

Online Learning Acceptance in Higher Education during Covid-19 Pandemic: An Indonesian Case Study

Berlian Maulidya Izzati^{1*}, Salsabilla Shafa Adzra¹, Muhardi Saputra¹

¹Information System Department, Faculty of Industrial Engineering, Telkom University, Jl. Telekomunikasi, Terusan Buahbatu - Kabupaten Bandung, 40257, Indonesia

Abstract. Distance education using e-learning is a solution to the pandemic condition. CeLOE LMS is an e-learning platform to support distance or online education for all Telkom University students. The aim of this study is to analyze factors that may influence user acceptance behavior and attitudes using the Technology Acceptance Model (TAM). To measure user acceptance towards CeLOE LMS during online learning at Telkom University, a quantitative method was used in this study. A total of 175 college students participated in this study. This study uses five variables with 24 indicators that influence user acceptance attitudes and behavior, namely Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU), Behavioral Intention to Use (BI), and Actual System Use (AU) which were all analyzed using PLS-SEM tools. The results showed that all six hypotheses (H1-H6) were positive and significant. Hypothesis 3 stating that the PEOU variable influences the ATU variable gained the highest hypothesis test score of 0.671 while Hypothesis 5 stating that the PU variable influences the ATU variable gained the lowest hypothesis test score of 0.279.

Keywords: Higher education; Learning Management System (LMS); Online learning; Partial Least Squares-Structural Equation Modeling (PLS-SEM); Technology Acceptance Model (TAM)

1. Introduction

The new instance of the pneumonia virus, SARS-CoV-2, also known as COVID-19, was initially reported in China on December 31, 2019, and has since spread to over 222 countries, including Indonesia (WHO, 2020). Indonesia is also attempting to constrain the spread of the virus by limiting people's productive activities through restrictions such as working from home, studying from home, and praying at home. Minister of Education and Culture, Nadiem Makarim, prevents COVID-19 from spreading by delaying mass gathering activities and substituting them with video conferencing, digital documents, and other online activities (Kemendikbud, 2020). Related to this, a survey conducted on the implementation of Pembelajaran Jarak Jauh (PJJ) / distance learning during the Covid-19 pandemic in Indonesia showed that 70% of students and 300.000 lecturers rated the PJJ implementation as good or very good (DIKTI, 2021). This data demonstrates that the limitations imposed by the Covid-19 pandemic have a fairly significant effect on the implementation of PJJ via various delivery modes (DIKTI, 2021).

*Corresponding author's email: berlian.maulidya.21@gmail.com, Tel.: (022) 7564108
doi: [10.14716/ijtech.v15i1.5078](https://doi.org/10.14716/ijtech.v15i1.5078)

The use of e-learning is the best method for overcoming educational issues, particularly in this pandemic situation. The e-learning and digital technologies implementation are also able to be a chance for the educational sector to improve the quality of education and contributes to the economy's continued development (Koroleva and Kuratova, 2020). Undoubtedly, distance learning is a solution for the education sector in Indonesia to minimize the transmission of the COVID-19 virus. In e-learning, Indonesia swiftly built a distance-learning approach (Nugroho, 2020). E-learning is described as teaching and learning based on media usage and relies on or partially demonstrates the educational paradigm being employed. Electronic devices are able to help with training, and communicating, as well as being the media for people to interact with and accept new methods related to comprehension and learning construction (Salloum *et al.*, 2019).

Telkom University is one of the universities that supports this strategy by using an e-learning platform, namely CeLOE LMS that provides learning activities to achieve the learning outcomes. Telkom University had a total of 22.279 college students in 2020 or 0.2 percent of all college students in Indonesia. The total number of Indonesian college students enrolled in 2020 was 8.483.213 (PDDikti, 2020). However, CeLOE LMS has never been subjected to user acceptance testing. The purpose of this study is to determine user acceptance towards CeLOE LMS using a theoretical method called the Technology Acceptance Model (TAM). TAM is an adaptation of the Theory of Reasoned Action (TRA) (Suroso *et al.*, 2017), which Davis introduced in 1986. TAM is a well-known concept for explaining user attitudes toward technology (Hanif *et al.*, 2018). TAM has evolved into a powerful tool for predicting technology acceptance (Salloum *et al.*, 2019). Moreover, a recent systematic review concluded that implementing TAM to educational technology acceptance has demonstrated its efficacy in comparison to other theoretical models (Al-Qaysi *et al.*, 2020). The model has developed into a robust model capable of predicting the adoption of a variety of technologies (Al-Emran *et al.*, 2018; Al-Busaidi, 2013).

Several prior studies in Indonesia have used TAM as a conceptual model to examine the acceptance of e-learning. One of the studies is Rahayu *et al.* (2017), this kind of study aimed to assess student acceptability of e-learning using the TAM model using five variables. Five of the six hypotheses proposed were declared accepted, while one was declared rejected. The rejected hypothesis was that perceived usefulness has an impact on behavioral intention. Although the users understood and felt the benefits of e-learning, they remained unwilling to use the system. The usefulness did not enhance their willingness to use the system. This is able to occur because even if the users believed that using e-learning would assist them in completing academic tasks, they did not have any interest in continuing to use it because it was mandatory (Rahayu *et al.*, 2017). However, distance learning method has been used due to the pandemic situation that students were forced to enter the online system without any preparation (Patricia Aguilera-Hermida, 2020).

Salloum (2018) investigated student attitudes and acceptability of e-learning in higher education using TAM's core and extended variables. The findings of this study are all reliable indicators, indicating that student acceptance of the e-learning system is critical to its effectiveness. Another study by Chang *et al.* (2017) found that all item indicators are reliable and have important practical implications for educational institutions regarding university e-learning system design. TAM has been widely adopted and is quickly rising among IT researchers (Suroso *et al.*, 2017). As a result, TAM is able to be considered an information technology model that has been acknowledged as one that is able to explain user acceptance of a system. The purpose of this research is to look at the elements that influence student acceptance and the impact of the CeLOE LMS e-learning. The findings of

the study are expected to provide some insight into the aspects that may affect students' interest in using CeLOE LMS allowing future e-learning to be optimized.

2. Methods

This study uses a quantitative way to measure the user acceptance of CELOE LMS during online learning at Telkom University. There are five variables used in this research named Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, Behavioral Intention to Use, and Actual System Use. This research using a questionnaire with five variables that detailed to 24 indicators. Figure 1 depicts the stages in greater detail.

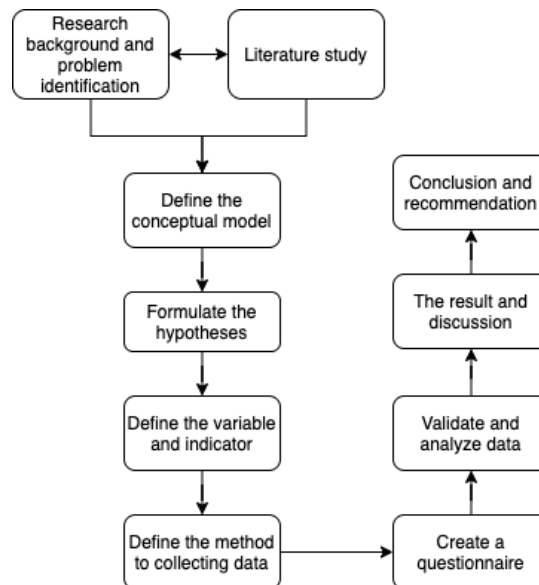


Figure 1 Research methods

2.1. Define the method to collecting data

The participants in this study were all active undergraduate students at Telkom University who used the CeLOE LMS e-learning system from the first semester to the seventh semester. Yamane in Adam (2020), accept a percentage of 7% for the sample size calculation using the Sample Size Calculator with an error tolerance This sample calculation is based on a population of 22.279 people, with a 95% confidence level of 1.96, an error tolerance limit of 7.38 percent, and a percentage of respondents choosing answers of 50%. As a result, the formula in this sample calculator is calculated as in Equation 1.

$$ss = \frac{z^2 \times (p) \times (1-p)}{c^2} = \frac{1.96^2 \times (0.5) \times (1-0.5)}{7.38\%^2} = 175 \text{ samples} \quad (1)$$

The number of samples obtained in this study is 175 samples of respondents evaluated and assessed later.

2.1.1. Perceived Ease of Use (PEOU)

Davis (1989) defines the Perceived Ease of Use (PEOU) as the extent to which a person believes that using technology will be free of effort (Davis, 1989). Another definition of PEOU is a measure by which a person believes that a technology is able to be easily understood and used (Salloum, 2018). In this research, the Perceived Ease of Use variable uses six indicators.

2.1.2. Perceived Usefulness (PU)

Davis (1989) defines Perceived Usefulness (PU) as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis,

1989). That people use information technology because they have confidence that achievement and performance will increase. This concept describes the measure in which the use of technology is believed to bring benefits to the user (Rahayu *et al.*, 2017). In this research, the Perceived Ease of Use variable uses six indicators.

2.1.3. Behavioral Intention to Use (BI)

According to Rahayu *et al.* (2017), Behavioral Intention to Use (BI) is a person's desire to perform a certain behavior or a person's tendency to continue using certain technologies (Rahayu *et al.*, 2017). In this research, the Behavioral Intention variable uses five indicators.

2.1.4. Attitude Toward Using (ATU)

According to SA Salloum *et al.* (2019), defines Attitude Toward Using (ATU) as the degree to which a person has a positive or negative feeling towards the e-learning system which means the user feels either positive or negative to do something (Salloum *et al.*, 2019). In this research, the Attitude Toward Using variable uses four indicators.

2.1.5. Actual System Use (AU)

Actual System Use (AU) is a real condition of user actions in the use or implementation of a system. Someone has a tendency to be satisfied using the system if the person believes that the system is easy to use and is bound to increase the productivity of their performance, which is reflected in the real conditions of the user (Salloum, 2018). In this research, the Actual System Use variable uses three indicators.

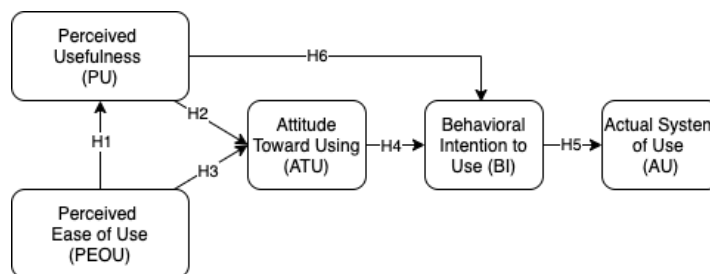


Figure 2 TAM model

- (H1) The relationship between the variable Attitude Toward Using and the variable Behavioral Intention to Use is positive and significant
- (H2) The relationship between the variable Behavioral Intention to Use and the variable Actual System Use is positive and significant
- (H3) The relationship between the variable Perceived Ease of Use and the variable Attitude Toward Using is positive and significant
- (H4) The relationship between the variable Perceived Ease of Use and the variable Perceived Usefulness is positive and significant
- (H5) The relationship between the variable Perceived Usefulness and the variable Attitude Toward Using is positive and significant
- (H6) The relationship between the variable Perceived Usefulness and the variable Behavioral Intention to Use is positive and significant

3. Results and Discussion

There are two types of model analysis in this research, there are outer model and inner model analysis. The outer model was examined first, with the validity and dependability of the model being tested. In the examination of the outer model (Al Kurdi *et al.*, 2020; Salloum, 2018). There are three steps to analyze the outer model. There are 1) convergent

validity using Average Variance Extracted (AVE) 2) Cross-loading test using discriminant scale and 3) Reliability test using Cronbach Alpha.

After examining the outer model and ensuring that all indicators and variables are valid and dependable, the inner model is able to be considered complete. Based on the proposed research approach (Hanif *et al.*, 2018), the inner and structural models explore the dependent relationship between exogenous and endogenous variables. Figure 3 shows the conceptual model of the values between the variables and indicators tested and the analysis of the measurement model (outer model) and structural model (inner model) assisted by using SmartPLS software (version 3.28).

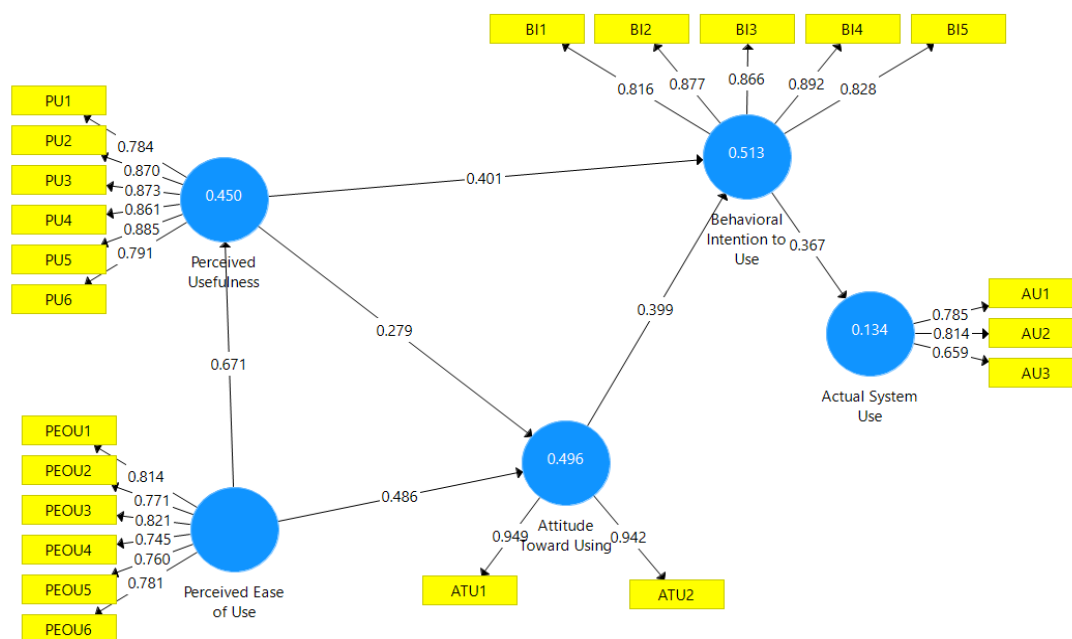


Figure 3 PLS-SEM structural model

3.1 Outer Model Analysis

3.1.1. Validity test

Convergent validity testing examines the findings of outer loadings and the Average Variance Extracted (AVE). It is said to be valid if the outer loading value is greater than 0.6 and the AVE is greater than 0.5 (Hair *et al.*, 2015). Table 1 shows that all the outer loading and AVE requirements are met, indicating that this variable indicator item is valid.

Table 1 Convergent validity result

Variable	Outer Loading	AVE	Results	Variable	Outer Loading	AVE	Results
ATU1	0.949	0.893	Valid	BI1	0.816	0.733	Valid
ATU2	0.942			BI2	0.877		
AU1	0.785	0.571	Valid	BI3	0.866		
AU2	0.814			BI4	0.892		
AU3	0.659			BI5	0.828		
PU1	0.784	0.714	Valid	PEOU1	0.814	0.612	Valid
PU2	0.870			PEOU2	0.771		
PU3	0.873			PEOU3	0.821		
PU4	0.861			PEOU4	0.745		
PU5	0.885			PEOU5	0.760		
PU6	0.791			PEOU6	0.781		

The cross-loading parameter is used to determine discriminant validity. Table 2 shows that all targeted indicator items have a bigger (>) cross-loading value than other variable indicators with a cross-loading value of 0.6 (Hair et al., 2015). As a result of the cross-loading parameter on discriminant validity, all indicator items are declared valid. Based on the results of the following analysis description, it is able to be determined that all indicator items are valid in the discriminant validity test.

Table 2 Discriminant validity result

	ATU	AU	BI	PEOU	PU	Results
ATU1	0.949	0.410	0.650	0.632	0.572	Valid
ATU2	0.942	0.405	0.559	0.640	0.572	Valid
AU1	0.359	0.785	0.303	0.349	0.370	Valid
AU2	0.319	0.814	0.293	0.359	0.458	Valid
AU3	0.298	0.659	0.229	0.381	0.298	Valid
BI1	0.495	0.256	0.816	0.443	0.575	Valid
BI2	0.601	0.327	0.877	0.498	0.554	Valid
BI3	0.543	0.321	0.866	0.497	0.565	Valid
BI4	0.521	0.332	0.892	0.450	0.516	Valid
BI5	0.578	0.330	0.828	0.474	0.539	Valid
PEOU1	0.520	0.392	0.423	0.814	0.529	Valid
PEOU2	0.569	0.429	0.432	0.771	0.605	Valid
PEOU3	0.559	0.411	0.425	0.821	0.486	Valid
PEOU4	0.511	0.296	0.466	0.745	0.478	Valid
PEOU5	0.518	0.355	0.451	0.760	0.571	Valid
PEOU6	0.468	0.331	0.393	0.781	0.454	Valid
PU1	0.451	0.394	0.472	0.517	0.784	Valid
PU2	0.504	0.477	0.641	0.552	0.870	Valid
PU3	0.499	0.471	0.497	0.558	0.873	Valid
PU4	0.548	0.383	0.536	0.610	0.861	Valid
PU5	0.544	0.445	0.560	0.609	0.885	Valid
PU6	0.513	0.371	0.538	0.549	0.791	Valid

3.1.2. Reliability test

Cronbach's Alpha and Composite Reliability are used in convergent validity assessment. It is regarded to be reliable if Cronbach's Alpha > 0.6 and Composite Reliability > 0.7 (Hair et al., 2015). The results of the reliability testing are shown in Table 3.

Table 3 Reliability test result

Variable	Cronbach's Alpha	Composite Reliability	Results
AU	0.623	0.799	Reliable
ATU	0.881	0.944	Reliable
BI	0.909	0.932	Reliable
PEOU	0.873	0.904	Reliable
PU	0.919	0.937	Reliable

3.2 Inner Model Analysis

3.2.1. Coefficient determination (R-square)

That the endogenous variables ATU, BI, and PU have an R-square value greater than 0.33, indicating that their predictive ability is moderate. Furthermore, the R-square value of the AU variable is between 0.19 and 0.33, indicating that the variable's predictive potential is assessed as weak. The result of the coefficient determination (R-square) is able to be seen in Table 4.

Table 4 The result of coefficient determination test (R-square)

Variable	R Square (%)	Results
AU	13,4%	Weak
ATU	49,6%	Moderate
BI	51,3%	Moderate
PU	45%	Moderate

3.2.2. Effect size (F-square)

This test determines whether the factors in the TAM model construct have a substantial effect on real users when combined. The weak (0.02), medium (0.15), and strong (0.35) relationships are classifications of the variables (Hair *et al.*, 2015). The association between the variables Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), which is the TAM model's goal, has the highest value. The result of the effect size (F-square) is able to be seen in Table 5.

Table 5 Result of effect size test (F-square)

Variable	Effect Size	Description
(ATU) → (BI)	0.207	Weak
(BI) → (AU)	0.155	Weak
(PEOU) → (ATU)	0.258	Moderate
(PEOU) → (PU)	0.818	Strong
(PU) → (ATU)	0.085	Weak
(PU) → (BI)	0.209	Weak

3.2.3. Hypothesis test

Path coefficient testing serves to determine whether the relationship between variables is positive and strong or not. The value of the variable relationship is said to be positive and strong if it has a path coefficient value > 0.1 (Hair *et al.*, 2015). However, t statistics and t table (1.97377) are used to measure the relationship between variables, i.e. to see whether it is significant or not. It is significant if the value of t statistics $>$ t table. The relationship between variables is able to be seen in Figure 3 and the result of the hypothesis is able to be seen in Table 6.

Table 6 The result of hypothesis test

Hypothesis	Variable Relationship	T Statistics (O/STDEV)	Path Coefficients	Result
H1	ATU → BI	4.841	0.399	Accepted
H2	BI → AU	5.072	0.367	Accepted
H3	PEOU → ATU	6.279	0.671	Accepted
H4	PEOU → PU	14.634	0.486	Accepted
H5	PU → ATU	3.606	0.279	Accepted
H6	PU → BI	5.158	0.401	Accepted

- (H1): The relationship between the variable of Attitude Toward Using and the variable of Behavioral Intention to Use is positive and significant
The relationship between Attitude Toward Using and Behavioral Intention to Use variables is $4.841 > 1.97377$, with a path coefficient of $0.399 > 0.1$, according to the t statistics. There was a positive and significant relationship between the variables of Attitude Toward Using and Behavioral Intention to Use. This hypothesis explains how the perception of Perceived Ease of Use on the CeLOE LMS relates to the Perceived Usefulness of CeLOE LMS. In this example, students believed that using the system was simple, i.e the CeLOE LMS system was simple to learn, and easy to access information, and the processes for using the CeLOE LMS were simple to recall and operate the menus

and features. The user-friendliness of CeLOE LMS has an impact on student work, makes the lecture and learning process more effective and efficient during the COVID-19 pandemic, as well as enhances student productivity and learning performance. These make CeLOE LMS useful for students.

2. (H2): The relationship between the variable of Behavioral Intention to Use and the variable of Actual System Use is positive and significant
Based on the t statistic of $5.072 > 1.97377$ and path coefficient of $0.671 > 0.1$ for the relationship between the Behavioral Intention to Use variable and the Actual System Use variable, H2 was recognized as positive and significant. This hypothesis explains how the Perceived Usefulness of CeLOE LMS affects Attitude Toward Using CeLOE LMS. In this case, it has been established that students believe that CeLOE LMS is a useful system for the lecture process, studying, and completing assignments during epidemic conditions, allowing them to do work more quickly, effectively, and easily that may in turn increase performance and productivity. Students have a tendency to have a positive attitude towards CeLOE LMS if they accept it joyfully and comfortably. This is because the benefits provided by the CeLOE LMS have an impact on student attitudes toward using it. When students use CeLOE LMS, they are delighted and at ease because it gives them the intended benefits.
3. H3): The relationship between the variable of Perceived Ease of Use and the variable of Attitude Toward Using is positive and significant
The relationship between Perceived Ease of Use variables and Attitude Toward Using variables gained the t statistic $5.072 > 1.97377$ and path coefficients of $0.486 > 0.1$. As a result, the H3 was recognized as positive and significant. This hypothesis explains how the perceived ease of CeLOE LMS uses influences Attitude Toward Using CeLOE LMS. Students felt convenient using CeLOE LMS because it was easy to learn and understand, easy to get the desired information, and flexible to interact directly with lecturers and other students. And the functions, menus, and features in CeLOE LMS were simple to use, making students happy and comfortable when using CeLOE LMS. When students utilize CeLOE LMS during the COVID-19 epidemic, they feel happy and at ease because it is simple to use.
4. (H4): The relationship between the variable of Perceived Ease of Use and the variable of Perceived Usefulness is positive and significant
With a t statistic of $14.634 > 1.97377$ and a path coefficient of $0.367 > 0.1$, the relationship between the Perceived Ease of Use variables and Perceived Usefulness variables are able to be seen. As a result, the H4 is regarded as positive and significant. This hypothesis outlines how the attitude toward utilizing the CeLOE LMS (Attitude Toward Using) affects the Behavioral intention to use the CeLOE LMS. Because students are happy and comfortable using CeLOE LMS during the COVID-19 pandemic, they are more likely to use CeLOE LMS at any time to assist their learning process and to recommend CeLOE LMS to other students.
5. (H5): The relationship between the variable of Perceived Usefulness and the variable of Attitude Toward Using is positive and significant
The relationship between Perceived Usefulness variables and Attitude Toward Using variables gain the t statistics of $3.606 > 1.97377$ with path coefficients $0.279 > 0.1$. As a result, the H5 is regarded as positive and significant. This hypothesis shows that Behavioral Intention to Use (user behavior) in the CeLOE LMS affects Actual System Use (actual system use). In this scenario, it is revealed that students' interest in the CeLOE LMS had a significant impact on actual use, as evidenced by the student frequency and length of time spent when using the CeLOE LMS. It is demonstrated by the fact that

students' desire to continue using CeLOE LMS leads to a high frequency and duration of usage of CeLOE LMS. It was reported that students least access LMS once a week with an average of 10 minutes duration.

6. (H6): The relationship between the variable of Perceived Usefulness and the variable of Behavioral Intention to Use is positive and significant

The *t* statistic of the relationship between Perceived Usefulness variables and Behavioral Intention to Use variables of $5.158 > 1.97377$ and path coefficient of $0.401 > 0.1$ is able to be seen in the *t* statistic of the relationship between Perceived Usefulness and Behavioral Intention to Use variables. As a result, the H6 is regarded as positive and significant. This hypothesis shows that Perceived Usefulness in the CeLOE LMS has a link to Behavioral Intention to Use the CeLOE LMS. During the COVID-19 epidemic, students believed that CeLOE LMS aided them in the lecture process, studying, and completing their assignments. Students more frequently use CeLOE LMS whenever and wherever they are able to.

Based on the results of data analysis and processing, all six hypotheses were accepted positively and significantly. Nonetheless, the CeLOE team must develop and maintain to sustain its stability and increase the influence of acceptance of the CeLOE LMS. Hypothesis 1 (H1), the relationship between Perceived Ease of Use and Perceived Usefulness, which is also the focus of the TAM model with a path coefficient of 0.486 and T-statistic of 14.634, has the most significance in this study when evaluating the hypothesis. It means that CeLOE LMS is easy to understand, learn, and use. It is also adaptable, and CeLOE features, and menus are user-friendly. Students are bound to gain more from an easy system when it comes to the learning process and lectures. It is also supported by the findings gained from the interviews with the CeLOE team, that revealed that Telkom University has decided that a minimum of 8 synchronous sessions using the Zoom, Google Meet, Microsoft Teams, or Skype platforms are required. With the remaining meetings held as needed where it is encouraged to use CeLOE LMS. As a result, it is critical for the CeLOE team to provide the greatest facilities for distance learning to meet the intended learning objectives. The CeLOE LMS e-learning system, which is built on Moodle, is quite comprehensive in terms of menus and features, as well as in delivering a user-friendly interface and user experience (Suppasetsee and Dennis, 2010). During the rapid transition to distance learning, Moodle LMS has established itself as the primary mode of instruction, as evidenced by Egorov *et al.* (2021).

Meanwhile, hypothesis 2 (H2) argues that the association between Perceived Usefulness and Attitude Toward Using was positive and significant. However, compared to other hypotheses, this hypothesis has a lower value, with a path coefficient of 0.279 and a T-statistic of 3.606. This analysis was mostly because the student respondents in this survey were in 1st and 7th semesters, respectively, and had only recently used CeLOE LMS. As a result, they are unsure if they are experiencing bad or positive feelings because of the short period of the use of CeLOE LMS. The findings of testing this hypothesis showed that the TAM model and the investigated variables were capable of adequately explaining user attitudes and behavior toward an information system. Asvial *et al.* (2021) research involving junior high school students in Jakarta and Tangerang who participated in distance learning or e-learning as a result of parental encouragement and government regulations related to COVID-19 showed that the students were not sincerely interested in e-learning. Thus, this research proposes that the Indonesian government improves middle school students' digital literacy, which includes their ability to easily pick up new technology, their motivation to learn with information and communication technology, and their willingness

to use information and communication technology at work [Kurniasih et al., \(2020\)](#), by bridging the digital divide, improving teacher quality, and providing supportive facilities, prior to enacting policies that require e-learning as a curricular requirement. It is widely known, many students worldwide were forced to transfer from face-to-face instruction to an online learning environment in the middle of the semester due to the COVID-19 pandemic. The student was forced to enter the online system without preparation, they have limited information processing capacity, and there is a possibility that a combination of learning modalities has a tendency to cause cognitive overload, affecting their ability to learn new information sufficiently ([Patricia Aguilera-Hermida, 2020](#)).

Due to the limitation of the first model of TAM ([Patricia Aguilera-Hermida, 2020](#); [García Botero et al., 2018](#)), further work is required to continue this research by adding some external variables like a) attitude, affect, and motivation; b) social factors; c) usefulness and visibility; d) instructional attributes; e) perceived behavioral control, f) cognitive engagement, and g) system attributes that influence the adoption of technology ([Patricia Aguilera-Hermida, 2020](#); [Kemp et al., 2019](#)). Additionally, future work may include a sample of other college students from various campuses in order to capture the generic condition of distance learning acceptance. For many people, the pandemic is life-changing. Additional research is needed to determine how the lack of physical contact, the decrease in social interaction, and changes that happened to their neighborhood and their daily lives influence their learning process.

4. Conclusions

In this study, the elements that influence the acceptance of the TAM model for students using the CeLOE LMS e-learning system are addressed. The TAM model uses five key TAM variables that are relevant to the research topic, including Perceived Ease of Use, Perceived Usefulness, and Attitude Toward Using, Behavioral Intention to Use, and Actual System Use. Those are all terms that are able to be used to describe how a system is used. All six hypotheses of the relationship between these variables were positive and significant, according to the hypothesis test related to the relationship between variables. During the COVID-19 pandemic, students are claimed to have accepted the employment of CeLOE LMS in the online or online lecture process as reflected in their attitudes and behavior. Even though all six hypothesis tests were positive, the CeLOE team must continue to develop and maintain itself to retain stability and increase the acceptance of the CeLOE LMS.

References

- Adam, A.M., 2020. Sample Size Determination in Survey Research. *Journal of Scientific Research and Reports*, Volume 26(5), pp. 90–97
- Al-Busaidi, K.A., 2013. An Empirical Investigation Linking Learners' Adoption of Blended Learning to Their Intention of Full e-learning. *Behaviour and Information Technology*. Volume 32(11), pp. 1168–1176.
- Al-Emran, M., Mezhyuev, V., Kamaludin, A., 2018. Technology Acceptance Model in M-Learning Context: A Systematic Review. *Computers and Education*, Volume 125, pp. 389–412
- Al-Qaysi, N., Mohamad-Nordin, N., Al-Emran, M., 2020. A Systematic Review of Social Media Acceptance From the Perspective of Educational and Information Systems Theories and Models. *Journal of Educational Computing Research*, Volume 57(8), pp. 2085–2109
- Al Kurdi, B., Alshurideh, M., Salloum, S.A., Mohammad Obeidat, Z., Mohammad Al-dweeri, R., 2020. An Empirical Investigation into Examination of Factors Influencing University

- Students' Behavior towards E-learning Acceptance Using SEM Approach. *International Journal of Interactive Mobile Technologies (IJIM)*, Volume 14(2), pp. 19–41.
- Asvial, M., Mayangsari, J., Yudistriansyah, A., 2021. Behavioral Intention of E-learning: A Case Study of Distance Learning at a Junior High School in Indonesia due to the COVID-19 Pandemic. *International Journal of Technology*, Volume 12(1), pp. 54–64
- Chang, C.-T., Hajiyev, J., Su, C.R., 2017. Examining the Students' Behavioral Intention to Use E-learning in Azerbaijan? The General Extended Technology Acceptance Model for E-learning Approach. *Computers and Education*, Volume 111, pp. 128–143
- Davis, F.D., 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly: Management Information Systems*, Volume 13(3), pp. 319–340
- Direktorat Jenderal Pendidikan Tinggi (DIKTI), 2021. Panduan Bantuan Dana Penyelenggaraan Pendidikan Jarak jauh (*Guide to Funding Assistance for the Implementation of Distance Education*). Direktorat Pembelajaran dan Kemahasiswaan, Direktorat Jenderal Pendidikan Tinggi
- Egorov, E.E., Prokhorova, M.P., Lebedeva, T.E., Mineeva, O.A., Tsvetkova, S.Y., 2021. Moodle LMS: Positive and Negative Aspects of Using Distance Education in Higher Education Institutions. *Propósitos y Representaciones*, Volume 9(SPE2)
- García Botero, G., Questier, F., Cincinato, S., He, T., Zhu, C., 2018. Acceptance and Usage of Mobile Assisted Language Learning by Higher Education Students. *Journal of Computing in Higher Education*, Volume 30(3), pp. 426–451
- Hair, J., Hult, G.T.M., Ringle, C., Sarstedt, M., 2015. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). In: *SAGE Publications, Inc*
- Hanif, A., Jamal, F.Q., Imran, M., 2018. Extending the Technology Acceptance Model for Use of E-learning Systems by Digital Learners. *IEEE Access*, Volume 6, pp. 73395–73404
- Kementrian pendidikan budaya (Kemdikbud), 2020. Surat Edaran Nomor 3 Tahun 2020 Tentang Pencegahan Corona Disease (Covid-19) Pada Satuan Pendidikan (*Circular Letter Number 3 of 2020 concerning Prevention of Corona Disease (Covid-19) in Education Units*). Available Online at: <https://www.kemdikbud.go.id/main/blog/2020/03/surat-edaran-pencegahan-covid19-pada-satuan-pendidikan>, Accessed on (02 09, 2021)
- Kemp, A., Palmer, E., Strelan., P., 2019. A Taxonomy of Factors Affecting Attitudes Towards Educational Technologies for Use with Technology Acceptance Models. *British Journal of Educational Technology*, Volume 50(5), pp. 2394–2413
- Koroleva, E., Kuratova, A., 2020. Higher Education and Digitalization of the Economy: The Case of Russian Regions. *International Journal of Technology*, Volume 11(6), pp. 1181–1190
- Kurniasih, A., Santoso, A.D., Riana, D., Kadafi, A.R., Dari, W., Husin, A.I., 2020. TAM Method and Acceptance of COVID-19 Website Users in Indonesia. *Journal of Physics: Conference Series*, Volume 1641(1), pp. 012-020
- Nugroho, A.D., 2020. How E-Learning Deals with Higher Education During the Pandemic in Indonesia. *Loquen: English Studies Journal*, Volume 13(2), pp. 51–59
- Patricia Aguilera-Hermida, A., 2020. College Students' Use and Acceptance of Emergency Online Learning Due to COVID-19. *International Journal of Educational Research Open*, Volume 1, p. 100011
- Pangkalan Data Pendidikan Tinggi (PDDikti), 2020. Higher Education Statistics 2020. 81–85. Available Online at <https://pddikti.kemdikbud.go.id/publikasi>, Accessed on (01 02, 2022)

- Rahayu, F.S., Budiyanto, D., Palyama, D., 2017. Analisis Penerimaan E-learning Menggunakan Technology Acceptance Model (TAM) Studi Kasus : Universitas Atma Jaya Yogyakarta (*Analysis of E-learning Acceptance Using the Technology Acceptance Model (TAM) Case Study: Atma Jaya University, Yogyakarta*). Jurnal Terapan Teknologi Informasi, Volume 1(2), pp. 87–98
- Salloum, S.A.S., 2018. Investigating Students' Acceptance of E-learning System in Higher Educational Environments in the UAE: Applying the Extended Technology Acceptance Model (TAM) Technology Acceptance and Adoption Models and Theories View Project Big Data and the Decision Ma. *Researchgate.Net (Issue September)*. The British University in Dubai
- Salloum, S.A., Alhamad, A.Q.M., Al-Emran, M., Monem, A.A., Shaalan, K., 2019. Exploring Students' Acceptance of E-learning Through the Development of a Comprehensive Technology Acceptance Model. *IEEE Access*, Volume 7, pp. 128445–128462
- Suppasetsee, S., Dennis, N., 2010. The Use of Moodle for Teaching and Learning English at Tertiary Level in Thailand. *International Journal of the Humanities*, Volume 8(6), pp. 29–46
- Suroso, J.S., Retnowardhani, A., Fernando, A., 2017. Evaluation of Knowledge Management System Using Technology Acceptance Model. *In: 2017 4th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI)*, pp. 1–5
- World Health Organization (WHO), 2020. Coronavirus disease (COVID-19). Available Online at <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>, Accessed on (09 24, 2021)