

# Perception and E-Learning Readiness Mulawarman University

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**Abstract**—Mulawarman University is the largest college in East Kalimantan Province, accredited A of national accreditation institute, and currently has students amounting to not less than 33 thousand with 1000 educators and approximately 2000 education personnel. Due to Corona Virus Disease (Covid-19) pandemic, learning and teaching activities on campus are diverted to online learning. However, there are still many lecturers and students who feel they are not ready for the transition to online learning. This study agreed to measure the level of readiness of the institution of Mulawarman University on online learning in the odd semester of 2020. The survey was conducted electronically for 4 weeks and has been netting over 1231 respondents consisting of lecturers and students. To the data gathered, descriptive statistical analysis and ELR measurement are conducted to see the tendency of readiness in the online learning application. ELR measurement results with the Aydin Tasci method of 3,179. This implies that respondents' data from this research stated that they were not ready for online learning. Needs preparation for many aspects that can improve the readiness of lecturers and students in online learning at Mulawarman University.

**Keywords**— *Online Learning, Readiness Level, Mulawarman University*

## I. INTRODUCTION

Located in the provincial capital of East-Kalimantan, Indonesia, the University of Mulawarman occupies the main campus on Gunung Kelua Street, Samarinda City. This campus is the oldest college in East Kalimantan, established on 27 September 1962 with 4 faculties, namely Faculty of Administration and Bisnis, Faculty of Agriculture, Faculty of Forestry, and Faculty of Mining. Today, Mulawarman University has grown very rapidly and is a major campus on the island of Borneo-Indonesia. It has 14 faculties with 33 thousand students, 1000 faculty, and 2000 education personnel. The institution is also a superior college with A-accreditation from National Accreditation Institute in 2017[1].

The current situation is unfortunate, the spread of Corona Virus Diseases (Covid-19) in Samarinda is very worrying. As the red zone, the city has recorded a total of 304 positive confirmation cases, 119 patients in the treatment, 11 died and 174 cases recovered. The Data is recorded by August 1, 2020, from the Health Department of Samarinda Government[2].

To outbreak the Covid-19 pandemic chain, the University of Mulawarman imposed a lockdown campus[3]. All conventional face-to-face teaching and learning activities were discontinued since March 2020 and transferred to online learning. Lecturers and students are forced to implement online learning technology. The situation also forced the

students to return home to the area where it is sometimes a remote area and the infrastructure of information technology is very lacking.

Before the Covid-19 era, under normal circumstances, many lecturers are still reluctant to apply online learning in their classrooms, for reasons such as being unfamiliar with online learning application software. This situation caused the slow disruption of online learning technology at Mulawarman University.

According to the policy of the Minister of Education and Culture of the Republic of Indonesia, the implementation of teaching in higher education in odd semester 2020 is done online. The teaching that started early September to the end of December 2020, must be implemented in full online[4]. Looking at the situation, it is necessary to do all preparations so that the implementation of learning and teaching online in the next semester will run well.

This research aims to measure the level of the online learning readiness of lecturers and students. The results of this research are expected to provide recommendations and policies that can improve the trust of lecturers and students in the online learning implementation.

## II. RELATED STUDY

Research has been referring to some research work that has been done by researchers around the world and related to the measurement of Electronic Learning Readiness (ELR). It is important to measure the level of readiness of students to avoid the impact of the failure of e-learning implementation in a higher education institution. To measure the level of e-learning readiness, a study used the blended model Akaslan & Law and Aydin & Tasci. Results show that ITS and Mulawarman institutions are ready for the implementation of student's online learning [5][6].

Indonesian researchers have also conducted research to measure the level of readiness of lecturers for electronic learning due to the Covid-19 pandemic. The result is that demographic factors do not affect the level of readiness of lecturers in adapting to technology. These results also show that major and urgent changes due to COVID-19 have led to the formation of polarization of technology segmentation[7].

Online learning readiness can also be measured on the technology acceptance theory. The use of the Unified Theory of Acceptance and Use of Technology (UTAUT) in the E-Learning Readiness measurement was conducted by A. Ngampornchai, Adams, and Jonathan[8]. The results of the study illustrate that students have a slightly positive perception of e-learning and a greater experience of using

social media. But they are not familiar with other collaborative online learning tools.

Measurement of online learning readiness for medical students conducted in Saudi Arabia and Turkey[9][10]. There is no doubt that the level of medical student readiness in both countries is moderately high. They have their self hardware, good internet access, and social media skills. It responds that medical students are very prepared for the implementation of online learning.

There is also research that wants to show whether there is a relationship between online learning readiness with the level of student's intelligence. Research by Melih Engin shows that there is a strong and real relationship between students' online learning readiness and the dimensions of individual emotional intelligence. Individuals with high social skills as a sub-dimension of emotional intelligence also have a high level of online learning readiness[11].

### III. MATERIALS AND METHODS

#### A. Materials

The data for this study was obtained by surveys using an electronic questionnaire. The questionnaire was designed using the Microsoft Office Form[12]. Sample sampling techniques using stratified random sampling[13]. Data is taken from 2 strata, which are a layer of lecturers and layers of students who come from the University of Mulawarman, Samarinda, East Kalimantan, Indonesia. Data collection is done for 4 weeks, from 5 to 31 July 2020, and netted via WhatsApp Group, Facebook, and Instagram on each layer. The study also conducted a validity and reliability test of the questionnaire question[14]. Data processing for validity and reliability tests using IBM SPSS Statistics Subscription software[15].

#### B. Methods

A descriptive statistical technique for data visualization has been implemented in this study. The collected questionnaire has been emulated and filtered using Microsoft Excel spreadsheet software[16]. Data that is ready to be processed, imported by Microsoft Power BI visualization software[17]. The visualizations applied include a horizontal bar chart, column bar chart, pie charts, and word clouds. Visualizing with a word cloud, spreadsheet data should be done skimming and cleaning processes to remove unnecessary words in the word cloud visualization.

To measure the level of E-Learning Readiness (ELR) for lecturers and students, the study used The Aydin and Tasci, scoring models[18][19]. This Model measures the ELR score by calculating the average score of each question with a Likert scale in a variable group.

The questionnaire was designed using a scale of 0-10 with a sequence from small to large stating from strongly disagreeing to strongly agree to positive questions, but the sequence is reversed for negative questions.

The Likert scale consists of values in the 1-5 range. Due to the questionnaire using a scale of 0-10, data transformation is required from scale 0-10 to the Likert scale 1-5. Standard determination of readiness level is based on the boundary value that is 3.4 as described in Figure 1.

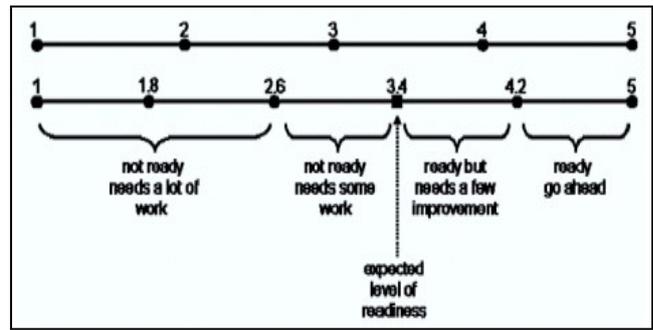


Fig. 1. Measurement of Aydin and Tasci Model[18]

The study implemented 4 variables for the measurement of ELR levels, namely the e-learning technology using a skill (V1) with 3 questions, the perception of e-learning benefits and quality assurance (V2) with 2 questions, e-learning policies, and ICT support (V3) with 2 questions, and e-learning constraints (V4) with 4 questions. Data analysis calculates the average score of the Likert scale of each variable and compares it to the Aydin and Tasci score limits. For each variable, if the average value is more than 3.4, then online learning is said to be implemented and there may still be a note of improvement, but if it is less than the limit, it is said that it is not ready to be implemented.

### IV. RESULT AND DISCUSSION

#### A. Data Visualization

Data collected as much as 1231 respondents, consisting of 123 lecturers (9.99%) and 1108 students (90.01%). Figure 2 follows the portion of lecturers and student respondents. A very small respondent's participation rate of  $n/N = 1231/34000 = 3.62\%$  indicates that the sudden change due to COVID-19 causes a reduced participation rate of members to be active in activity[7].

To know the availability of hardware tools (PC, Laptop, or TAB) and Internet network, the respondents asked questions whether in your location available equipment and networks. The respondent's data shows that 9.39% of students and 1.63% of lecturers do not have their self hardware to support online learning activities.

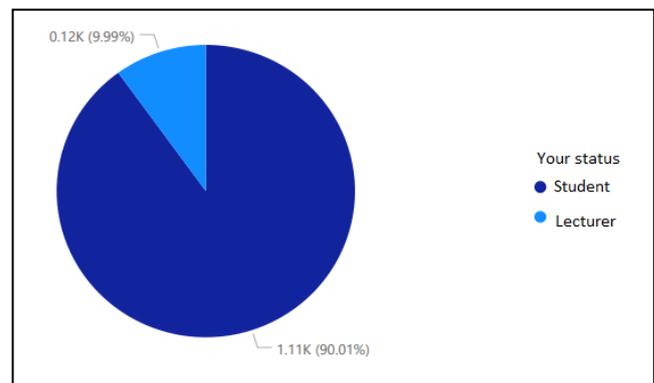


Fig. 2. A portion of Lecturers and Students Respondent

Internet network availability is also a major obstacle to online learning. Proven there are still 240 students and 8 lecturers who answered in the location they learn and teach

not available adequate Internet. Visualization of hardware and Internet availability in respondents is presented in Figures 3 and 4.

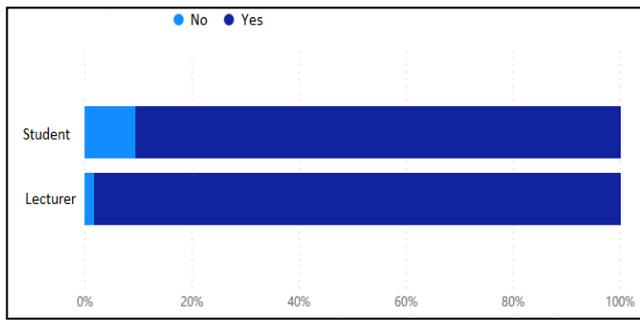


Fig. 3. Hardware Availability

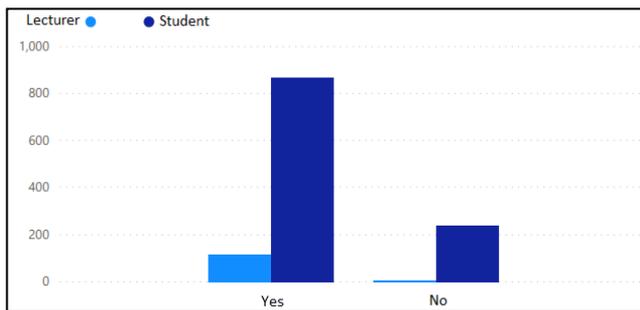


Fig. 4. Internet Availability

Referring to pictures 3 and 4, online learning becomes hindered if the availability of PC devices, laptops, or other hardware is very low. Also, the presence of a 3G or 4G phone mobile or fix Internet network, is the main requirement for the continuity of online learning implementation[5].

More surprisingly, when student respondents were asked about the effectiveness of online learning, 66% of students answered ineffectively and 40% of lecturers also answered ineffectively (Figure 5). This is because they have not had strong skills in technology and the correct perception of the effectiveness of online learning. If early online learning is prepared, it will change the perspective of the effectiveness of online learning.

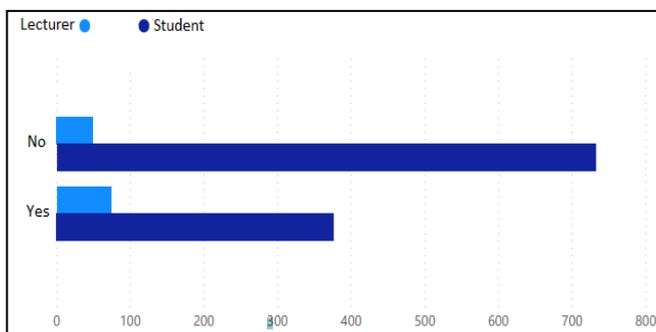


Fig. 5. Online Learning Effectiveness

The study also processed text data using Power BI's word cloud features. Respondents were asked about activities that could increase their trust and readiness for online learning. Several answer options have been provided to the

questionnaire using Bahasa. Each respondent can select more than one answer.

A total of 642 respondents (52%) answering internet quota subsidies to support their online learning. In others, they answer the purchase of a video meeting software license accounts such as Microsoft Teams, ZOOM, or Cisco Webex. However, some choose to join the webinar activities of the increased training skills for online learning support.

### B. ELR Score Analysis

#### 1) Validity and Reliability Test Results

The results of the validity test show that the questionnaire used as a measuring instrument for the respondent's data measurement was appropriate for each question in a single group of variables. While the reliability test of the questionnaire reveals the consistency of each question in one group of variables[14]. The following table 1 and 2 describes the results of the validity and reliability test of each question in a particular variable group.

Referring to the results of the test (Table I and II), the validity of the questionnaire question that has been made can be held accountable. This indicates that each question in each variable is appropriate and the resulting data is valid. As well as the results of reliability, the questions on each variable are consistent matter, so the data generated from the questionnaire is stable and harmonious.

TABLE I. VALIDITY TEST RESULT

No.	Variable Description of Variable	Valid if V-value < Alpha 5%	Result
1.	The e-learning technology using skill (V1) Questions: QV11, QV12, QV13	0.000	Valid for (all questions)
2.	The perception of e-learning benefits and quality assurance (V2) Questions: QV21, QV22	0.000	Valid for (all questions)
3.	E-learning policies and ICT support Questions: QV31, QV32	0.000	Valid for (all questions)
4.	E-learning Constraints (V4) Questions: QV41, QV42, QV43, QV44	0.000	Valid for (all questions)

TABLE II. RELIABILITY TEST RESULT

No.	Variable		Result
	Description of Variable	Valid if Cronbach's Alpha Value > 0.60	
1.	The e-learning technology using skill (V1) Questions: QV11, QV12, QV13	0.864	Reliable
2.	The perception of e-learning benefits and quality assurance (V2) Questions: QV21, QV22	0.654	Reliable
3.	E-learning policies and ICT support Questions: QV31, QV32	0.644	Reliable
4.	E-learning Constraints (V4) Questions: QV41, QV42, QV43, QV44	0.864	Reliable

## 2) Finding ELR Variable Score

Measurement of ELR variable score for the e-learning technology using a skill (V1) with 3 questions resulted in an average value of 3,651 (Table III). This score is greater than the limit of 3.6 Aydin and Tasci scores. This implicates that the lecturers and students of Mulawarman University have sufficient readiness for online learning applications. It is said that a score of 3,651 requires certain treatment that can improve confidence levels and readiness in online learning. Associated with other questions in the questionnaire, there are still some very low respondents in the skills of using online technology applications, such as Mols University Mulawarman (<http://mols.unmul.ac.id>), screen and video recording app, Google classroom or Moodle LMS. They need webinar activities for training that can increase their skills in these applications.

To find the ELR variable score V2 (The perception of e-learning benefits and quality assurance), data analysis is done to calculate the average score of 2 questions. The results showed a score of 2,351 (Table IV) which was relatively low at the Aydin and Tasci limits. This score illustrates that the sample data is not ready for the implementation of online implementation. The perception of lecturers and students on the implementation of online learning is very low when compared with normal learning implementation. It is a warning for institutions to change the perception of lecturers and students to be more confident in the success of online learning. It should be understood to lecturers and students that disruption of online learning technology is a necessity. It will continue to increase with the development of the 4.0 industrial Revolution. Each organization must be able to provide a true understanding that technology leads to online learning to be more effective.

TABLE III. MEAN SCORE OF SKILL VARIABLE (V1)

Code	Questions	Score
QV11	E-learning support Tools skill level (Smart Phone, Tab, Laptop, PC)	3.708
QV12	Various asynchronous online learning support app skill level (Google class room, MOLS or others LMS)	3.564
QV13	Various synchronous online learning support app skill level (ZOOM, Cisco Webex, MS Teams, or others)	3.680
Average		3.651

TABLE IV. MEAN SCORE OF PERCEPTION VARIABLE (V2)

Code	Questions	Score
QV21	E-learning benefits perception score as a learning tools alternatif	2.786
QV22	E-learning quality assurance perception score as compare with conventional learning systems	1.916
Average		2.351

The next variables measured are the E-learning policies and ICT support (V3). Respondents were asked to respond to policy and ICT support, whether they agreed or not. Surprisingly they mostly approve it with an ELR value of 3,705 (Table V). While there are still some respondents who

disagree, the score illustrates that this variable slightly supports their readiness to implement IT for online learning. The score also suggests that it is necessary to increase the understanding of lecturers and students through socialization about policy and ICT support on online learning.

TABLE V. MEAN SCORE OF E-LEARNING POLICIES AND ICT SUPPORT VARIABLE (V3)

Code	Questions	Score
QV31	The Ministry of Education and Culture has contributing for e-learning implementation success, do you agree?	3.333
QV32	The development of ICT infrastructure has contributing for e-learning implementation, do you agree?	4.077
Average		3.705

The study also measured how many of the obstacles they found when applying online learning (V4 E-learning Constraints). The question is whether there are equipment constraints, internet network, synchronous or asynchronous software (video meeting app), and (LMS app) in online learning implementation. This is a negative variable, so a questionnaire scale and the Likert scale should be reversed. The results of measuring the ELR score for variable constraints are described in Table VI.

TABLE VI. MEAN SCORE OF E-LEARNING CONSTRAINTS VARIABLE (V4)

Code	Questions	Score
QV41	The e-learning constraint such as not available supporting tools (PC, Laptop, Tab, Smart Phone, Tab, PC/Laptop)	3.064
QV42	The e-learning constraint such as not available internet support	3.129
QV43	The e-learning constraint such as lack of asynchronous app skill operation (Google class room, MOLS or other LMS)?	3.003
QV44	The e-learning constraint such as lack of synchronous app skill operation (ZOOM, MS Teams, Cisco Webex or other)?	3.016
Average		3.010

Referring to the results of Table VI, respondents stated that there is still a significant constraint on the implementation of online learning with an ELR value of 3,010. The constraints are derived from the equipment, technology, and skill factors of online learning software operation.

TABLE VII. THE ELR TOTAL SCORE FOR ALL VARIABLE

Variable	Total of Question	Score
The e-learning technology using skill (V1)	3	3.651
The perception of e-learning benefits and quality (V2)	2	2.351
E-learning policies and ICT support (V3)	2	3.705
E-learning Constraints (V4)	4	3.010
Total	11	3.179

The overall ELR measurement results for all variables showed a score of 3,179 (Table VII). This implies that respondents' data from this research stated that they were not ready for online learning. Needs preparation from many aspects that can increase the readiness of lecturers and students in online learning. This is mainly to enter the learning season in the odd semester of 2020.

## V. CONCLUSIONS

Based on two analyzes in this study, namely descriptive analysis with visualization and analysis of ELR Aydin Tasci scores the results show that the data of lecturer and student respondents were not ready for the implementation of online learning. This is indicated by the total ELR score of 3,179 which is below the upper threshold of 3.4. Many treatments are needed that can increase the level of readiness of Mulawarman University in online learning.

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