particularly for students from rural areas. The research contributes to the academic discourse on e-learning, providing a foundation for future studies to further explore the complex dynamics of online higher education success.

Keywords: E-Learning platform, student satisfaction, design, technology quality, environment

INTRODUCTION

Advancements in Information Technology (IT) have significantly improved various sectors, including health, business, finance, and education. In addition, rapid growth of e-learning in higher education has made it a powerful medium for learning (Masa'deh et al., 2022). One of its prominent benefits lies in its capacity to overcome the constraints of time and space, facilitating interactive experiences between learners and instructors, as well as among learners themselves. This is made possible through the utilization of both asynchronous and synchronous learning network models (Katz, 2000; Katz, 2002; Trentin, 1997). The distinctive features of e-Learning align with the demands of contemporary society, thereby generating substantial interest from businesses and higher education institutions. The notable initiative undertaken by MIT to offer a vast range of online courses has served as a clear indication to other institutions about the strategic significance of embracing e-Learning (Wu, Tsai, Chen, & Wu, 2006).

Research works signified quality of e-learning system is the most contributing factor to their success (Fathema et al., 2015). Previous research has mainly focused on specific factors influencing the success of e-learning systems without considering the interactions among these factors (Eom & Ashill, 2018). Some studies have explored the relationships between e-learning components such as quality, usage, and satisfaction (Selim, 2003; Ozkan & Koseler, 2009). Eom and Ashill (2018) suggest studying various aspects of e-learning success, considering both human entities (learners and instructors) and non-human entities (learning management systems). An analysis of e-learning studies from 2001 to 2016 revealed a shift in focus over time. Initially, studies concentrated on factors like intention to use, adoption, usability, course content, and customization. Later, the factor of satisfaction gained importance, and eventually, researchers began examining the overall success of e-learning and the impact of student characteristics on e-learning success (Cidral et al., 2018). Early e-learning studies primarily emphasized technological aspects, but as e-learning became more established, researchers turned their attention to the attitudes and interactions of users, including students and instructors, recognizing their crucial roles in e-learning success (Cheng, 2011).

The Malaysian Ministry of Higher Education (MoHE) introduced a hybrid learning system at universities, allowing students to study remotely for two years before completing their courses on campus (Kasinathan, 2023). Although the higher institutions had equipped with e-learning platform since 2018, concerns have been raised about the readiness of student to undergo the hybrid learning system (Chung, Subramaniam & Dass, 2020). Study by Chung, Subramaniam and Dass (2020) revealed varied levels of readiness for online learning, with many indicating only moderate preparedness due to issues such as lack of control, self-directed learning, and online communication efficacy. Besides, unsolved challenges include lack of stable Internet

access, particularly in rural area (Atan, Embi, and Hussin, 2011; Salleh and Mohamad Rasidi, 2020). The transition to online learning has been challenging for many students, as they have had to adapt to new learning environments and technologies (Jaafar, 2022). Hence, tracing students' satisfaction feedback is a vital input to improve the e-learning platform from time to time.

Considering the discussions, the current study aims to examine the variables influencing the success of e-learning among students who experienced remote learning public higher institution learning. A proposed model encompasses the determinants of e-learning success for current e-learning users. The objective is to provide comprehensive guidelines for e- learning management. The outcomes presented in this manuscript offer valuable insights for institutions seeking to improve e-learning system quality in higher education, helping them overcome potential obstacles and minimize implementation risks. Additionally, the academic community can utilize the findings from this study as a foundation for further research in the field of e-learning. The subsequent sections delve into a discussion of previous research, relevant literature, and factors influencing learner satisfaction in e- learning environments. The research design, based on an integrated model proposed by this study, is described and examined. Finally, the results are thoroughly analysed and presented.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

The IS Success Model, originally developed by DeLone and McLean in 1992 serves as a theoretical foundation to measure user satisfaction towards information system. This model has been widely adopted in various studies to understand and evaluate the success of information systems, including e-learning platforms. In the context of measuring student satisfaction in e-learning platforms, this study has adapted the IS Success Model to assess the critical factors that contribute to students' satisfaction and their perception of the e-learning experience.

System quality, a key variable in the IS Success Model proposed by DeLone and McLean (1992), focuses on the technical aspects of the e-learning platform, such as reliability, functionality, ease of use, and responsiveness. The system quality significantly influenced the actual use of the online learning system, leading to higher learner satisfaction and intention to use. Information quality, another variable in the model, pertains to the relevance, accuracy, clarity, and completeness of the learning materials provided through the e-learning platform.
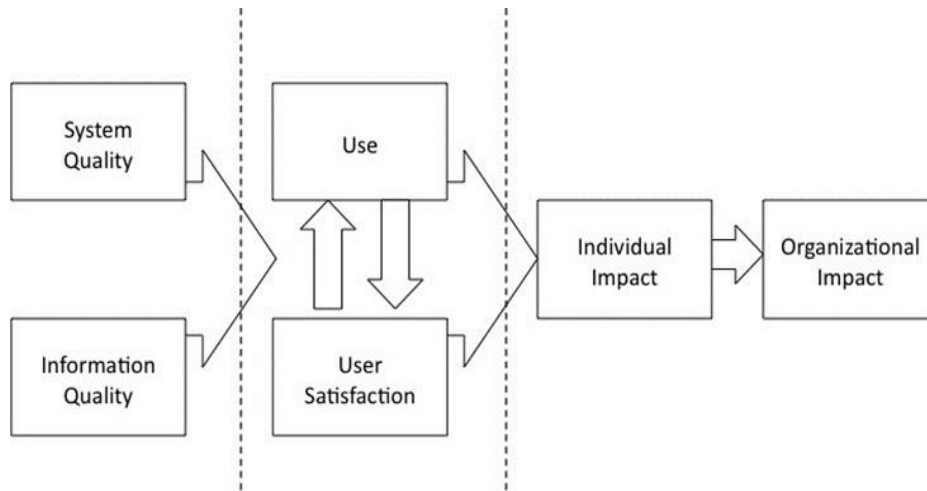
Fig 1 IS Success Model DeLone and McLean (1992)

Also, information quality positively affected user satisfaction and behavioural intention to use the system. The variable of use measures the extent of learners' active engagement with the platform, including frequency, duration, and level of interaction (Lin, 2007). There is a significant relationship between system quality, information quality, and the use of the e-learning system, indicating that the quality of the system and information influences learners' engagement and utilization of the platform. (Eom et al., 2012). User satisfaction, a central construct in the IS Success Model, represents learners' overall satisfaction with the e-learning platform and their perception of its effectiveness in meeting their learning needs (DeLone & McLean, 1992). It encompasses learners' subjective evaluation of the platform's features, usability, content, and overall learning experience.

System quality, information quality, and service quality had a significant effect on user satisfaction, highlighting the importance of these factors in determining learner satisfaction (Lin, 2007). Researchers systematically assess and measure the factors that influence learners' satisfaction in e- learning platforms by employing the IS Success Model. The model provides a comprehensive framework that considers both the technical aspects (system quality) and content aspects (information quality), as well as the learners' engagement and satisfaction (use and user satisfaction). It offers a structured approach to understand the complex interplay of these factors and their impact on user satisfaction. Through surveys, questionnaires, and interviews, researchers can collect data on these variables and analyse their relationships with user satisfaction. The IS Success Model helps guide the design of research studies and provides a theoretical foundation to interpret and explain the factors driving user satisfaction in IS platforms.

Previous research has included the construct of satisfaction in combination with other factors within the model proposed by DeLone and McLean (1992). When evaluating the success of e-learning systems, user satisfaction has been considered as a significant factor, either independently or in conjunction with other variables. For instance, a study conducted by Sun (2008) examined the key factors that contribute to the success of e-Learning and their influence on learner satisfaction. (Sun et al., 2008) introduced a model encompassing six dimensions that

greatly influence learner satisfaction. These dimensions include instructors, learners, course content, design, technology, and learning environment.

However, in the conducted study, the variables related to instructors, students, and course were excluded as they were deemed irrelevant factors and not aligned with the specific context of student satisfaction towards e-learning platform. The focus of the study was primarily on the dimensions of system quality, information quality, use, user satisfaction, and individual impact, which were considered more directly associated with the evaluation of student satisfaction in the context of e-learning platforms. By narrowing down the scope to these specific dimensions, the study aimed to provide a focused and targeted analysis of the critical factors influencing student satisfaction in e- learning.

Student's Satisfaction

Student satisfaction has been defined as the degree of contentment and fulfilment that students perceive in relation to their experience within a web-based learning environment (Thurmond, Wambach, & Connors, 2002). Delone and McLean (1992) defined user satisfaction as one of the dimensions within their Information Systems Success Model, describing it as the level of satisfaction experienced by users in utilizing an information system, including their perception of the system's usefulness, ease of use, and the extent to which it met their specific needs and expectations. Another definition of student satisfaction is the extent to which students felt content and fulfilled with their engagement and experience in an e-learning environment, encompassing their overall perception of the quality of the e-learning platform, the usefulness and ease of use of the system, as well as their satisfaction with the instructional design, technology, and learning environment. Satisfaction with course activities often has been included as a dependent variable in studies of distance education, Computer Mediated Communication (CMC), and web-based courses (Alavi, Wheeler, & Valacich, 1995; Alavi et al., 1997; Warkentin et al., 1997). Given the relative newness of the use of the educational medium, student satisfaction with web-based courses is likely to determine whether the student takes subsequent courses in this format or with the same education provider. In this environment, if students are unsatisfied with one on-line degree program, they can transfer to another or conceivably take courses from a variety of providers.

Design of E-Learning Platform

The technology acceptance model (TAM) proposed by Davis (1989) focuses on predicting and assessing users' tendency to accept technology based on perceived usefulness, attitudes, and intention in adoption. This theoretical framework is suitable for predicting learning satisfaction in e-learning, and variables in TAM significantly influence user satisfaction (Arbaugh, 2000; Arbaugh, 2002; Arbaugh & Duray, 2002; Atkinson & Kydd, 1997; Wu et al., 2006). TAM identifies perceived usefulness as the degrees of work improvement after adopting a system. Applying this model to e-learning, the presumption is that the more students perceive usefulness in courses delivering media, such as course websites and file transmitting software, the more positive their attitudes are toward e-learning, consequently enhancing their learning experiences and satisfaction, and increasing their

chances of using e-learning in the future (Arbaugh, 2002; Arbaugh & Duray, 2002; Pituch & Lee, 2006). Student perceived usefulness in an e-learning system is defined as the perception of degrees of improvement in learning effects because of adoption of such a system.

H1: E-learning platform design will positively influence student satisfaction with the e-Learning platform

Technology Quality

Technology quality can be defined by the extent to which it is perceived as reliable, usable, and easy to learn (Piccoli, Ahmad, & Ives, 2001). Additionally, the quality is determined by the extent to which users perceive it as effective, efficient, and user- friendly (Webster & Hackley, 1997). Furthermore, technology's significance lies in its ability to meet the needs and expectations of its users (Amoroso & Cheney, 1991). The quality of technology has a significant impact on satisfaction in e-learning (Piccoli et al., 2001; Webster & Hackley, 1997). When a software tool possesses user-friendly characteristics, such as the ability to learn and remember simple ideas and meaningful keywords, it reduces the effort required from users. Consequently, users are more inclined to adopt such a tool with minimal barriers, leading to increased satisfaction (Amoroso & Cheney, 1991; Rivard, 1987). Therefore, the higher the quality and reliability of information technology (IT), the greater the effects on learning outcomes (Hiltz, 1993; Piccoli et al., 2001; Webster & Hackley, 1997).

H2: E-learning platform technology quality will positively influence student satisfaction with the e-learning platform

E-Learning Environment

Student perceived interaction in a virtual learning environment is described as the extent to which learners feel capable of communicating, collaborating, and establishing relationships with others (Alavi, 1994; Alavi, Wheeler, & Valacich, 1995; Wang & Newlin, 2002). Additionally, it pertains to the students'perception of their ability to engage meaningfully with others in a virtual learning environment (Alavi, Wheeler, & Valacich, 1995). Moreover, it involves the extent to which students feel they can interact with others and foster relationships in the virtual learning context (Wolfram, 1994). The more students perceive interaction with others, the higher the e-learning satisfaction Arbaugh (2000). In a virtual learning environment, interactions between students and others or course materials can help solve problems and improve progress. Interacting electronically could improve learning effects (Piccoli et al., 2001). Many researchers agree that interactive instructional design is an essential factor for learning satisfaction and success (Hong, 2002; Jiang & Ting, 1998; Nahl, 1993; Schwartz, 1995).

H3: E-Learning environment will positively influence student satisfaction with the e-learning platform
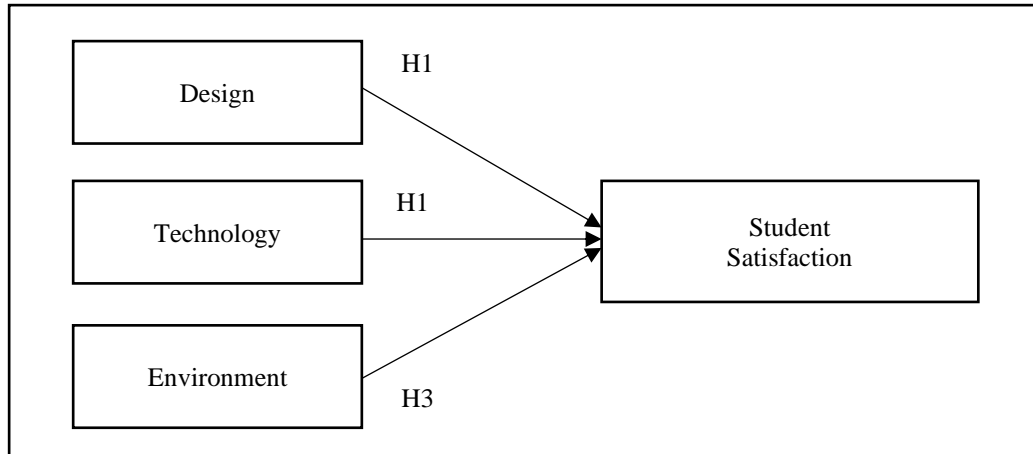
Fig 2 Conceptual Framework

METHODOLOGY PROCEDURES

This study targeted a specific group of higher institution students who were enrolled in the 2020/2021 intake and experienced remote learning during the Covid-19 pandemic, where e-learning platforms were widely used. The study adopted a quantitative methodology and utilized a survey questionnaire distributed through Google Forms to collect primary data. The information obtained through the questionnaires was assessed and analyzed using SPSS, enabling various statistical analyses as described by Sekaran (2003). These analyses involved examining the central tendency and dispersion of respondents' data, as well as evaluating the validity (scale measurement) and reliability (descriptive analysis) of the measures. The research utilized several types of analyses, such as reliability analysis, descriptive statistics, correlation analysis, and regression analysis.

The conducted research utilizes purposive sampling as it is often preferred for its simplicity and efficiency in specific research contexts, where researchers deliberately select participants based on predetermined criteria and objectives (Creswell, 2014). It is assumed that students who enrolled 2020/2021 intakes have the knowledge and experience using the e-learning platform while studying remotely from home. The survey employed a questionnaire comprising eight main sections A, B, C, D, E, F, G, and H, encompassing a total of thirty-one questions. On average, participants required approximately 3 to 5 minutes to complete the surveys related to this variable. The data collection process, including distributing and collecting the questionnaires from respondents, was anticipated to span one month.

FINDINGS PRESENTATION

Respondent's Demographic Profile

Primary data collection via Google Form was utilized, with a total of 330 respondents providing completed surveys. Out of the 330 sets of questionnaires received, 15 were found to contain faults, outliers, or were left blank or missing by the respondents. Despite this, researcher proceeded with the analysis using the remaining 315 sets of survey questionnaires to ensure timely completion of the research. Out of these, 123 respondents were male, accounting for 39.0% of the total, while 192 respondents were female, constituting 61.0% of the total respondents. Regarding the distribution of respondents by age, the majority of responses (92.4% of total respondents) were received from individuals aged between 20 and less than 23 years old, with 291 respondents falling in this age category. Additionally, 24 respondents (7.6% of total respondents) were over 23 years old, while there were no targeted respondents below 20 years old. In terms of residential place, 289 respondents (91.7% of total respondents) lived in urban areas, 18 respondents (5.7% of total respondents) lived in rural areas, and 8 respondents (2.5% of total respondents) lived in suburban areas. Regarding internet usage, 288 respondents (91.4% of total respondents) used mobile phone (mobile data) internet type, while 27 respondents (8.6% of total respondents) used landline (WiFi) internet type.

For the type of technology used in accessing e-learning platforms, 238 respondents (75.6% of total respondents) used laptops, 71 respondents (22.5% of total respondents) used smartphones, 5 respondents (1.6% of total respondents) used computers, and 1 respondent (0.3% of total respondents) used a tablet. In terms of internet providers, 172 respondents (54.6% of total respondents) used Celcom, 115 respondents (36.5% of total respondents) used Maxis, 23 respondents (7.3% of total respondents) used Unifi, and 5 respondents (1.6% of total respondents) used Digi. However, no targeted respondents were identified from Time and Yes internet providers. Regarding the evaluation of internet quality, 208 respondents (66.0% of total respondents) rated their internet as very good, 99 respondents (31.4% of total respondents) rated it as good, and 8 respondents (2.5% of total respondents) rated it as fair. There were no targeted respondents who evaluated their internet as weak.

Table 1 Respondent's Demographic Profile

Demographic	Categories	Respondents = (n=315)	
		Frequency	**Percentage (%)**
Gender	Male	123	39.0
	Female	192	61.0
Age	Less than 20 years old	0	0
	20 – less than 23 years old	291	92.4
	Over than 23	24	7.6
Residential Place	Rural	18	5.7
	Urban	289	91.7
	Suburban	8	2.5
Internet Type	Landline (Wifi)	27	8.6
	Mobile phone (Mobile data)	288	91.4

Technology Type of Using E-Learning Platform	Computer	5	1.6
	Laptop	238	75.6
	Smartphone	71	22.5
	Tablet	1	0.3
Internet Provider	Time	0	0
	Unifi	23	7.3
	Celcom	172	54.6
	Maxis	115	36.5
	Digi	5	1.6
	Yes	0	0
Internet Evaluation	Excellent	8	2.5
	Very good	208	66.0
	Good	99	31.4
	Weak	0	0

Descriptive Analysis and Reliability Analysis

Descriptive analysis, or exploratory data analysis, involves summarizing, organizing, and interpreting data to understand its main characteristics and distribution (Valliant, Dever, & Kreuter, 2013). In this study, the dependent variable, student satisfaction, has a mean value of 3.9562 with a standard deviation of 0.81950, indicating reliable data distribution. The minimum score for student satisfaction is 1.00, and the maximum is 5.00. The independent variables show similar reliability. Design has a mean of 3.9405 and a standard deviation of 0.82761, technology has a mean of 4.0087 with a standard deviation of 0.84986, and environment has a mean of 4.0738 with a standard deviation of 0.84986. Each variable achieved a maximum score of 5.00 and a minimum of 1.00, indicating that the data are consistently distributed close to their respective means, demonstrating reliability in the data set. Ensuring reliability is vital for enhancing the validity and credibility of data across various research designs (Creswell, 2014; Cronbach, 1951; Nunnally & Bernstein, 1994).

In this study, the scales' reliability was tested using Cronbach's alpha, with an acceptable minimum value of 0.6 (Hair et al. 1998). The value of Cronbach's alpha for student satisfaction is 0.915, indicating a high level of internal consistency for this scale. Similarly, design has a Cronbach's alpha of 0.899, technology 0.896, and environment 0.887, all showing acceptable levels of internal consistency. These values demonstrate that all constructs exhibit reliable internal consistency, indicating the suitability of the scales for measuring their respective constructs.

Table 2 Descriptive Analysis and Reliability Analysis

Variable	Cronbach Alpha	Mean	Std. Deviation
Student Satisfaction	0.915	3.9562	0.81950
Design	0.899	3.9405	0.82761
Technology	0.896	4.0087	0.84986
Environment	0.887	4.0738	0.81335

Pearson Correlation Analysis

The study assessed the association between each independent variable (design, technology, and environment) and the dependent variable (student satisfaction) using Pearson correlation coefficient analysis, as shown in Table 4.5. The Pearson correlation coefficient for design is 0.203 with a significant value of <0.001, indicating a statistically significant but weak positive correlation with learner satisfaction. For technology, the Pearson correlation coefficient is 0.631 with a significant value of <0.001, showing a significant and moderate positive correlation. The environment has a Pearson correlation coefficient of 0.725 with a significant value of <0.001, indicating a significant and strong positive correlation with student satisfaction.

Table 3: Pearson Correlation Analysis

	Student Satisfaction	Design	Technology	Environment
Student Satisfaction	1			
Design	0.472**	1		
Technology	0.536**	0.631**	1	
Environment	0.461**	0.595**	0.725**	1

Hypothesis Testing using Multiple Regression Analysis

In this study, a regression model with one dependent variable (student satisfaction towards e-learning platforms) and three independent variables (design, technology, and environment) was calculated. Multiple regression is a statistical method used to assess the influence of several independent variables on a single dependent variable. The model uses known values of the independent variables to predict the value of the dependent variable. The table in the study shows the coefficients for the regression model.

The unstandardized beta coefficient for design is 0.198, indicating a positive influence on learner satisfaction. This means that for every one-unit increase in design, student satisfaction is expected to increase by 0.198 on average. The p-value of 0.003 is less than 0.05, indicating that the relationship between design and student satisfaction is statistically significant and unlikely to be due to chance. Therefore, it is reasonable to conclude that design is a contributing factor to student satisfaction.

The unstandardized beta coefficient for technology is 0.133, also indicating a positive influence on student satisfaction. For every one-unit increase in technology, student satisfaction is expected to increase by 0.333 on average. The p-value of <0.001, which is less than 0.05, shows that the relationship between technology and learner satisfaction is statistically significant, suggesting a causal relationship. Conversely, the p-value of 0.175 for the environment variable indicates that its relationship with student satisfaction is not statistically significant and likely due to chance. While the unstandardized beta coefficient of 0.096 suggests a positive influence, it cannot be concluded that the relationship between the environment and learner satisfaction is causal.

From the result, it was found out that the three independent variable explained only 32.8 percent of the variance in student satisfaction ($R2 = .328$). Meanwhile the rest of 67.2 percent is explained by other variables. The adjusted R^2 value of 0.315 indicates that approximately 31.5% of the variance in the dependent variable is explained by the independent variables in the model, after adjusting for the number of predictors. This suggests that the model has a moderate explanatory power, accounting for about one-third of the variance in the dependent variable (student satisfaction). In addition, the F-value of 25.11 indicates that the overall regression model is statistically significant. This high F-value suggests that the design, technology and learning environment, as a group, have a significant impact on the student satisfaction.

Table 4: Multiple Regression Analysis Between Design, Technology and Learning Environment with Student Satisfaction

Independent Variables	Dependent variable (Student Satisfaction)
Design	.198*
Technology	.133**
Learning Environment	.096
R2	.328
Adjusted R2	.315
F-value	25.11

p<.01, p<.05***

Therefore, this study concludes two hypotheses were supported while the remaining one hypothesis was not supported. The recapitulations of hypothesis statement are listed as below.

Table 5: Recapitulation of Hypothesis Statement

Hypothesis Statement	Remark
(H1) Design of the e-learning platform will positively influence perceived e-student satisfaction with the e-learning platform	Supported
(H2) Technology quality of e-learning platform will positively influence student satisfaction with e-learning platform	Supported
(H3) E-learning environment will positively influence student satisfaction with e-learning platform	Not supported

DISCUSSION OF FINDINGS

Malaysian Ministry of Higher Education (MoHE) introduced the hybrid learning system at public universities, allowing students to study remotely for two years before completing their courses on campus (Malay Mail, 2023). This shift necessitates a deep understanding of the factors driving student satisfaction with e-learning platforms, particularly in the post-COVID-19 era where online learning has become more prevalent. As institutions prepare for this transition, addressing concerns about the quality and manageability of online learning systems becomes crucial (Kasinathan, 2023).

In addition, this study examines the drivers of e-learning platform satisfaction from a student's perspective during the context of the post-COVID-19 era. The pandemic caused a rapid shift towards online learning, significantly increasing the use of e-learning platforms. Understanding what drives learner satisfaction with these platforms is crucial as online learning becomes more prevalent. Building on the IS Success Model by Delone and McLean (1992), this study aimed to identify and evaluate the key factors contributing to student satisfaction to help higher educational institutions enhance the effectiveness and sustainability of e-learning systems.

The study reveals that technology is the strongest predictor of student satisfaction with e-learning platforms, aligning with the Technology Acceptance Model (TAM) proposed by Davis (1989). TAM posits that users' acceptance and satisfaction with technology are significantly influenced by its perceived usefulness and their attitudes towards it (Arbaugh, 2000; Arbaugh, 2002; Arbaugh & Duray, 2002; Atkinson & Kydd, 1997; Wu et al., 2006). In the e-learning context, this means that students who perceive greater usefulness in technological tools, such as course websites and file-sharing software, are likely to report higher satisfaction and a more positive attitude towards e-learning (Arbaugh, 2002; Pituch & Lee, 2006). Conversely, the environment variable in the study, with a p-value of 0.175, shows no significant impact on satisfaction, suggesting that while technology and design are crucial for enhancing e-learning experiences, the learning environment may not significantly affect student satisfaction in this context.

In addition, this study agreed technology quality is crucial for enhancing learner satisfaction with e-learning platforms. A well-designed platform should be user-friendly, reliable, secure, and compatible with various devices while incorporating accessibility features, interactive content, and collaboration tools. Research supports that technology quality, characterized by reliability, usability, and ease of learning, significantly impacts user satisfaction (Piccoli, Ahmad, & Ives, 2001; Webster & Hackley, 1997). Effective and efficient technology that meets user needs and expectations leads to a more enjoyable and effective learning experience (Amoroso & Cheney, 1991). Higher quality and reliability in information technology directly improve learning outcomes by reducing user effort and facilitating smoother adoption (Hiltz, 1993; Piccoli et al., 2001; Webster & Hackley, 1997).

Although the impact of design on learner satisfaction is moderate, it remains essential for an effective e-learning experience. Key design elements such as a user-friendly interface, engaging visuals, personalization options, clear navigation, and mobile responsiveness significantly enhance user experience. Inclusive design ensures accessibility for all students, while timely feedback and progress tracking foster a sense of achievement. Research supports that perceived interaction in virtual learning environments—encompassing communication, collaboration, and relationship-building—plays a critical role in increasing e-learning satisfaction (Alavi, 1994; Alavi, Wheeler, & Valacich, 1995; Wang & Newlin, 2002). Interactive instructional design, which facilitates meaningful engagement with course materials and peers, is crucial for improving learning outcomes and satisfaction (Piccoli et al., 2001; Hong, 2002; Jiang & Ting, 1998; Schwartz, 1995).

CONCLUSION

This study undertook a thorough examination of factors influencing student satisfaction with the use of e-learning platforms. The research successfully addressed its objectives and questions, specifically investigating the relationship between the independent variables (design, technology and learning environment) and the dependent variable (student satisfaction). Through analysis using SPS, it was established that both design and technology significantly affect student satisfaction, with technology emerging as the most influential predictor, followed by design. In essence, the quality of technology was identified as the most significant determinant of student satisfaction with e-learning platforms. These could serve as a roadmap for the academic sector to create innovative e-learning platforms, and as a reference for future.

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