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LEARNING MANAGEMENT SYSTEM (LMS) CONTENT ACCESSIBILITY AND STUDENTS' SATISFACTION

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Abstract:

E-learning platform is a collection of interactive online services that are interconnected and offer educators, students, and other education-related participants access to data, tools, and resources to assist and improve the management and delivery of education. Hence, providing a quality learning management system (LMS) is crucial for efficient services not only for the students but for the educators and the management of the institution as well. UFUTURE is an LMS system used by Universiti Teknologi MARA (UiTM), which is one of Malaysia's biggest public universities. The effectiveness and accessibility of the content in this platform are essential to ensuring that students utilise it without hesitation. Hence, this study aims to determine the effects of UFUTURE's content accessibility on students' satisfaction based on its service quality, information quality and system quality. Data were collected through structured, self-administered survey questionnaires and was distributed using a random sampling technique to 152 active postgraduate coursework students of the Faculty of Business and Management, UiTM. The research findings reveal that system quality and service quality of UFUTURE affect students' satisfaction in which the system quality is the most important dimension. However, information quality is viewed as a basic expectation rather than a satisfaction factor, which explains why it has no significant effects on students' satisfactions. The study helps UiTM and other institutions in improving the current LMS content accessibility for effective online teaching and learning services in order to increase students' satisfaction and better learning management.

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Accessibility, E-learning, Learning Management System, Online Learning Platform, Student Satisfaction



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Introduction

Internet-based learning is referred to as online learning which includes any educational activity or experience that employs the Internet or World Wide Web (WWW or Web) as its primary mode of presentation and delivery (Culduz, 2024b; Appana 2008). This online learning is supported by the use of communication technology such as laptops, televisions, smartphones, and other devices. Distance learning is a term used when students and educators are geographically and chronologically separated yet can still communicate with one another using online platforms (Hemajothi and Kumar Jain, 2022; Aladwan et al., 2018). In Malaysia, teaching and learning methods have become more adaptable since the COVID-19 pandemic. It involves the utilisation of synchronous and asynchronous teaching methods as well as online assignment submissions through LMS platforms. Students who couldn't attend the online sessions (synchronous method) can still access recordings, lecture notes, or online discussion boards at their own convenience (asynchronous method). Hence, traditional methods are no longer a viable choice, and online learning has taken over as the new standard (Alfaki, 2021). For instance, students can also access the online learning modules via online learning platforms, such as Massive Online Open Courses (MOOCs) or even access the Micro-credentials courses.

The development of e-content and the use of digital technology by educators and students, respectively, represent paradigm shifts necessary for the global online learning environment. Looking at the current demands, higher education institutions must be ready to be digitalized in their teaching and learning approaches as well as their educators' mindsets (Zou et al., 2025). Therefore, institutions' digital infrastructure needs to be updated to boost educational access, enhance the calibre of teaching and learning, and meet students' needs. As such, higher institutions must revamp their digital learning practices, offer alternative evaluations appropriate for online learning, and enhance their digital material.

Nevertheless, student satisfaction and motivation for learning are also significant factors that must be considered. Many LMS created by universities are unable to satisfy the needs of both students and educators in terms of scalability, user-friendliness, and ease of use (Al-Fraihat et al., 2025). Less engagement with the educators may cause the students to lose interest in their studies, lose focus, feel lost throughout the learning process, and learn less about the courses (Tul'adawiyah et al., 2024). Students may find it challenging to discover solutions to queries since they may find it challenging to solve problems. The possibility of getting sidetracked and forgetting assignment deadlines is very high (Bijeesh's, 2017) because there is no physical

interaction with lecturers and peers to help remind other students about the ongoing assessments. Therefore, LMSs' interface should act as a liaison between students and educators in order to facilitate learning and create a realistic atmosphere in the classroom. Hence, this study specifically aims to investigate the effect of LMS content accessibility on students' satisfaction as well as to determine the most important dimension of the LMS platform's accessibility that affects the students' satisfaction.

Literature Review

Understanding student satisfaction is essential to improving course components and creating a more favourable hybrid learning environment (Al-Fraihat et al., 2025; Masrom et al., 2019). Furthermore, the ability to deliver an excellent user experience is necessary for combining LMS with traditional classroom settings in higher education (Kumar et al., 2020). Timeliness, information correctness, and consistency are three crucial elements that improve the teaching and learning process when using LMS (Downs, 2016). Three significant LMS satisfaction factors were examined in this study. System quality, information quality, and service quality are only a few of the factors that the information success (IS) model examined in relation to user happiness.

Learning Management System (LMS)

The Learning Management System (LMS) is a web-based educational technology that helps educators meet their pedagogical objectives, organise course materials, and support students (Alfaki, 2021). A multitude of difficulties related to delivering lectures and instruction using the LMS and online learning platforms, including Webex, Google Meet, Microsoft Teams, Zoom, and Google Classroom are one of the reasons why students lack interest in studying (Hemajothi & Jain, 2022). One of the reasons is that the LMS and online learning platforms' functions are of poor interface quality, making it possible for students to misunderstand what is being taught and making it difficult to control the online session.

Additionally, using the online learning tools will make students stressed and lost since the service quality was inadequate, which implies it did not meet the required standard of online learning (Debatur, 2020). For instance, while the students were engaged in an online class, the internet abruptly cut out. It demonstrates that the platform's system must be excellent, or the students will be dissatisfied because the service's quality is poor. High dependency on technology is one of the major drawbacks of distance learning (Sadeghi, 2019). In the event of a hardware or software malfunction, the class session will come to a complete stop, which could interfere with the learning process.

Videoconferencing and virtual meetings are always prone to encountering technical difficulties (Appana, 2008). For instance, network issues, careless setup, and other technical requirements might have an impact on sound and video quality concerns (Zou et al., 2025; Hemajothi and Kumar Jain, 2022; Taylor, 2002). Participant discrepancies in infrastructure, including local hardware and connection speeds, may also be at play. Many online students expressed uncertainty about the technological challenges they had encountered, which had an effect on their productivity as a result (MacGregor 2001).

A key aspect of LMS is the system's quality. For instance, the students are unable to finish their assignments due to technical or web issues. Hence, the design of online learning platforms should be appealing because this will encourage students to participate and learn more in their courses. In light of the interdependence of various new technologies and web-based activities, a study by Johnston et al. (2005) and Tul'adawiyah et al. (2024) found that online coursework has the potential to create environments where students are actively engaging with the material and learning and clarifying their understanding as they build new knowledge. Other difficulties that the students encountered while using the platform included a poor or slow Internet connection, limited access to the LMS, a lack of feedback from educators, difficulty submitting assignments, set-up issues, an overloaded LMS server, insufficient or no training in using the LMS, and little technical support (Akakandelwa & Mkulama, 2017). As a result of the system's shortcomings, students will be less satisfied when using LMS as their online learning platform.

Student Satisfaction

Student satisfaction refers to the feelings of satisfaction expressed by students following an educational experience (Alfaki, 2021). Weerasinghe et al. (2017) defined students' satisfaction as the feelings of the students after experiencing the services and equipment provided. According to Welch's (2017), students become frustrated with learning when they have trouble using the LMS. Low computer competency among students may be the reason for this; the more difficult it is for students to utilise an LMS, the less motivated they are to learn and the less intention they have to use it (Welch, 2017). Additionally, students also expressed dissatisfaction with the lack of support offered to address the problem of utilising LMS (Waheed et al., 2015). On the other hand, students who are satisfied and appear to be motivated, engaged, and responsive might promote a better environment and perform better (Dziuban et al., 2015). Elliot and Shin (2002) noted that student satisfaction is a tendency of the students from the intuitive appraisal of educational results and understanding.

Service Quality

In the realm of education and higher learning in particular, service quality is not only crucial and significant, but it also plays a role in achieving educational excellence (Subahudin & Shahrom, 2023). Most researchers in the past have identified five components of service quality: tangibility, reliability, responsiveness, assurance, and empathy. These components were measured by SERVQUAL instruments (Kundi et al., 2014). Overall, a study by Hanaysha et al. (2011) shows that factors affecting service quality have a significant impact on student satisfaction. The institution should regularly ensure reliability in their services to their students as it can increase the quality of their services (Alfaki, 2021; Smith et al., 2002). Reliability is the ability to deliver the promised service consistently and accurately (Jamal et al., 2018). This demonstrates that the institution was determined that the services it offered were accurate and met the needs and preferences of its students. Thus, the study proposes the following hypothesis:

H1: The service quality of LMS content accessibility has a positive effect on student satisfaction.

Information Quality

Information quality is the quality of the information that has been provided for people to use the information. Information quality can be measured by factors including timeliness, sufficiency, understandability, and conciseness. If the information we received using an online

learning system possesses all of the above qualities, the information is of high quality (Alfaki, 2021). The information quality shows how accurate and precise the information is that is delivered by the e-learning system (Hemajothi and Kumar Jain, 2022; Shahzad et al., 2020). Timeliness means the information should be provided within time and the information should be the latest one so that people can use the information to make a faster and wiser decision. Another aspect of information quality is sufficiency, which indicates that the system must contain all of the information that the users require. The most effective characteristic of the information quality is understandability, which means that the information should be easy to understand. On the other hand, conciseness is another crucial part of information quality provided by the E-learning system and systems in any organization (Petter et al., 2013; Cai and Zhu, 2015; Chiang et al., 2019). Hence, the following hypothesis was developed:

H2: The information quality of LMS content accessibility has a positive effect on student satisfaction.

System Quality

System quality means the flow of access to the system is smooth without any difficulties, and the system is easy to use. The ease of use of the system, the usefulness of its features, and the promptness with which the information system responds to user demands have all been cited as indicators of system quality (Beheshti & Beheshti, 2010). System quality is defined as being efficient, consistent, and modifiable, which indicates that the system can be changed to provide users with accurate information (Alfaki, 2021; Sedera et al., 2013). The system's convenience, availability whenever users need it, adaptability to a variety of situations, reliability, utility, and response time to users are all examples of its high system quality (DeLone & McLean 2016). System quality is another crucial element in assuring user satisfaction. It has a significant impact on e-learning platforms as well. The importance of the platform's consistency has a significant impact on the e-learning portal (Ifinedo 2011). The system quality will increase user satisfaction, particularly among professors and students. It demonstrates that the system needs to be accessed efficiently and effectively according to what users are browsing. Consequently, the following hypothesis has been developed:

H3: The system quality of LMS content accessibility has a positive effect on student satisfaction.

Conceptual Framework

The theory referenced in the study is from DeLone and McLean (2003), who developed the DeLone and McLean IS Success Model, which was initially developed by them in 1992. The service quality, information quality, system quality, and user satisfaction are just a few factors that the information success (IS) model examined. Hence, Figure 1 shows the framework of this study.

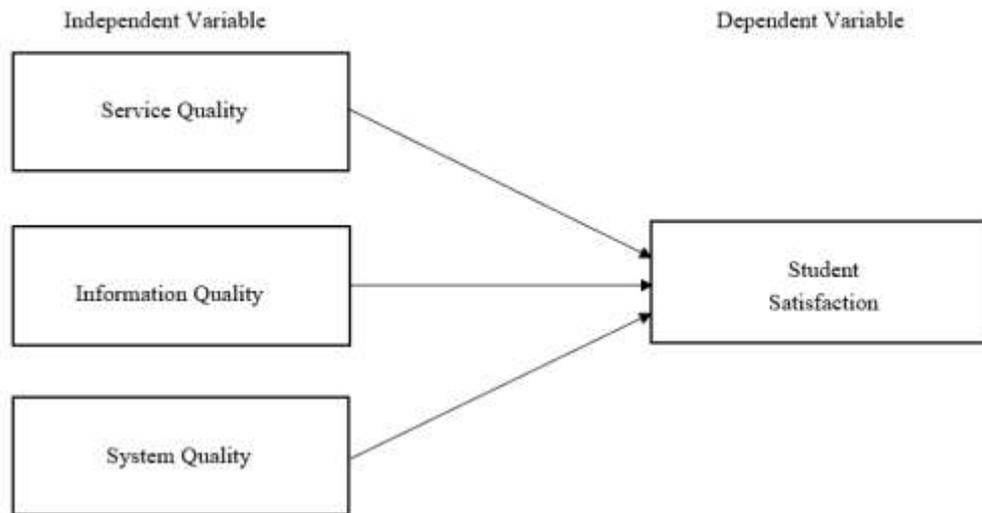


Figure 1: Conceptual Framework of Learning Management System (LMS) Content Accessibility on Students' Satisfaction (Adapted from the Updated Information Systems Success Model, Source: Delone & Mclean (2003))

Methodology

A study was conducted using correlational and regression analysis to examine the effects of factors related to the UFUTURE platform content accessibility on students' satisfaction among postgraduate students in the Faculty of Business and Management, UiTM, Malaysia. The study's population consisted of 253 students. The present study employed a random sampling technique to select a sample of 152 postgraduate coursework students (Krejcie and Morgan, 1970), and the online survey method was chosen due to its appropriateness in reaching a large number of respondents. The primary objective of this study was to investigate the measurement of UFUTURE content accessibility and student satisfaction. The questionnaire was designed based on the Delone & Mclean (2003) Information Systems Success model, which offers an understanding of interrelationships between LMS quality factors (Alfaki, 2021). Likert scales with five points (ranging from "strongly disagree" to "strongly agree") were used in the distributed questionnaire. In this study, the data were subjected to analysis using the Statistical Packages for Social Science (SPSS). The relationships between the system, information, and service quality of UFUTURE's content accessibility and students' satisfaction were analysed using coefficient correlation analysis, whereas the effects of UFUTURE's content accessibility on student satisfaction were analysed using multiple regression analysis.

Discussion and Findings

Profile of Respondents

82 percent (125) of the 152 postgraduate students at the Faculty of Business and Management, UiTM, who responded to the questionnaire were female, and the remaining 17 percent (27) were male. The majority of respondents, 69.7 percent (106) of the total respondents, were single, and the majority of respondents, 55.9 percent (85) of the entire population, were between the ages of 20 and 30. All of the respondents were Malay, and the majority of them

were from the Human Resources Management programme, representing 48.7% of the respondents, 74 students in total. Additionally, the majority of respondents (63.2 percent, or 96 out of the total respondents) were full-time students, and 86.2 percent (131) had 1-3 years of experience with UFUTURE.

Reliability Analysis

Reliability analysis states that a scale should consistently represent the construct it measures. The reliability of the data collected for this study was analysed and investigated, and the degree of consistency across several measures of the variable was determined. Cronbach's alpha is a statistic frequently used to illustrate that tests and scales designed or accepted for research projects are appropriate for the purpose (Taber, 2018).

Table 1: Cronbach's Alpha Scores for the Service Quality, Information Quality, System Quality and Student Satisfaction

Section	Scale	Cronbach's Alpha		Number of items
		Pilot Test	Actual Test	
B	Service Quality	.767	.817	5
C	Information Quality	.924	.813	7
D	System Quality	.767	.826	5
E	Student Satisfaction	.845	.897	5

The reliability test results for Service Quality, Information Quality, System Quality, and Student Satisfaction are shown in Table 1 along with the pilot testing results. The purpose of the pilot test (50 respondents) in this study was to determine the reliability of the questionnaires. The outcomes of the pilot test for service quality, information quality, and system quality were .767, .924, and .767, respectively, while student satisfaction was recorded at .845. It demonstrates that the surveys are reliable and are suitable for distribution to respondents for the actual test. In terms of the actual test's results, Cronbach's Alpha showed a value of .817 for service quality, .813 for information quality, .826 for system quality, and .897 for Student Satisfaction. Sekaran (2003) asserts that a test is more reliable the closer the result is to 1. Therefore, based on the findings, it can be concluded that all of the factors are excellent. Given that the results fall within the range of 0.8 to 0.9, it can be concluded that the questionnaire complies with the rules of thumb for Cronbach's Alpha in the reliability test.

Normality Analysis

The assumption of normality is an integral component of the correlational analysis. The normality test is a statistical procedure employed to ascertain whether a given sample or any given set of data conforms to the characteristics of a standard normal distribution. Yap & Sim (2011) state that a normality test can be carried out either graphically or mathematically. The assessment of normality holds significant importance in the determination of measures of central tendency and the selection of appropriate statistical methods for data analysis (Mishra et al., 2019). The determination of skewness and kurtosis values has been achieved, providing insights into the normal distribution of the data. As stated by Hair et al. (2010), the acceptance of normal distributions is contingent upon the skewness and kurtosis values falling within the range of +/-3.

Table 2: Normality Results: Values for Skewness and Kurtosis

Variables	Skewness	Kurtosis
Service Quality	.018	-.470
Information Quality	.299	-.052
System Quality	.023	-.640
Student Satisfaction	-.836	2.695

Based on the table above (Table 2), the data is normally distributed since the value of skewness and kurtosis is in the range of +/-3 for each variable (Hair et al., 2010). It illustrates the normality results of skewness and normality values for Service Quality (.018), Information Quality (.299), System Quality (.023), and Student Satisfaction (-.836).

Descriptive Analysis

In Table 3, the total mean for Information Quality is 4.009, while for System Quality is 4.318. For the total mean of Service Quality, it is recorded as 4.365, which is the highest total mean among the three independent variables that contribute to students' satisfaction. It shows that the students are really satisfied with the service provided in the online learning platforms of UFUTURE.

Table 3: Total Mean Dimensions of the Independent Variable

	Mean Service Quality	Mean Information Quality	Mean System Quality
N Valid	152	152	152
Missing	0	0	0
Mean	4.365	4.009	4.318
Median	4.200	4.200	4.200
Mode	4.00	4.00	4.00
Std. Deviation	.429	.492	.473
Range	2.00	2.14	2.00
Minimum	3.00	2.86	3.00
Maximum	5.00	5.00	5.00

Correlation Coefficient Analysis

Table 4: Correlation Coefficient

Correlations					
		Service Quality	Information Quality	System Quality	Student Satisfaction
Service Quality	Pearson Correlation	1	.19**	.64**	.48**
	Sig. (2-tailed)		.00	.00	.00
	N	152	152	152	152
Information Quality	Pearson Correlation	.48**	1	.64**	.19**
	Sig. (2-tailed)			.00	.00
	N	152	152	152	152

	N	152	152	152	152
System Quality	Pearson Correlation	.48**	.19**	1	.64**
	Sig. (2-tailed)	.00	.00		.00
	N	152	152	152	152
**. Correlation is significant at the 0.01 level (2-tailed).					

Table 4 shows the correlation results. There was a moderate and significant relationship between service quality and student satisfaction ($p < .01$, $r = .48$). The relationship is in the range of 0.4 to 0.59, which is considered moderate according to the table adopted from Salkind (2018). According to a study by Ching (2021), he also found that service quality has a positive relationship with student satisfaction. This statement can be supported by a study made by Pham et al. (2019), who found that there is a positive relationship between e-learning service quality and e-learning student satisfaction. A correlation between student satisfaction and information quality ($p = .01$, $r = .19$) is weak. This finding is supported by Zaineldeel et al. (2021), who discovered that information quality had a significant relationship and impact on student satisfaction. In their research, the value of p for the correlation was also similar to our study which is smaller than $.05$. Nevertheless, there was a significant and strong correlation between system quality and student satisfaction ($p = .01$, $r = .64$). This is supported by a study conducted by Ching (2021), who claimed that his findings revealed a significant relationship between system quality dimensions and student satisfaction with the content accessibility of online learning platforms. The finding is also aligned with the results from other studies (Delone and McLean, 2003; Eom, 2012; and Holsapple and Lee-Post, 2006), which indicated a strong correlation between system quality and student satisfaction.

Multiple Regression Analysis

A Multiple Linear Regression was conducted to examine the effects of Service Quality, Information Quality, and System Quality on Students' Satisfaction. The model summary in Table 5 shows how strongly the variables were correlated with one another. It demonstrated a linear relationship between the observed and predicted values of the dependent variable. A significant relationship between service quality, information quality, and system quality was shown by the model's correlation (R) of $.655$. The R -squared was calculated to be $.429$ as a result. According to the findings, the independent variables were capable of explaining 42.9% of the variance in students' satisfaction. Other factors might have an impact on the remaining 57.1% of the variance. The adjusted R -squared value dropped to $.418$ after controlling for the number of factors. The estimated standard error was $.37840$, indicating that the observed students' satisfaction levels were close to the values predicted by the regression model and showed an acceptable degree of prediction accuracy. Thus, this model provides a good fit, and the independent variables played an important role in explaining the students' satisfaction.

Table 5: Model Summary

Model Summary ^b					
Model	R	R-squared	Adjusted R-squared	R-	Std. Error of the Estimate
1	.655 ^a	.429	.418		.37840
a. Predictors: (Constant), Service Quality, Information Quality, System Quality					
b. Dependent Variable: Student Satisfaction					

A one-way ANOVA was performed to evaluate whether the regression model significantly predicts students' satisfaction (Table 6). Based on the result, a significant regression equation was found. The results reveal that the regression model was statistically significant ($F(3, 148) = 37.10, p < .05$), indicating that Service Quality, Information Quality, and System Quality significantly affect students' satisfaction.

Table 6: ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.94	3	5.31	37.10	.001
	Residual	21.19	148	.14		
	Total	37.13	151			
Dependent Variable: Student Satisfaction						

The coefficients table (Table 7) shows the individual effects of the independent variables on the dependent variable. The constant value of .901 ($t = 2.335, p = .021$) indicates that if when all independent variables (Service Quality, Information Quality, and System Quality) are held at zero, Students' Satisfaction is expected to be .901. Regression analysis demonstrates that two out of three independent variables were statistically significant with Service Quality ($t = 2.484, p < .05, \beta = .186$) and System Quality ($t = 6.896, p < .05, \beta = .522$). Therefore, the results provide empirical support for hypotheses H1 and H3, indicating that System Quality is the strongest influence, in which the improvement in system performance and functionality contributes substantially to higher satisfaction levels in LMS among students. In contrast, Information Quality showed no significant effect on students' satisfaction ($t = .643, p > .05, \beta = .041$), suggesting that perceived quality, accuracy, or relevance of information alone does not directly influence satisfaction in LMS contexts. Hence, H2 was not supported because Information Quality did not exhibit a significant effect on Students' Satisfaction.

The final predictive equation was participants predicted Students' Satisfaction is equal to $.901 + .215$ (Service Quality) $+ .041$ (Information Quality) $+ .547$ (System Quality). The positive slope for Service Quality (.215) as a predictor of student satisfaction indicated that unit increase in service quality leads to .215 unit increase in students' satisfaction. Furthermore, 1 unit increase in system quality increases students' satisfaction by .547 units. On the other hand, the information quality does not significantly affect students' satisfaction. Hence, any improvements in information quality do not change the students' satisfaction levels. Based on the results, system quality was found to be the dominant role and the most important dimension of students' satisfaction.

Table 7: Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.901	.386		2.335	.021
	Service Quality	.215	.086	.186	2.484	.014
	Information Quality	.041	.064	.041	.643	.521
	System Quality	.547	.079	.522	6.896	.001
a. Dependent Variable: Student Satisfaction						

Conclusion And Recommendation

The aims of this study were to determine the effect of online learning platforms' content accessibility on student satisfaction and to determine the most important dimension of LMS content accessibility on student satisfaction. Based on the analysis and findings, all stated objectives were achieved. The results show that service quality, information, and system quality are all associated with students' satisfaction. The results demonstrated that service quality recorded a moderate relationship ($p < .05$, $r = .484$), information quality showed a weak relationship ($p < .05$, $r = .189$), and system quality recorded a strong relationship ($p < .05$, $r = .635$). However, multiple regression analysis showed two of the independent variables were significantly affect students' satisfaction with LMS content accessibility, which were service quality ($t = 2.484$, $p < .05$, $\beta = .186$) and system quality ($t = 6.896$, $p < .05$, $\beta = .522$). Meanwhile, information quality ($t = .643$, $p > .05$, $\beta = .041$) did not significantly affect students' satisfaction, as the value of $p > .05$. This may be due to information quality being perceived as a basic expectation rather than a satisfaction driver. Hence, the most important dimension to ensure that students are satisfied with LMS content accessibility is the service quality.

In conclusion, the adoption of online learning platforms can both benefit and pose risks to the learning process. Online learning makes it possible for educators to share learning content in a more efficient, flexible, and cost-saving way. In addition, the platform opens the opportunity for both lecturers and students to increase their technological knowledge and digital learning experience. As discussed by Zou et al. (2025) and Evans and Fan (2002), technology can greatly enhance the learning experience by making accessible the use of multimedia learning tools that aid students in understanding the subject content. Despite the many advantages of using online learning platforms, there are still difficulties encountered in the implementation of these platforms. These difficulties may include skills to develop the learning contents and technology problems, such as a poor video conference streaming quality. To address this, it is important to overcome these challenges to ensure the improvement of students' satisfaction and motivation for learning. As part of the efforts to improve the quality of the system, it is advised to focus on improving the information quality and making the services available so as to improve the overall quality of the system. Finally, it is advised to preserve the existing excellent service quality.

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