Investigating Students' Use of the Moodle Platform: A Pilot Study Testing

Zulherman
Universiti Utara Malaysia
Universitas Muhammadiyah Prof.DR.HAMKA

Farah Mohamad Zain
Universiti Utara Malaysia

Siti Nazuar Sailin
Universiti Utara Malaysia

The use of the Moodle platform during the pandemic has dramatically increased, especially in education and learning. There have been numerous studies on user acceptance of learning technology. However, until now, there has been no evaluation research on user satisfaction by transformational leadership as a mediator. This study evaluated user satisfaction, namely students, based on the UTAUT and Delone McLean models. The method used is random sampling as a pilot study of 2 classes at a private Islamic university in Jakarta, Indonesia. In this study, we used ten variables, namely; Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), System Quality (SQ), Information Quality (IQ), Service Quality (SeQ), Transformational Leadership (TL), User Satisfaction (US). The results showed that eight hypotheses were accepted out of 6, so 75% of this pilot study was successful. We concluded that how students act significantly affects how interested they are in using the Moodle platform.

Keywords: user satisfaction, transformational leadership, UTAUT model, Delone McLean model, online learning platform

INTRODUCTION

Innovations in technology influence human behavior in daily life. The conventional education system became unstable due to these developments, and a technology-based education system evolved. Education is an ever-evolving field. It covers the conditions and prospects for technological advancement that will facilitate the transition from industry 4.0 to 5.0 (Salehudin et al., 2021).

The development of digital technology affects people's lives, especially their learning styles. Academic, professional, and personal achievement necessitate higher-order cognitive abilities, such as information literacy. Digital technology-based learning's effectiveness, efficiency, and appeal demonstrate that the education system is the most influential today (Firmansyah et al., 2021; Qu & Chen, 2021).

Online and face-to-face learning are complementary. The primary determinant of whether e-learning is beneficial or not is the users. E-learning is successful if users are satisfied with the system quality

characteristics and knowledge offered through e-learning (Ramadhani et al., 2019; Zulherman et al., 2021). Users' willingness to adopt and utilize e-learning, which eventually increases performance, can indicate their level of pleasure (A. H. Aldholay, Abdullah, et al., 2018).

Universities in Indonesia are a part of the 4.0 Industrial Revolution. The Indonesian government has implemented home-based schooling since the COVID-19 epidemic. As a result, the use of online learning methods has drastically expanded. Understanding student satisfaction with using technology to facilitate learning is crucial as colleges implement online learning (Huang et al., 2013; Rahayu et al., 2021). However, it is crucial, particularly during a pandemic, to assess student System (LMS) technology. The study by Martha et al. (2001), the use of LMS in schools and universities is better because it is supported by facilities to carry out internet learning. Poor e-learning systems and infrastructure, particularly in districts. Satisfaction with e-learning influences consumer acceptance (Martha et al., 2021).

Online learning is advantageous for students in terms of following the online learning process because it provides access from anywhere and, in most cases, at any time (Audia et al., 2021; Prabawangi et al., 2021). However, instructional materials must be well-designed to interest pupils and facilitate learning. According to Szopinski (2022), online learning offers numerous advantages, but it must be accompanied by dedication and resources and should be executed appropriately (Szopiński & Bachnik, 2022). Indicates that online learning materials must be adequate, emphasizing student learning and convenient support services. Many scholars believe online education should be highly innovative, collaborative, and interactive.

Previous research has demonstrated the efficacy of e-learning platforms such as Moodle (LMS) on the menu service for online learning support. Therefore, additional research is required to gauge acceptance and satisfaction with Moodle usage. Although Moodle LMS is already available in universities, its use is not optimum due to the system's and services' subpar quality. In the learning management system, the UTAUT model is validated and resilient (Alshehri et al., 2020). Social effects can affect the consuming intentions and behavior of students. The effort variable and regular performance depend on the system's structure and interaction. Numerous students dislike using their university LMS (Ahmed et al., 2021a).

In previous studies on the Moodle LMS, Ikhsan used the UTAUT Model with the addition of an external variable, User Satisfaction (US) (Ikhsan, Prabowo, Yuniarty, et al., 2021). The US is a variable in the DeLone McLean Model. However, three variables, Information Quality (IQ), System Quality (SQ), and Service Quality (SeQ), were not tested. In another study, Alzahrani combined three variables from the UTAUT model, namely Social Influence (SI), Behavior Intention (BI), and Use Behavior (UB), with three variables from the DeLone McLean Model, namely Service Quality (SeQ), Information Quality (IQ), and User Satisfaction (US) (Alzahrani & Seth, 2021). However, other variables were not tested: performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), and system quality (SQ). A similar study was conducted by Zhang, combining the UTAUT Model with the variables of Facilitating Conditions (FC), Social Influence (SI), Behavior Intention (BI), and Use Behavior (UB), and the DeLone McLean Model with the variables of Service Quality (SeQ), Information Quality (IQ) (Zhang et al., 2020). In this study, no tests were conducted on the variables of Performance Expectancy (PE), Effort Expectancy (EE), System Quality (SQ), or User Satisfaction (US). So, there is a gap for more research on the combined theory of the UTAUT and Delone McLean models because it is essential to determine how students act when using the Moodle platform. However, research on the satisfaction factor of students using learning platforms in higher education has changed the way students learn by interacting virtually (A. H. Aldholay, Isaac, et al., 2018). for example, the leadership of lecturers in online teaching will determine the success of implementing online learning (A. Aldholay et al., 2020). Previous studies on the study of technology acceptance in the use of online learning related to teaching and learning activities have been carried out, but the issue of portal quality affecting student satisfaction is also a concern (Abdallah & Abdallah, 2022; Hai & Nguyen, 2022; Merhi & Meisami, 2022) (Abdallah & Abdallah, 2022; Hai & Nguyen, 2022; Merhi & Meisami, 2022). The UTAUT model and the Delone McLean model are often used in studies of technology acceptance and successful technology adoption, so the investigators want to research proposals for leadership transformation as a mediator variable.

LMS Moodle

An LMS (Learning Management System) is software that helps manage teaching and learning activities. Implementing LMS Moodle is a strategic move to promote student-teacher interaction in higher education (Zabolotniaia et al., 2020). The LMS assists in learning management and student-lecturer interaction (Buabeng-Andoh & Baah, 2020). The LMS Moodle allows students and instructors to communicate at any time and place (Ain et al., 2016). Universities must comprehend the reasons why students utilize mobile-LMS programs for online learning. Therefore, the concept of UTAUT encourages students to use mobile LMS for online learning. Consequently, this study aims to identify and assess the factors influencing students' use of mobile LMS in online courses. This study's findings have substantial theoretical and practical implications for academics, students and professors at higher education institutions, and LMS Moodle developers. They are relevant to the research since they employ LMS to monitor and evaluate implementation progress.

Unified Theory of Acceptance and Use of Technology (UTAUT)

Extended UTAUT Model has developed by Raza et al. The theoretical and practical consequences of this study's findings for scholars, universities, and LMS developers are discussed. This study is significant to research since the qualities of utilizing LMS to evaluate student achievement are equivalent. In other research (Ikhsan, Prabowo, & Yuniarty, 2021b), the validity factor of student LMS adoption is a confirmatory factor analysis used in this study (Ikhsan, Prabowo, & Yuniarty, 2021a). The generated instrument satisfies the statistical requirements, allowing it to be utilized for research on learning management systems (LMS) online education (Bakheet & Gravell, 2020). This finding supports the research, as LMS implementation is a significant factor in determining how students embrace it. Therefore, it has a more significant influence than the other suggested UTAUT parts. This study supports the findings of earlier studies, concluding that website quality affects user goals, behavior, and satisfaction while adopting e-government services (Pinho et al., 2021). This statistically significant outcome demonstrates that improving website quality as an independent variable in the UTAUT model is adequate.

Performance Expectancy (PE)

PE is defined as "the amount to which an individual believes that the application of technology can help him achieve profitable employment results" (Venkatesh et al., 2003b). In general, they appear more willing to use and adopt new technologies if they perceive them as superior and more beneficial to their daily lives (Buche et al., 2009; Khan, 2005). So, the following hypothesis has developed. The performance of students who use learning technology will affect their interest in using it on an ongoing basis, resulting in satisfaction. However, other factors also influence the lecturer's leadership pattern on student satisfaction in the learning process. From here, we try to propose a hypothesis to be:

H1: *Does Performance Expectancy have a significant positive effect on Transformational Leadership?*

Effort Expectancy (EE)

EE) is "the level of ease associated with utilizing a system." According to Venkatesh and Davis (2003), an individual's desire to adopt a new system is predicted by the system's favorable rating, usability, and the free effort required (Venkatesh et al., 2003a, 2012). Since using LMS needs a certain degree of knowledge and skills, students' expectations of how much work they will have to do can significantly impact whether or not they desire to use these technologies (Sáiz-Manzanares et al., 2021). However, this will also be on the interest and sense of satisfaction of students in using the LMS (Mtebe & Raisamo, 2014). However, another study found that effort expectancy did not affect students' behavioral intentions to use technology in online learning (Marandu et al., 2022). Past studies have linked leader behavior with subordinate satisfaction and effort through the follower motivation expectation model. However, it is not known from other studies the effort expectancy of transformational leadership. The following hypothesis has developed.

H2: *Does Effort Expectancy have a significant positive effect on Transformational Leadership?*

Social Influence (SI)

SI is the degree to which a person feels that significant others believe he or she should adopt the new system. Moodle LMS is influenced by environmental factors, especially the impact of technological advances (Ahmed et al., 2021b). It is a good chance for people who use technology to learn how to use distance learning better. The findings reveal that technology used in an institution also requires more transformative leadership and impacts the learning process (Ng'ambi & Bozalek, 2013). Therefore, the following hypothesis has developed.

H3: *Does Social Influence have a significant positive effect on Transformational Leadership?*

Facilitating Conditions (FC)

FC is "the extent to which an individual believes an organizational and technological infrastructure exists to assist the system's use (Al-Adwan et al., 2021)." There is an ease factor in using technology when experiencing difficulties, with the availability of online guides and informative staff that quickly impact improving services for technology users—examples such as the Moodle platform. In previous studies, FC significantly affected student satisfaction (Wijaya et al., 2021). Meanwhile, in another study, FC affects student satisfaction (Lutfi et al., 2022). Investigators see inconsistencies, so further research needs to be done. However, it is not known at this time the role of FC in leadership in the institution. So, investigators try to the following hypothesis has developed.

H4: *Does Facilitating conditions have a significant positive effect on Transformational Leadership?*

Delone McLean Model

Learning management system (LMS) technology has become integral to university education. Individuals' actual behavior in adopting a new system and technology has always been identified as requiring user intent and willingness as a prerequisite (Ajzen, 1991; Tarhini et al., 2017; Venkatesh et al., 2003b). Numerous research has demonstrated the role of behavioral intention in actual user behavior in the LMS literature. Because the LMS significantly supports traditional learning, evaluating the LMS's efficacy is crucial. According to a study, an individual's performance has been influenced by their use of and contentment with the LMS system (Seta et al., 2018). In addition, this study discovered that the quality of the education system and technical quality are the primary contributors to user satisfaction with the LMS system. In contrast, the quality of content and information and user satisfaction with the LMS system influence the use of the LMS system.

System Quality (SQ)

SQ is defined as the students' impressions of the LMS's user-friendliness, accessibility, and access flexibility efficiency. According to Petter, this method is user-friendly, adaptable, dependable, and offers simplicity, sophistication, adaptability, and response time (Delone & McLean, 2003). Overall, quality has been studied as a second-order construct containing system quality, information quality, and service quality (Ho et al., 2010; Isaac et al., 2017). In this context, system quality is defined as the extent to which system users believe a system is easy to use, user-friendly, easy to learn, connect, and fun to use (Petter & McLean, 2009). In a previous study by A. Aldholay et al., (2019); A. H. Aldholay, Isaac, et al., (2018) where this overall quality affects Leadership Transformation (TL) in measuring the success of online learning. However, direct testing of the Information Quality (IQ) variable is not yet known for Leadership Transformation (TL). Therefore, we propose the hypothesis:

H5: *Does System Quality have a significant positive effect on Transformational Leadership?*

Information Quality (IQ)

The Delone & McLean information system success model describes sub-indicators that quantify information quality. Petter et al., (2008) define information quality as understanding, comprehending, and using information. According to Seta et al., (2018), information quality (IQ) benefits consumer satisfaction. So, quality information leads to user happiness, affecting e-learning use (Venkatesh et al., 2012). IQ makes it easier for consumers to find, learn, and understand information. Thus, the designed LMS will satisfy users. Overall quality has been examined as a second-order construct, including system quality, information quality, and service quality (Ho et al., 2010; Isaac et al., 2017). While information quality is described as the extent to which system users believe that online learning information is up-to-date, accurate, relevant, comprehensive, and well-organized, information organization is defined as how online learning material is presented (Halonen et al., 2010).

The following hypothesis has developed.

H6: *Does Information Quality have a significant positive effect on Transformational Leadership?*

Service Quality (SeQ)

The service quality is associated with a system. LMS users can be given services and Users will feel at ease utilizing the LMS if the service is high quality. Users will be more interested in e-learning if they are in a condition of peace and comfort when using it because this impacts their psychology (Petter et al., 2008; Seta et al., 2018). Researchers have looked at overall quality as a second-order construct that includes system quality, information quality, and service quality. (Ho et al., 2010; and Isaac et al., 2017). Service quality is referred to through these attributes: tangible, reliability, responsiveness, assurance, functionality, interactivity, and empathy (Delone & McLean, 2003). In a previous study by A. Aldholay et al., (2019); A. H. Aldholay, Isaac, et al., (2018), where this overall quality affects Leadership Transformation (TL) in measuring the success of online learning. However, direct testing of the Service Quality (SeQ) variable is not yet known for Leadership Transformation (TL).

The following hypothesis has developed.

H7: *Does Service Quality have a significant positive effect on Transformational Leadership?*

User Satisfaction (US))

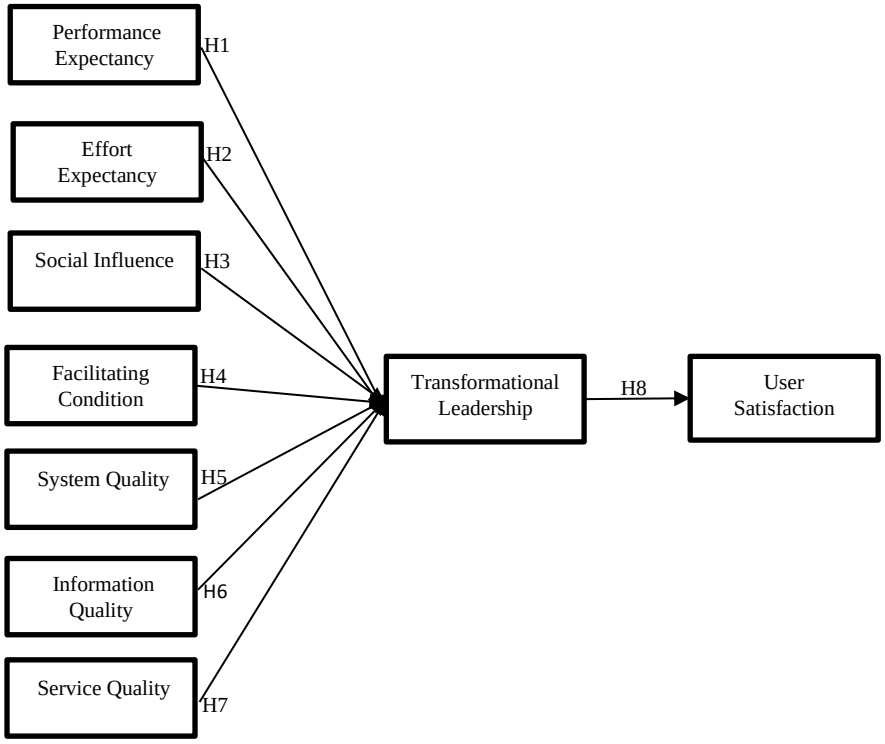
The US is the response and response a user provides after using an information system. Efficiency, effectiveness, and total satisfaction are the criteria that measure user pleasure (Puriwat & Tripopsakul, 2021). Student satisfaction is the enthusiasm or agreement linked with the system's utilization. It is also a measure of the success or failure of an accepted information system, in this case, a learning management system (LMS) (Ahmed et al., 2021b).

Transformational Leadership as a Mediator

Information system effectiveness and technology adaption research emphasizes transformational leadership (TL). University instructors can show faith in Information Systems and online learning by offering assistance, facilities, and construction. Management can promote online learning by sharing students' positive experiences. Transformative leadership improves learning directly and indirectly (Bouwmans et al., 2017). Thus, this study will evaluate how transformational leadership mediates student satisfaction using LMS-moodle and the UTAUT-Delone Mclean hybrid model. In previous research, transformational leadership affects user satisfaction (A. Aldholay et al., 2020). In another study, it is also seen that transformational leadership indirectly affects (A. H. Aldholay, Isaac, et al., 2018). So the researcher proposes a further hypothesis as follows:

H8: *Does Transformational Leadership have a significant positive effect on Behavior Intention?*

FIGURE 1
PROPOSED RESEARCH MODEL



METHOD

Research Design and Participants

This study employs a handy sampling technique because the sample is conveniently accessible and readily available (Etikan, 2016). The research was conducted at an Islamic University in Jakarta, Indonesia. Online access to the Moodle platform is restricted to undergraduate programs. Because it is a pilot project, data collection is restricted. This research is a survey research with a cross-sectional design, where the researcher collects data at a particular time. Only students who have utilized Moodle for at least two semesters (1 year) were included in this study. Sekaran et al. discovered that sixty legitimate responses were received out of sixty-five questionnaires for a response rate of 92.31 percent (Bougie & Sekaran, 2019).

Data Collection

Researchers choose and use data collection instruments to collect data consistently and efficiently. This study, therefore, evaluates the data using a Likert scale (Hills & Argyle, 2002). Student characteristics; gender, age, and amount of time utilizing the Moodle platform; and measuring constructs; PE, EE, FC, SI, SQ, IQ, SeQ, TL, US. The objective of the survey was to determine the impact of students' perceptions regarding Moodle usage. The following grades are on a scale from 1 to 5. (ordinal data). A five-point scale provides a reasonably good reliability estimation (Weng, 2004). This survey has a Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree). Students were given questionnaires during the last week of September 2022.

Data Analysis

Using partial least squares structural equation modeling (PLS-SEM), researchers analyzed data, Smart PLS 3. In addition, because this research is exploratory, PLS-SEM has been deemed an appropriate methodology (Joe F. Hair et al., 2017; Ouajdouni et al., 2022). Regarding the measurement model, Hair et al. (2017) suggest that researchers evaluate the external loading of manifest variables and extract mean-variance (AVE) to prove convergent validity.

FINDINGS

This limited pilot study (pilot testing) was conducted at an Islamic university in Jakarta, Indonesia, by random sampling. From the data received, as many as 60 answers are eligible for further analysis. Male students made up 8.33% of the student population, while female students made up 91.67%. Then, the experience of using the Moodle platform was one year of 23.33%, 1.5 years of 53.33%, and more than two years of 23.33%. These students are registered with the status of still actively studying at the university.

Measurement Model

In the measurement model, we examine the convergence validity, discriminant validity, and reliability of measurable components. It is because the loading factor and AVE value determine convergent validity criteria. This study tested validity using Heterotrait-Monotrait Ratio (HTMT) (Fornell & Larcker, 1981). Composite reliability (CR) ratings were utilized to evaluate the constructions' dependability. CR has claimed that standardized variable loadings provide a superior metric of internal consistency than Cronbach's Alpha (Fornell & Bookstein, 1982).

Factor loading is the primary indication of convergent validity, with a minimum threshold value of 0.50 (Joseph F. Hair et al., 2019). As a result, all indicators can be retained in the study, as the factors achieve good values (> 0.50). In addition to external loading, convergent validity was evaluated using the extracted variance mean (AVE). Since every structure exceeds the 0.50 threshold, the AVE value of each structure likewise satisfies minimum requirements (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017). Table 1 contains the measurement results model.

TABLE 1
CONVERGENT VALIDITY RELIABILITY

Construct	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Performance Expectancy (PE)	PE1	0.843	0.882	0.919	0.741
	PE2	0.868			
	PE3	0.945			
	PE4	0.779			
Effort Expectancy (EE)	EE1	0.842	0.876	0.915	0.731
	EE2	0.909			
	EE3	0.893			
	EE4	0.769			
Social Influence (SI)	SI1	0.735	0.804	0.872	0.631
	SI2	0.830			
	SI3	0.825			
	SI4	0.783			
Facilitating Condition (FC)	FC1	0.772	0.864	0.908	0.712
	FC2	0.869			
	FC3	0.871			
	FC4	0.859			
	SQ1	0.862	0.901	0.931	0.772

System Quality (SQ)	SQ2	0.904			
	SQ3	0.877			
	SQ4	0.871			
Information Quality (IQ)	IQ1	0.902	0.943	0.960	0.856
	IQ2	0.879			
	IQ3	0.953			
	IQ4	0.964			
Service Quality (SeQ)	SeQ1	0.894	0.914	0.939	0.795
	SeQ2	0.899			
	SeQ3	0.900			
	SeQ4	0.874			
Transformational Leadership (TL)	TL1	0.726	0.783	0.861	0.608
	TL2	0.779			
	TL3	0.842			
	TL4	0.767			
User Satisfaction (US)	US1	0.951	0.922	0.951	0.608
	US2	0.931			
	US3	0.909			

The model shows that all items were good indicators of the hypothesized constructs (Hamdollah & Baghaei, 2016; Wu & Chen, 2017). In addition, the composite reliability (CR) for each construct is above the suggested threshold values (> 0.70). The outer loadings, AVE, and CR values have met the criteria, and the measurement has been completed.

Another measure of structural validity is discriminative validity, which is distinct from convergent validity. The Heterotrait-Monotrait ratio is the average correlation between the Heterotrait-Heater method and the average correlation between the Monotrait-Heater method (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017; Henseler et al., 2014).

Table 2 shows the Heterotrait-Monotrait ratio within the required values range of 0.90 (Kline, 2011). Based on the test results of all instruments used with confirmatory factor analysis (CFA), it was determined that both convergent and discriminant validity criteria had been met, allowing the conclusion that the instrument used in the study can be used to test the proposed model's hypothesis.

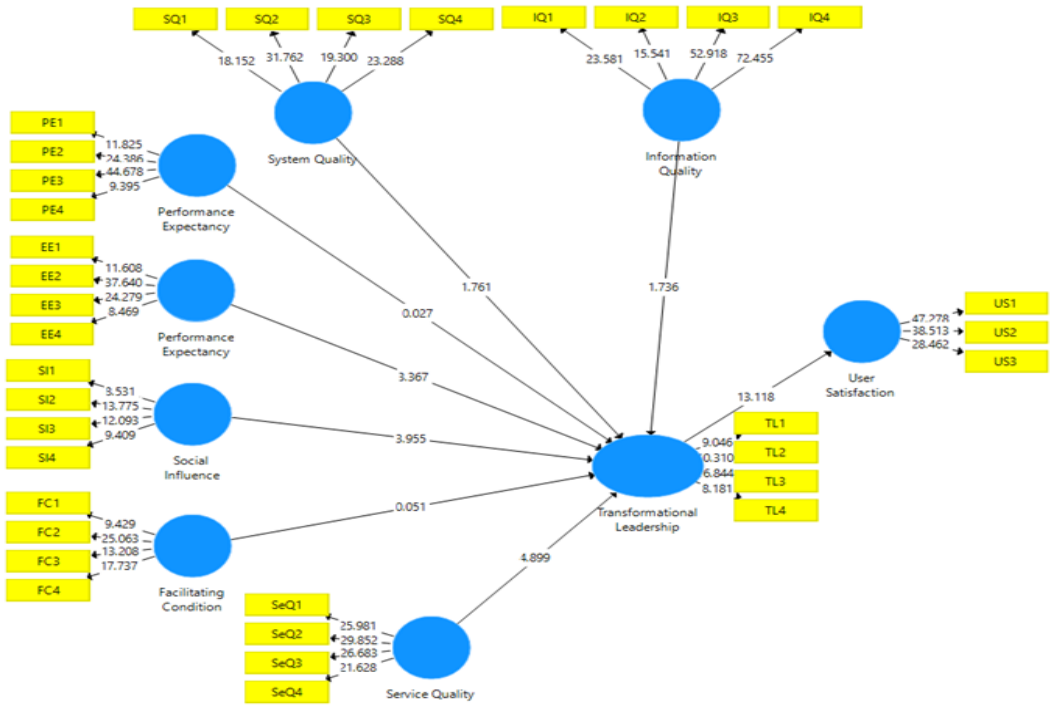
TABLE 2
DISCRIMINANT VALIDITY: HETEROTRAIT-MONOTRAIT RATIO (HTMT)

	EE	FC	IQ	PE	SeQ	SI	SQ	TL	US
EE									
FC	0.781								
IQ	0.734	0.885							
PE	0.834	0.812	0.817						
SeQ	0.632	0.765	0.870	0.780					
SI	0.973	0.966	0.898	0.896	0.876				
SQ	0.853	0.765	0.864	0.771	0.730	0.900			
TL	1.008	0.923	0.914	0.931	0.984	1.158	0.962		
US	0.828	0.822	0.847	0.798	0.828	0.975	0.865	0.987	

Structural Model Result

Based on table IV, Hypothesis testing, the structural model was developed to investigate the presented hypothesis in this study. According to (F. Hair Jr et al., 2014; Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017; Joseph F. Hair et al., 2019), the hypothesis is supported if the t-value is a minimum of 1.64 (one-tailed), which is a significant level of 5%. The confidence interval value is greater than zero.

FIGURE 2
PATH ANALYSIS



In figure 2 & Table 3, The statistical results of each path in the research model show that the hypothesis (H2), (H3), (H5), (H6), (H7), (H8) have a significant positive effect, but for the hypothesis (H1), (H4) hypothesis are not significant.

TABLE 3
HYPOTHESIS TESTING

Hypothesis	Path	Std.Betta	Std.Error	t-values	Bias	Confidence Interval		Decision
						5.00%	95.00%	
H1	PE -> TL	0.002	0.073	0.027	-0.016	-0.088	0.158	Rejected
H2	EE -> TL	0.290	0.086	3.367	0.020	0.118	0.413	Supported
H3	SI -> TL	0.394	0.100	3.955	-0.015	0.238	0.560	Supported
H4	FC -> TL	-0.004	0.077	0.051	-0.010	-0.126	0.116	Rejected
H5	SQ -> TL	0.155	0.088	1.761	0.005	0.015	0.303	Supported
H6	IQ -> TL	-0.148	0.085	1.736	0.009	-0.277	-0.004	Supported
H7	SQ -> TL	0.383	0.078	4.899	0.012	0.253	0.507	Supported
H8	TL -> US	0.841	0.064	13.118	-0.012	0.702	0.911	Supported

TABLE 4
R-SQUARE

	R Square	R Square Adjusted
Transformational Leadership	0.934	0.925
User Satisfaction	0.708	0.703

The R square indicates the explanatory ability of endogenous variables. According to the data in table 4, the square value of R for Transformational Leadership is 0.934, and the square value of R for User Satisfaction is 0.708. The R square value is generally characterized as strong, indicating that the explanatory power of the Transformational Leadership & User Satisfaction factors is good since six variables passed the structural model test. Just two variables had no significant influence.

TABLE 5
EFFECT SIZE (F2)

	Transformational Leadership	User Satisfaction
Effort Expectancy	0.318	
Facilitating Condition	0.000	
Information Quality	0.057	
Performance Expectancy	0.000	
Service Quality	0.650	
Social Influence	0.404	
System Quality	0.093	
Transformational Leadership		2.420
User Satisfaction		

Based on table 5, it is found that (PE), (FC), (IQ), (SQ) have an effect on (TL) with a low category (value below the minimum standard of 0.15). In contrast (EE), (SI), and (SeQ) have an effect against (TL) in the medium category (values between 0.15 - 0.35), which is interesting for (TL) has a strong effect on (US) with a value of 2,420 (above 0.35).

DISCUSSION

This study examines student satisfaction with using the Moodle platform at universities. It supports the government's policy of implementing distance learning while it is still on the way to the new normal. It follows the aim of knowing the level of student satisfaction in using the Moodle platform from the pandemic to the present. For example, since the COVID-19 pandemic, online learning has shown the level of use of e-learning. For example, learning is carried out at universities using the Moodle platform. With this, it can be seen that the needs of the platform's users are increasing during the pandemic—most Moodle platform user behavior, especially for academics: lecturers and students. However, there is still little previous research related to the attitude factor of Moodle platform users at the beginning of the pandemic.

The UTAUT model supports this research as a theoretical basis for using the technology. The researcher tries to add the Delone-McLean model theory because this theory can evaluate the use of technology. There has been no research on the two models' combinations. We also include the leadership transformation (TL) variable as a mediator because the research was conducted at universities. As a result, the researchers believe that it is a good idea to find something new in this research.

The data testing results using PLS analysis showed that six hypotheses were accepted from the eight proposed hypotheses. Performance Expectancy (PE) does not have a significant positive effect on

Transformational Leadership (TL), indicating that PE does not stimulate students in learning activities using the Moodle platform, so it does not affect students' motivation in online learning. However, Effort Expectancy (EE) affects Transformational Leadership (TL), meaning that the efforts made by students affect the motivation and way of thinking of students' independence to use the Moodle platform. It is due to many factors because students' abilities in using the Moodle platform differ. However, their good understanding of the operation of Moodle when doing college assignments helps them in activities during the learning process.

Social Influence (SI) affects Transformational Leadership (TL), which is interesting because SI is an important factor influencing student behavior when using the Moodle platform. So the student's perception factor is influenced by the surrounding environment. During the pandemic, there has been a change in learning styles from offline to online, so this is an adaptation, especially for students. Although online learning has existed before, and there has been much previous research on this issue, during the COVID pandemic, it was very different because they have been doing online learning for two years, so environmental factors also influence student behavior today.

Facilitating Condition (FC) is an essential factor that supports students using the Moodle platform. However, When having difficulty using the system, students need other sources of information and technical assistance to use the Moodle platform to learn optimally. Many sample user guides already exist but still require special assistance, especially for students new to using the Moodle platform. In conclusion, FC has not affected TL, so students have not been served well, so they have not been affected when there is a problem using the Moodle platform.

System Quality (SQ) has a significant positive effect on Transformational Leadership (TL), so this shows that SQ on the Moodle platform has qualities that affect students, so the TL variable is affected. It also affects convenience, and the availability of supporting features also has a significant effect. This conclusion is that SQ strongly influences TL for students who use the Moodle platform. Our findings also relate to (A. Aldholay, Isaac, et al., 2018a; A. Aldholay et al., 2020), where SQ affects TL.

Information Quality (IQ) significantly positively affects Transformational Leadership (TL). Findings from (A. Aldholay, Isaac, et al., 2018b; Ghazali et al., 2015) also show that IQ significantly affects each user. The Moodle platform is an example of the application of the latest information technology so that students can easily access other information. So, IQ supports TL for students who use the Moodle platform in such conditions.

Service Quality (SeQ) also affects students' TL, so this shows that the level of service on the Moodle platform is extraordinary, starting from student interactions with IT operators in the system. When there is a problem, the IT team is quick to help, proving that the best service will positively impact students. In our findings, this is also the case with findings (Seta et al., 2018; Tere - et al., 2020) when service quality affects good outcomes for each user.

The results also confirm that TL significantly affects user fulfillment. It indicates that students feel fulfilled and use online learning when higher management influences their perspective and inspires them to appreciate their efforts in using online learning and its significance. These results are in agreement with previous studies on the role of TL (Alos-Simo et al., 2017; Cho et al., 2011). confirming the substantial impact on user satisfaction shows that if students see online learning as in line with principles and needs, they will feel more satisfied with it and use it more often.

CONCLUSION

This study found that student satisfaction was reasonable when using the Moodle platform. However, this pandemic is also essential in the new standard era. In general, the behavior of students who use the Moodle platform in terms of ease of use is constructive in the learning process, and support from lecturers and university leadership policies is also significant. The quality of the Moodle platform also dramatically supports student satisfaction when using the Moodle platform. Students' self-confidence ultimately determines student learning satisfaction after using the Moodle platform.

SUGGESTION AND LIMITATION

We conclude that many external factors influence the results obtained. We have limitations in this study, so it is necessary to continue research, for example, by adding factors of age, gender, and student experience in using other platforms. It is to reduce the possibility of future problems. Our research is still very limited in the aspect of students only. In the future, it will be better to do it in the aspect of lecturers. So the results will be better.

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