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Acceptance of E-Learning System at Private University in Indonesia During the COVID-19 Pandemic: Students' Perspectives

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Abstract — The Covid-19 pandemic in Indonesia impacts policies and learning processes at Budi Luhur University (UBL). The complete online learning policy has been implemented since the 2nd semester of 2019/2020, which began in March 2020. Students and lecturers carry out teaching and learning activities through an e-learning system developed in 2005. Although it has been implemented for a long time, the level of acceptance has never been measured comprehensively. This research has a contribution in measuring the level of acceptance of e-learning. In addition, before the Covid-19 pandemic, the e-learning system was still partially implemented and only for a few courses. In this study, an analysis of the student acceptance of the UBL e-learning system was carried out by involving respondents and a more comprehensive acceptance model. The modeling used in this study refers to the Comprehensive Technology Acceptance Model (CTAM) with seven exogenous variables and five endogenous variables. Testing and analysis are based on variant-based structural equation models, namely Partial Least Square (PLS) using the SmartPLS application. The results show that nine main factors influence student acceptance of the e-learning system: system quality (SQ), content quality (CQ), information quality (IQ), accessibility (AC), enjoyment (EN), perceived ease of use (PE), perceived usefulness (PU), and student attitudes towards applications (AT), and behavioral intention to use (BI). This research is helpful for UBL and other educational institutions as material for developing a quality e-learning system accepted by its users.

Keywords – e-learning system, comprehensive technology acceptance model, private university, learning management system

I. INTRODUCTION

The high level of the coronavirus disease (Covid) spread in Indonesia has prompted the government to issue policies related to work, study, and worship activities to be carried out at home to anticipate that the viruses do not continue to spread. During a press conference at the Bogor Palace, the President of Indonesia instructed this policy to reduce outdoor activities on Sunday, March 15, 2020. With this instruction, starting on March 16, 2020, government and private agencies began implementing a Work From Home (WFH) policy, including educational institutions that impose a Distance Learning System.

Universitas Budi Luhur (UBL) is one of the private universities in Indonesia. UBL has used a web-based e-learning system in its lecture activities to implement the policy for the learning process from home. During the Covid-19 pandemic, lecturers and students are expected to make the best use of the e-learning system in the learning process. Therefore, the "learning from home" policy forces lecturers and students to use the e-learning system fully. This policy, of course, gets various responses and perceptions from system users, especially students.

As one of the private universities in Indonesia that always prioritizes innovation and information technology, UBL has been developing e-learning-based online learning tools since 2005. However, so far, the UBL e-learning system has supported learning with the blended-learning mechanism. Furthermore, the Covid-19 pandemic situation since March 2020 led UBL to

issue a complete online learning policy in the second semester of the 2019/2020 academic year. As a result, an e-learning system was prepared and adjusted both in terms of functionality and infrastructure.

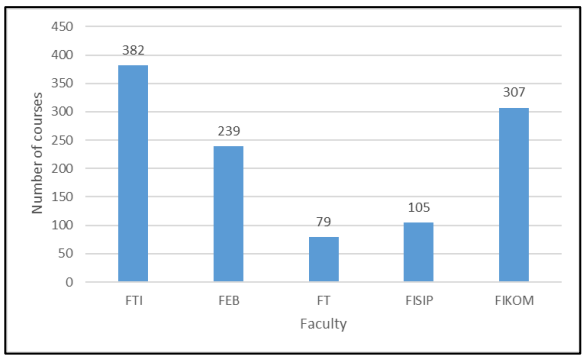

Fig. 1. Number of e-learning Courses for Each Faculty

The "study from home" policy resulted in a significant increase in the use of e-learning. In the odd semester of 2019/2020, the average number of meetings held using e-learning was only 3.65 times out of a total of 15 sessions (around 24% of the total meetings). Figure 1 presents data on the number of activities of UBL e-learning users from August to December 2020. Based on this data, activity increased sharply from August to October and decreased slightly in December 2020 because it entered the end of lectures. With average access of 8.6 million per month, it shows the high activity of the UBL e-learning system users. Meanwhile, Fig.2 presents the number of classes or subject groups organized online through the e-learning system. Most users are the Faculty of Information Technology and the Faculty of Communication Sciences.

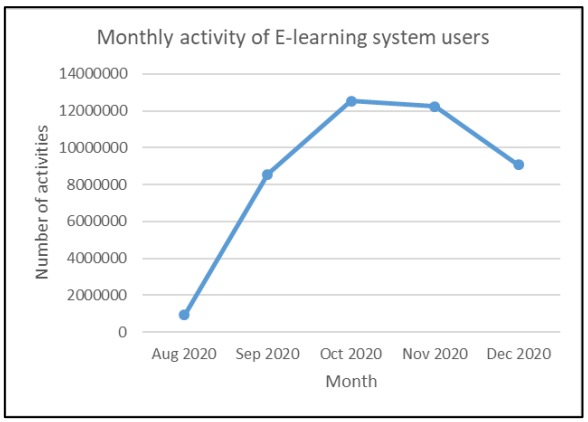

Fig. 2. The Monthly Activity of The e-Learning System

The full e-learning-based online learning policy, especially by lecturers and students, provides an excellent opportunity to measure the acceptance rate of the e-learning system from the user's point of view more accurately and comprehensively. However, research that has been conducted by [1] and [2], who analyzed the acceptance level of the e-learning system at UBL, has two weaknesses. First, the scope of research is only conducted in one faculty, namely the Faculty of Information Technology. Second, research respondents do not necessarily use the e-learning system entirely, so filling the instruments is not optimal.

The success of implementing an information technology or system, including an e-learning system, can be measured by various methods, both from the user's point of view and the quality of the technology itself. Several ways that can be used to measure the acceptance of information systems include the Technology Acceptance Model (TAM) [3], [4], the unified theory of acceptance and use of technology (UTAUT) [5], and the Theory of Planned Behavior (TPB). One widely used method to measure implementing technology from the user's point of view is the Technology Acceptance Model (TAM). TAM is a theory concerning information systems or technology acceptance models, namely how users want to accept and use technology. The purpose of this model is to predict, not describe. Instead, it means to indicate the acceptance of a system or technology by its users. This model proposes that when users are offered a new system, several factors can influence their decisions about how and when to use the system, particularly in terms of usefulness and ease of use.

Table 1 presents various studies related to the acceptance of e-learning systems at educational institutions, both secondary and higher education. Based on Table 1, the TAM model is most widely used to analyze the acceptance of e-learning systems in educational institutions. However, the TAM models vary because many researchers have modified and extended the original TAM model [6]. Expansion is done by adding external factors that are thought to affect the TAM modeling variables.

Table 1. Recent Research on The Acceptance of e-Learning Models In Indonesia

Year	Paper	Research Objective	Method
2016	[1]	E-learning acceptance of the Universitas Budi Luhur	TAM
2017	[7]	E-learning acceptance of the XYZ University	TAM
2017	[8]	E-learning acceptance of the Atmajaya University	TAM
2017	[9]	E-learning acceptance of the International Batam University	TAM
2019	[10]	E-learning acceptance of the Airlangga University	TAM
2019	[11]	E-learning acceptance of the Jember University	TPB
2019	[12]	E-learning acceptance of the Makassar University	UTAUT
2019	[6]	E-learning acceptance of the UEA universities	CTAM
2020	[13]	E-learning acceptance of the SMK Malang	TAM
2020	[14]	E-learning acceptance of the STMIK Bumigora	TAM

Davis first introduced the TAM model in 1985 [3], which became known as the first version of the TAM model. The first version of TAM uses two variables to

assess technology acceptance: perceived benefits and ease of use. Furthermore, TAM was perfected in 1989 by Davis et al [15] and improved by several experts. The last version of TAM is TAM version 3, developed in 2008 by Viswanath Venkatesh and Hillol Bala [4].

In this study, an analysis of the acceptance of the e-learning system was carried out from students' perspectives. Regarding research on the acceptance of e-learning at Budi Luhur University, it was first carried out by Prasetyo et al. in 2011, who examined the acceptance of the e-learning system using the UTAUT approach using six research variables [2]. However, the weakness of this research is that the respondents are limited to one faculty, namely the Faculty of Information Technology. In addition, in 2011, e-learning usage was not evenly distributed, so the study results did not reflect the actual conditions. Furthermore, research on e-learning at UBL was conducted by Gata in 2016 using the TAM method [1]. Moreover, the study was limited to the Faculty of Information Technology with only 100 respondents and research variables.

In this study, the measurement of student acceptance of the UBL e-learning system was carried out using the Comprehensive Technology Acceptance Model (CTAM) developed by Salloum et al. [6]. Salloum et al. developed a CTAM model based on the Technology Acceptance Model (TAM) by Davis [3], [15] with several modifications. CTAM is a model developed explicitly for e-learning systems, while TAM is designed to measure the level of acceptance of technology and information systems in general. We use the CTAM model because this model was specifically developed to analyze e-learning system acceptance. In contrast, other models such as the original TAM, UTAUT, and TBD were not explicitly designed for e-learning system acceptance.

The results of this study are beneficial for UBL in developing an e-learning learning system so that it is more effective and efficient. Furthermore, with high activity, the results of the acceptance analysis are more objective and valid than previous studies. Indirectly, this research can be used as input for the development of e-learning systems in other institutions.

II. RESEARCH METHODS

A. Comprehensive Technology Acceptance Model (CTAM)

In this study, modeling was adopted from the extension of the TAM model initiated by Salloum et al. [6]. The expansion of the TAM model was piloted towards accepting e-learning by students at five universities located in the United Arab Emirates called Comprehensive TAM (CTAM). The CTAM model uses eight exogenous variables and five endogenous variables. The exogenous variables include system quality (SQ), content quality (CQ), information quality (IQ), computer self-efficacy (SE), subjective norm (SN), enjoyment (EN), accessibility (AC), and computer playfulness (CP). Meanwhile, the endogenous variables consist of perceived usefulness (PE), ease of use (EU), attitude towards use (AT), behavioral intention to use (BI), and actual system use (AS). This study, the CTAM modeling uses seven exogenous and five endogenous variables in this study, as seen in Fig. 3.

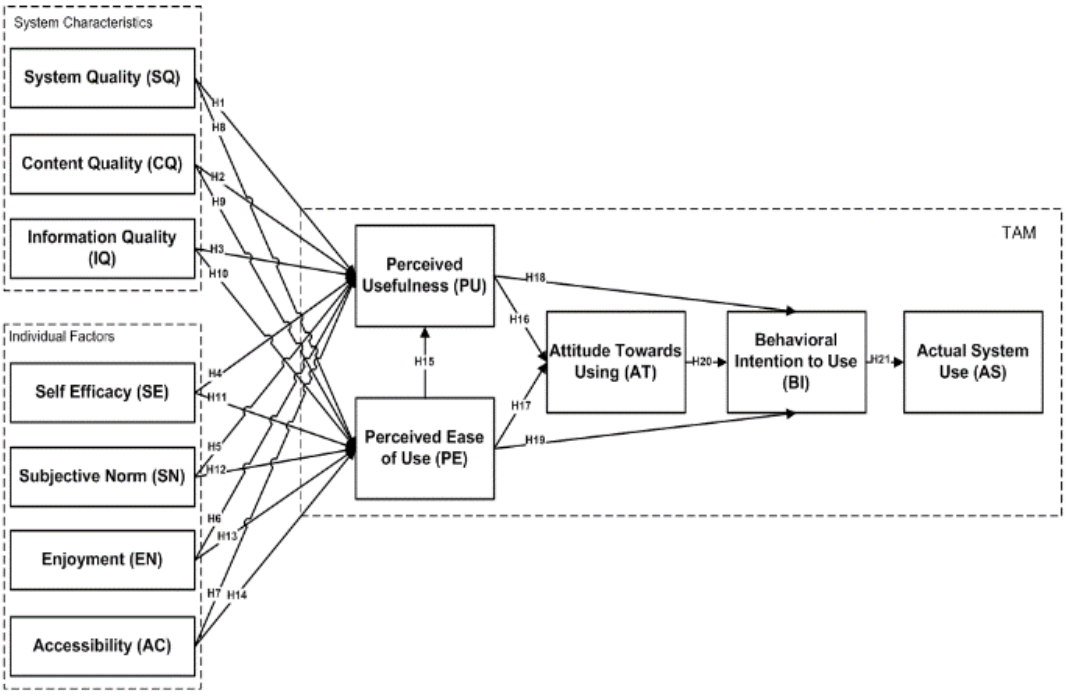

Fig. 3. E-Learning Acceptance Model with Comprehensive TAM

In this study, the CTAM model was modified to suit the needs of the study, as presented in Figure 3. The computer playfulness variable was not used in this study because the authors considered that this variable had similarities with computer self-efficacy. In their research, Salloum et al. [6] define computer playfulness as the level of cognitive spontaneity in interacting with computers. The author considers that this is closely related to a person's ability to operate a computer. Therefore, the computer playfulness variable is deemed to have been represented by the computer self-efficacy variable.

We develop indicators based on literature review and discussions with related parties in the research object. The results of the study are indicators, as presented in Table 2.

Table 2. Variables and Indicators

#	Variables	Descriptions	Indicators
1	System Quality (SQ)	System quality (SQ) determines the way that the system characteristics ability influence the outlooks of the users to the use of e-learning system [6], [15]	1. Access capacity 2. Stability 3. Speed 4. Design interface
2	Content Quality (CQ)	The content quality (CQ) aspect in e-learning signifies the depth and frequent updates of the content	1. Conformity 2. Tidiness 3. Interest
3	Information Quality (IQ)	Information quality (IQ) refers to "using e-learning for seeking information that may be important for learning and which is updated, for making it easier for the learner to comprehend it" [16], [17]	1. Clarity 2. Conformity 3. Availability
4	Self Efficacy (SE)	Self-efficacy refers to "the individuals' confidence in their capacity to take steps needed to deal with future situations" [18]	1. Computer system 2. Online system 3. E-Learning system
5	Subjective Norm (SN)	The subjective norm refers to "the person's perception that most people who are important to him or her think he or she should or should not perform the behavior in question" [15]	1. External influences
6	Enjoyment (EN)	Enjoyment (EN) is defined as the activity of using e-learning that is perceived to be enjoyable in its own right [5]	1. Access 2. Materials 3. Discussion forum 4. Chat
7	Accessibility (AC)	Accessibility (AC) refers to the degree of ease of how a user can access and use the information and extracted from the system [19]	1. Compatibility 2. Stability 3. Availability
8	Perceived Usefulness (PU)	Perceived usefulness (PU) refers to the degree to which individuals believe that the use of new technology can improve their job performance [15]	1. Resources presentation 2. Discussion Forum 3. Chatting features
9	Perceived Ease of Use (PE)	The perceived ease of use (PE) of a system refers to the degree to which an individual perceives that the use of a specific technology would not be complicated [15]	1. Access 2. Operation 3. Functionality 4. Menu layout 5. Action feedback
10	Attitude Towards Using (AT)	Attitude refers to "the degree to which a person has a positive or negative feeling towards e-learning systems" [20]	1. Effectivity 2. Existence
11	Behavioral Intention to Use (BI)	The behavioral intention (BI) refers to the intent of the learners to employ e-learning systems and involves persistent use from the present to the future [21]	1. Usage 2. Recommendation
12	Actual System Use (AS)	The actual system use (AS) refers to the intensity of users to use the system.	1. Usage intensity

Based on the research model in Fig. 3, there are 21 hypotheses. The hypotheses tested in this study are:

- H1: SQ effect on PU.
- H2: CQ effect on PU.
- H3: IQ effect on PU.
- H4: SE effect on PU.
- H5: SN effect on PU.
- H6: EN effect on PU.
- H7: AC effect on PU.
- H8: SQ effect on PE.
- H9: CQ effect on PE.
- H10: IQ effect on PE.
- H11: SE effect on PE.
- H12: SN effect on PE.
- H13: EN effect on PE.
- H14: AC effect on PE.
- H15: PE effect on PU.
- H16: PU effect on AT.
- H17: PE effect on AT.
- H18: PU effect on BI.
- H19: PE effect on BI.
- H20: AT effect on BI.
- H21: BI effect on AS.

B. Population and Sample

In this study, the research method used is quantitative research methods with survey methods. The research data was collected by distributing questionnaires to students who are users of the UBL e-learning system. The questionnaire contains a statement with five response options, namely strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5).

The population in this study was all active UBL students, both at 3-year-diploma, bachelor's degrees, and postgraduate. Based on data obtained from the official website of the Higher Education Database (PDDIKTI) for the 2019/2020 reporting year, active students of UBL totaled 11,428 students [22].

This study refers to the equation developed by Isaac and Michael [23] as presented in (1) to determine the number of samples.

$$S = \frac{\lambda^2 . N . P . Q}{d^2(N-1) + \lambda^2 . P . Q} \quad (1)$$

Based on (1), S is the number of samples, N is the population number, P is the true probability, Q is the false probability, and d is the difference between sample and population means. Furthermore, λ^2 is the chi-square whose value depends on the degree of freedom and error rate. Based on Equation (1), with the number of population (N) is 11,428, the true probability (P) and false probability (Q) are 0.5, the d is 0,1, and the λ^2 is 3.841, the minimum number of samples in this study is 95. In this study, we used the snowball sampling method to obtain sample data. Data collection was conducted online in June-July 2020 via Google Forms.

Furthermore, the data that has been collected is tested with data testing techniques based on variant-based structural equation modeling (SEM), namely Partial Least Square (PLS), whose analysis calculations use the help of the SmartPLS 3 application. According to [24], the PLS analysis procedure consists of measurement and structural models. Measurement model analysis aims to measure the indicators developed in a construct. In contrast, the structural model seeks to analyze the structure of the relationship between latent variables.

After the calculations are complete, hypothesis testing is done by evaluating the t-statistical value in the path coefficient table from the bootstrapping calculation results (Smart PLS 3). If the value is greater than 1.96, then the hypothesis is accepted, and vice versa if the t-statistic value is smaller than 1.96, then the assumption is rejected [25].

III. RESULTS

A. Data Collection

The results of the collected questionnaire data were 136 respondents. However, of the total respondents, 3 data were deemed unable to be processed to the next stage due to duplication of the respondent's identity. Thus, the data processed in this study amounted to 133 respondents with the characteristics of the data presented in Table 3.

Table 3. The Demographics of Respondents

Description	Characteristics	Sum	%
What degree did the respondent come from?	Diploma	3	2%
	Undergraduate	96	72%
	Postgraduate	34	26%
What faculty did the respondent come from?	FTI	99	74%
	FEB	1	1%
	FIKOM	31	23%
	FT	1	1%
	FISIP	1	1%
How long will it take to use the e-learning system?	One semester	29	22%
	2 semester	27	20%
	> 2 semester	77	58%

Based on the respondents' demographic data presented in Table 3, it can be concluded that the respondent data has represented the research population both in terms of education degree, faculty, and experience in using the e-learning system. Most of the respondents came from the Faculty of Information Technology (74%) and undergraduate level (72%). Meanwhile, if viewed from experience using the e-learning system, as many as 58% of respondents have used e-learning for more than two semesters. Thus, in terms of the number and quality of research respondents, it is sufficient.

Table 4. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
X1 (SQ)	0.805	0.837	0.862	0.610
X2 (CQ)	0.807	0.838	0.886	0.724
X3 (IQ)	0.878	0.880	0.925	0.804
X4 (SE)	0.824	0.878	0.876	0.640
X5 (SN)	0.713	0.726	0.837	0.632
X6 (EN)	0.853	0.858	0.901	0.695
X7 (AC)	0.703	0.719	0.832	0.624
Y1 (PU)	0.870	0.870	0.907	0.661
Y2 (PE)	0.855	0.864	0.897	0.637
Y3 (AT)	0.775	0.776	0.856	0.597
Y4 (BI)	0.744	0.752	0.838	0.565
Y5 (AS)	0.826	0.853	0.881	0.650

B. Evaluation of the Measurement Model (Outer Model)

In this evaluation, the validity and reliability tests are carried out. Both tests can be done by analyzing the

calculated value for each variable. In the SmartPLS 3 application, we can see these values in the Construct Reliability & Validity table presented in Table 4. From Table 4, it can be seen that all variables have an Average Variance Extracted (AVE) value greater than 0.5. So it can be concluded that all variables used in this study can be said to be valid [26].

The second test is the reliability test. Based on Table 4, it can be seen that the value of Composite Reliability (CR) and Cronbach's alpha (CA) for all variables is greater than 0.7 [26]. Thus it can be concluded that all indicators used in this study are declared reliable or can measure each variable powerfully.

C. Evaluation of the Structural Model (Inner Model)

At this stage, the assessment is carried out by analyzing the values on the R-Square, path coefficient, t-statistics, and relevance and fit models analysis. Table 5 presents the R-Square value based on the evaluation of the data.

Table 5. The R-Square

	R Square	R Square Adjusted
Y1 (PU)	0.572	0.544
Y2 (PE)	0.673	0.655
Y3 (AT)	0.382	0.372
Y4 (BI)	0.596	0.587
Y5 (AS)	0.163	0.157

From Table 5, it can be concluded that:

- PU is influenced by SQ, CQ, IQ, SE, SN, EN, and AC by 57%, and other variables outside of this study influence the rest.
- PE is influenced by SQ, CQ, IQ, SE, SN, EN, and AC by 67%, and other variables outside of this study influence the rest.
- AT is influenced by PU and PE by 38%, and other variables outside this study affect the rest.
- PU, PE, and AT influence BI by 59%, and other variables outside this study affect the rest.
- AS is influenced by BI by 16%, and other variables outside of this study influence the rest.

The following analysis looks at the path coefficient value generated by the SmartPLS calculation as in Table 6.

Table 6. The Path Coefficient by SmartPLS

	Y1 (PU)	Y2 (PE)	Y3 (AT)	Y4 (BI)	Y5 (AS)
X1 (SQ)	-0.058	0.154			
X2 (CQ)	-0.155	0.341			
X3 (IQ)	0.082	0.194			
X4 (SE)	0.034	0.056			
X5 (SN)	0.183	-0.030			
X6 (EN)	0.598	0.043			
X7 (AC)	-0.012	0.234			
Y1 (PU)			0.352	0.067	
Y2 (PE)	0.173		0.362	0.169	
Y3 (AT)				0.627	
Y4 (BI)					0.404
Y5 (AS)					

From Table 6, it can be concluded that:

- SQ has a negative effect on PU and a positive effect on PE.
- CQ has a negative effect on PU and a positive effect on PE.
- IQ has a positive effect on PU and PE.
- SE has a positive effect on PU and PE.
- SN has a positive effect on PU and a negative effect on PE.
- EN has a positive effect on PU and PE.
- AC has a negative effect on PU and a positive effect on PE.
- PU has a positive effect on AT and BI.
- PE has a positive effect on PU, AT, and BI.
- AT has a positive effect on BI.
- BI has a positive effect on the US.

To complete the path analysis generated by SmartPLS, the path coefficient value analysis is then carried out using the bootstrapping method. The results of the path analysis using bootstrapping are shown in Table 7.

Table 7. The Path Coefficient Analysis Using Bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
X1 (SQ) → Y1 (PU)	-0.058	-0.053	0.086	0.673	0.501
X1 (SQ) → Y2 (PE)	0.154	0.152	0.072	2.150	0.032
X2 (CQ) → Y1 (PU)	-0.155	-0.158	0.109	1.427	0.154
X2 (CQ) → Y2 (PE)	0.341	0.327	0.107	3.201	0.001
X3 (IQ) → Y1 (PU)	0.082	0.087	0.117	0.697	0.486
X3 (IQ) → Y2 (PE)	0.194	0.202	0.088	2.212	0.027
X4 (SE) → Y1 (PU)	0.034	0.029	0.094	0.357	0.721
X4 (SE) → Y2 (PE)	0.056	0.059	0.081	0.692	0.489
X5 (SN) → Y1 (PU)	0.183	0.178	0.098	1.873	0.062
X5 (SN) → Y2 (PE)	-0.030	-0.017	0.078	0.388	0.698
X6 (EN) → Y1 (PU)	0.598	0.598	0.079	7.612	0.000
X6 (EN) → Y2 (PE)	0.043	0.038	0.086	0.497	0.619
X7 (AC) → Y1 (PU)	-0.012	-0.010	0.079	0.154	0.878

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/ STDEV|)	P Values
X7 (AC) → Y2 (PE)	0.234	0.232	0.067	3.519	0.000
Y1 (PU) → Y3 (AT)	0.352	0.354	0.089	3.958	0.000
Y1 (PU) → Y4 (BI)	0.067	0.059	0.086	0.773	0.440
Y2 (PE) → Y1 (PU)	0.173	0.169	0.103	1.683	0.093
Y2 (PE) → Y3 (AT)	0.362	0.370	0.109	3.314	0.001
Y2 (PE) → Y4 (BI)	0.169	0.189	0.119	1.420	0.156
Y3 (AT) → Y4 (BI)	0.627	0.616	0.114	5.485	0.000
Y4 (BI) → Y5 (AS)	0.404	0.417	0.083	4.844	0.000

Based on Table 7, the level of significance of the variable relationship can be concluded as follows:

- SQ negatively affects PU.
- SQ has a positive and significant effect on PE.
- CQ negatively affects PU.
- CQ has a positive and significant effect on PE.
- IQ has a positive effect on PU.
- IQ has a positive and significant effect on PE.
- SE has a positive effect on PU.
- SE has a positive effect on PE.
- SN has a positive effect on PU.
- SN negatively affects PE.
- EN has a positive and significant effect on PU.
- EN has a positive effect on PE.
- AC has a negative effect on PU.
- AC has a positive and significant effect on PE.
- PU has a positive and significant effect on AT.
- PU has a positive effect on BI.
- PE has a positive effect on PU.
- PE has a positive and significant effect on AT.
- PE has a positive effect on BI.
- AT has a positive and significant effect on BI.
- BI has a positive and significant effect on the US.

The next test is carried out to see the role of exogenous variables on endogenous variables by analyzing the relevance of Q^2. Relevance analysis by looking at the value of Q^2 based on the results of blindfolding calculations as presented in Table 8.

Table 8. Construct Cross-validated Redundancy

	SSO	SSE	Q^2 (=1-SSE/SSO)
X1 (SQ)	532.000	532.000	
X2 (CQ)	399.000	399.000	
X3 (IQ)	399.000	399.000	
X4 (SE)	532.000	532.000	
X5 (SN)	399.000	399.000	
X6 (EN)	532.000	532.000	
X7 (AC)	399.000	399.000	
Y1 (PU)	665.000	434.222	0.347
Y2 (PE)	665.000	393.859	0.408
Y3 (AT)	532.000	417.551	0.215
Y4 (BI)	532.000	361.085	0.321
Y5 (AS)	532.000	486.349	0.086

Based on Table 8, it can be concluded that all endogenous variables (PU, PE, AT, BI, and AS) have a value of Q^2 greater than 0, which means that the research model has good predictive relevance. In other words, all exogenous variables play an excellent (appropriate) role as explanatory variables capable of predicting the endogenous variables.

The last test at this evaluation stage is the fit model test, which analyzes the NFI value in the SmartPLS calculation results. Table 9 presents the fit model values, including the NFI value. Based on Table 9, it can be seen that the resulting NFI value is 0.583, meaning that the model used in this study has a compatibility level of 58%.

Table 9. Model fit

	Saturated Model	Estimated Model
SRMR	0.084	0.106
d_ULS	7.549	12.234
d_G	3.103	3.265
Chi-Square	2010.816	2073.693
NFI	0.583	0.570

D. Hypothesis Evaluation

Hypothesis testing is done by evaluating the t-statistic value presented in Table 7. If the t-statistic value is greater than 1.96, the hypothesis is accepted and rejected if it is less than 1.96 [25]. Based on this rule, it can be concluded that there are nine hypotheses accepted and 12 hypotheses rejected. Table 10 presents the conclusions of the research hypothesis testing based on the t-statistic value.

IV. DISCUSSION

Based on research testing and analysis, it can be concluded that nine factors are proven to influence actual system use, as described in the hypothesis testing section. These factors include:

1. **System quality (SQ)**, the results of this study indicate that the system's quality affects the perceived ease of use of the e-learning system of UBL. It means that the better the system's quality being built, the higher the level of ease of use will be.
2. **Content quality (CQ)**, the results of this study indicate that the quality of content affects the perceived ease of use of the e-learning UBL. It means that the better the quality of the content presented, including the tidiness of the layout of the

content, the higher the level of ease of use. The most important thing from a learning management system is content because the primary purpose of students accessing the e-learning system is to get quality learning materials.

Table 10. Hypothesis evaluation

	Hypothesis
The accepted hypothesis	1. H6: Enjoyment (EN) effect on Perceived Usefulness (PU). 2. H8: System Quality (SQ) effect on Perceived Easy of Use (PE). 3. H9: Content Quality (CQ) effect on Perceived Easy of Use (PE). 4. H10: Information Quality (IQ) effect on Perceived Easy of Use (PE). 5. H14: Accessibility (AC) effect on Perceived Easy of Use (PE). 6. H16: Perceived Usefulness (PU) effect on Attitude Toward Using (AT). 7. H17: Perceived Easy of Use (PE) effect on Attitude Toward Using (AT). 8. H20: Attitude Toward Using (AT) effect on Behavioral Intention to Use (BI). 9. H21: Behavioral Intention to Use (BI) effect on Actual System Use (AS).
The rejected hypothesis	1. H1: System Quality (SQ) effect on Perceived Usefulness (PU). 2. H2: Content Quality (CQ) effect on Perceived Usefulness (PU). 3. H3: Information Quality (IQ) effect on Perceived Usefulness (PU). 4. H4: Self Efficacy (SE) effect on Perceived Usefulness (PU). 5. H5: Subjective Norm (SN) effect on Perceived Usefulness (PU). 6. H7: Accessibility (AC) effect on Perceived Usefulness (PU). 7. H11: Self Efficacy (SE) effect on Perceived Easy of Use (PE). 8. H12: Subjective Norm (SN) effect on Perceived Easy of Use (PE). 9. H13: Enjoyment (EN) effect on Perceived Easy of Use (PE). 10. H15: Perceived Easy of Use (PE) effect on Perceived Usefulness (PU). 11. H18: Perceived Usefulness (PU) effect on Behavioral Intention to Use (BI). 12. H19: Perceived Easy of Use (PE) effect on Behavioral Intention to Use (BI).

3. **Information quality (IQ)**, the results of this study indicate that the quality of information affects the perceived ease of use of e-learning at UBL. This means that the better the quality of the information contained, the higher the ease of use. The information presented in the e-learning system must be accurate, timely, relevant, and complete so that e-learning users will find it easy to use the e-learning system.
4. **Accessibility (AC)**, the results of this study indicate that access to the system affects the perceived ease of use of the e-learning system. It means that the more accessible the system can be accessed, the higher the ease of use. An essential indicator of the accessibility of a system is speed. Based on an assessment from GooglePageSpeed, the UBL e-learning system has a speed value of 36 out of 100 which means it still needs improvement. Recommendations for speed improvements include optimizing the display, Javascript, and CSS on the main page of the e-learning system.
5. **Enjoyment (EN)**, the results of this study indicate that the perception of pleasure in using affects the perceived usefulness of using e-learning systems. It means that the higher the level of satisfaction to the system, the higher the level of benefit felt in its use.
6. **Perceived ease of use (PE)**, the results of this study indicate that the perceived ease of use affects attitudes towards the application of e-learning at UBL. It means that the ease of using the system influences the pro or contra attitude in using the UBL e-learning system.
7. **Perceived usefulness (PU)**, the results of this study indicate that perceived usefulness affects attitudes towards the application of e-learning at UBL. It means that the system's perceived usefulness influences the pros or cons of using the UBL e-learning system.
8. **Attitude towards using (AT),** the results of this study indicate that attitudes towards application affect the intention in using e-learning at UBL. It means that the intensity level of using the UBL e-learning system is influenced by attitudes towards the application of the system.
9. **Behavioral intention to use (BI),** the results of this study indicate that the intensity of use affects the actual use of the UBL e-learning system. It means that the level of actual use of the UBL e-learning system, measured as the level of acceptance of the UBL's e-learning by students, is influenced by the intensity level of using the system.

The nine aspects that affect user acceptance can be a reference for UBL e-learning managers in developing e-learning systems to increase user satisfaction further. Therefore, developers of e-learning systems should focus on improving nine aspects, namely system quality, content quality, information quality, accessibility, enjoyment, perceived ease of use, usefulness, attitude towards using, and behavioral intention to use. Thus the quality of the e-learning system can be continuously improved.

Meanwhile, there are 12 rejected hypotheses, as presented in Table 10. Several aspects did not significantly affect user acceptance of the e-learning system. Some of the essential findings of the 12 rejected hypotheses include:

- Perceived usefulness (PU) is not significantly influenced by system quality (SQ), content quality (CQ), information quality (IQ), self-efficacy (SE), subjective norm (SN), and accessibility (AC). Perceived usefulness means user confidence that new technology or features can improve the ease of completing their work. Based on these findings, it can be concluded that changes do not influence user

trust in the e-learning system. This is because the features or technology available in the e-learning system are standard for students, and they already feel comfortable using it.

- Perceived ease of use (PE) is not significantly influenced by self-efficacy (SE), subjective norm (SN), and enjoyment (EN). It means that the individual ability of students to operate computers does not affect students' concerns about the existence of new features or technologies in e-learning. UBL is a campus-based on information technology so that, in general, students can operate computers well.
- Behavioral intention to use (BI) is not significantly influenced by aspects of perceived usefulness (PU) and perceived ease of use (PE). It is natural because students feel that access to the e-learning system during the Covid-19 pandemic is necessary. Therefore, the system's ease of use will not affect the intensity of using the system.

Compared with previous studies that used the same model [6], this study yielded different findings. It can be understood because the object of research is different. In a study by Salloum et al. [6], individual student factors significantly affect acceptance of the e-learning system. Meanwhile, in this study, students' ability did not significantly affect the acceptance of the e-learning system. In addition to the technical mastery factor that UBL students already have, the demands for using the e-learning system due to the Covid-19 pandemic are certainly another factor that affects these results.

V. CONCLUSION

The main objective of this research is to find out the student's response to the factors that influence the actual use of the system as a measure of technology acceptance of the e-learning of UBL. Furthermore, the results of this study can be used as evaluation material for UBL to continue improving the quality of e-learning by considering the factors that affect the actual system usage.

This study concludes that nine essential factors can affect the quality of the UBL e-learning system from student perceptions, namely system quality, content quality, information quality, accessibility, enjoyment, perceived convenience, perceived usefulness, student attitudes towards applications, and intensity of use of the system.

Based on the analysis results, it was found that for the level of suitability of the research model, this study resulted in a model fit value of 58%, meaning that many other things can be explored further to produce a higher level of model fit. Future studies can use more comprehensive variables in measuring the actual use of e-learning UBL.

In the discussion of hypothesis testing, nine hypotheses were accepted from 21 hypotheses, and 12 were rejected. A more in-depth study can be carried out in further research regarding the indicators that more accurately represent the variables, especially for rejected hypotheses. Future research can look more deeply into why individual factors do not affect the acceptance of the e-learning system at UBL. Each indicator used can measure the actual situation more accurately.

The results of this study are interesting to be developed and continued in the future. For example, future research can look at the acceptance of the e-learning system from the lecturer's perspective and compare it with the acceptance from the student's perspective. In addition, research can also be compared with acceptance of e-learning systems at other universities or in situations after the Covid-19 pandemic ends.

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