

Readiness to Implement Digital Learning: An Issue from Faculty of Economics, Universitas Negeri Medan, Indonesia

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ABSTRACT

WHO announced the Covid-19 as Global Pandemic in early 2020? This condition immediately urged universities to migrate their instructional process to fully online learning as a result of the suggestion of physical distancing. This situation indeed results in the shock of the culture of learning and teaching. Following its shock, of course, questions arise related to the readiness of higher education in implementing fully online learning. This study aims to measure the readiness of lecturers and students of the Faculty of Economics, Universitas Negeri Medan (Unimed), in implementing digital learning. This study investigates the readiness from the normative belief perspectives. Normative belief is one of the critical antecedents of behavioral intention, as explained in The Theory of Planned Behavior [1]. The respondents of this study were lecturers and students at the Faculty of Economics, Unimed. This study uses simple random sampling to select the sample. With the snowball technique, this study collected 226 responses. 85 respondents were a lecturer, and 141 was a student. Data collection was carried out with an electronic questionnaire designed with 5-Likert scales. This study examines the differences of responses between lecturers and students as well as between men and women to avoid response bias. The results of this study indicate that lecturers and students have firm beliefs regarding their readiness to migrate learning activities to the online platform. Likewise, the findings of this study also indicate nervousness in the migration. The results of this study provide challenges for learning researchers and Education technology to produce recommendations for learning models that are suitable for implementing quality learning on digital platforms. The same challenge is faced with universities and regulators to develop best practices in teaching practices and regulations that urge innovation in teaching practices.

Keywords: Online learning, 21st century learning, Industry 4.0, Digital native.

1. INTRODUCTION

Information and Communication Technology (ICT)-oriented learning has actually been two decades ago a heated discussion in educational research [2]–[5]. Educational experts call it 21st-century learning because the 21st century is marked with the acceleration of innovation and adoption of information and communication technology which is also marked by the declaration of the industrial revolution 4.0 [3], [6]–[8]. In developed countries, the practice of learning that integrates technology has been widely practiced [3], [5], [9]–[12]. Unfortunately, the same thing did not happen in developing countries, including Indonesia. It happens for a variety of reasons, such as limited infrastructure, limited digital pedagogical knowledge, limited

technological literacy and limited ongoing research related to digital learning pedagogics [13]–[18].

Interestingly, the presence of the Covid-19 Global Pandemic urged all educational institutions, in all over level, to immediately shift to online learning [19]–[21]. This circumstance is undoubtedly resulting in the shock of work culture [22]. Although, at the level of higher education, the Ministry of Research and Technology and Higher Education (Kemenristekdikti), Republic of Indonesia, since 2018 has initiated Blended Learning in Higher Education by publishing guidelines for the preparation of higher education curricula in the Industrial Revolution 4.0 era [23]. Besides that, the Ministry of Research and Technology also developed a learning management system called SPADA (Online Learning System-Indonesia) as a platform that supports

the implementation of Blended Learning [24]. However, the practice of online learning or blended learning does not apply much because it is voluntary. In contrast to the conditions caused by the Global Covid-19 Pandemic that encourages everyone to do physical distancing, online learning is a format that mandatory to implemented in universities [19], [21], [25], [26]. Besides being compulsory, online learning in the days of Pandemic Covid-19 is also fully online, which is very different from blended, which is a mixture of face-to-face and online. Thus, the readiness of universities to carry out online learning becomes a vital issue of its success.

Unimed itself has held training and workshops on the development of syllabus and Semester Instructional Program Plans at the University, Faculty, and Study Program levels. It training held as a staff development program to be ready and assisted in developing blended learning model learning designs and implementing them. So, in certain contexts, lecturers know about preparing instructional documents and online learning techniques. However, fully online learning that is carried out during physical distancing indeed results in a higher dependence on ICT devices, both software and hardware. Following these challenges, pedagogical researchers and Educational technology and various Education institutions have quickly issued guidelines, recommendations and frameworks for implementing online learning at multiple levels of Education [25], [27]–[29]. Likewise, online learning requires a mature strategy, a suitable approach, student engagement, ongoing supervision, infrastructure support, and outreach to be able to be sure of achieving learning objectives [30]. This condition exactly produces even higher challenges among the academic community, including lecturers and students, especially related to the readiness of technology integration in all aspects of learning. Therefore, this study aims to measure the readiness of the faculty and students of the Faculty of Economics, Unimed, in dealing with online learning.

Measuring the readiness of lecturers and students in integrating technology in the classroom is very important in the design of professional development, development of learning models, and future policy-making, moreover in the implementation of fully online learning [5], [16], [31]. Cheon et al. [5] found that readiness is an essential antecedent of IT acceptance and integration. Cheon et al. [5] revealed that lecturers and students who have the readiness to integrate IT would benefit from the use of a learning management system (LMS) and then will produce an attitude of acceptance and adoption to support the learning process. Besides, technological readiness will also improve the quality of online learning and teaching to be meaningful [11]. The challenge is, the readiness of technology referred to in academic activities is not just an understanding of

technology, but how to utilize the technology to support learning and teaching activities [15].

Traxler [32] indicates that higher education can adopt LMS faster because of the availability of infrastructure. Still, universities need to measure the readiness of end-user computing from the LMS to reduce learning constraints during migration [5], [11]. Therefore, this study focuses on measuring the readiness of end-user computing in the full use of LMS in academic activities. End-user computing readiness in this study was measured by normative belief. Normative belief is a determinant of the initial attitude of an individual to meet the expectations of people in their environment [1]. It referred to as subjective norms on The Theory of Planned Behavior (TPB) [1]. TPB reveals that a person will take specific actions due to behavioral intention, and behavioral intention is formed by three dimensions, namely attitude toward behavior, subjective norms, and perceived behavioral control [1]. This study only measures normative beliefs that are on the subjective norm dimension because the conditions of LMS implementation in the Faculty of Economics, Unimed, are mandatory, so that attitude toward behavior and perceived behavioral control in LMS acceptance have been controlled by regulation. Unlike the normative belief, which in this case is used to measure the beliefs of lecturers and students related to their readiness to carry out online learning. Belief is essential because in the implementation of teaching and learning consists of two end-user computing, namely as a learning conveyor referred to as a lecturer, and learning recipients are called students. Thus, there must be a mutual belief between the two so that learning will proceed steadily. So that, this research investigates belief of end-user computing related to his readiness and the online learning environment he will faced.

2. METHOD

2.1. Research Instrument

The research instrument was adapted from Cheon et al. [5]. The instrument is used to measure the readiness of respondents in facing online learning from the perspective of normative belief. The survey instrument consisted of ten items where five of them were to measure the readiness of lecturers, and another five were to measure the readiness of students. Each respondent, both lecturers, and students will fill in these ten items so that each respondent measures the readiness of his own role and other roles. Measurement of perception in this study uses 5-Likert scales to measure from strongly-disagree to strongly-agree. The researchers design the questionnaire electronically to facilitate distribution and data collection.

2.2. Data Collection

The population of this study was lecturers and students at the Faculty of Economics, Unimed. Researchers used a simple random sampling technique to take representation from the two groups [33]. The unit of analysis in this research is the individual. The snowball technique did the data collection. Snowballs are operationalized by distributing questionnaires in the study program's WhatsApp group and the students' WhatsApp group. Respondents were asked to fill out the questionnaire voluntarily, and the survey questionnaire was designed anonymously to avoid response bias [34]. This study collected 226 responses. 85 (37.6%) of them are lecturers, and 141 (62.4%) others are students. Then, 92 (40.7%) were male, and 134 (59.3%) were female. Among the lecturers, 70 (31%) of them had a Master Degree as educational background, and 17 others had a doctoral degree as educational background (7.5%). In summary, sample demographics are presented in table 1 below.

Table 1. Demography of Sample

Indicators	n	%
Gender		
Male	92	40.7
Female	134	59.3
	226	100
Role		
Lecturer	85	37.6
Student	141	62.4
	226	100
Educational Background		
Graduate Student	141	62.4
Master	70	31.0
Doctor	17	7.5
	226	100

2.3. Data Analysis

This study uses descriptive statistics and ANOVA to analyze the data [35]. Descriptive statistics are used to determine the likelihood of response in readiness to use LMS both on the lecturer and student side. Furthermore, the ANOVA test is used to analyze the differences in responses given by lecturers and students. It is crucial to avoid response bias due to differences in respondent characteristics. Researchers also strengthened it by testing the differences in response between men and women. Finally, to examine differences in the ICT readiness of lecturers and students, the ANOVA was conducted on the value of lecturer readiness and student. Thus, the data presented in descriptive statistics have a high level of confidence because they are controlled from response bias. Data analysis was performed using SPSS 21 software. The use of applications in data

analysis to support the efficiency and accuracy of data analysis [35].

3. RESULT AND DISCUSSION

3.1. Descriptive Statistics

The result of descriptive statistics results is presented in Table 2. The related explanations are described based on the following items:

1. "I think lecturers/students in my study program will support the use of LMS". In this item, there was an indication of doubt about students' support with a score of 19.5%. It might occur because of the limited infrastructure and access that students might experience in the area where they live. There are still some areas in North Sumatra that have not been covered by the internet network.
2. "I believe that the lecturers/students in my study program will enjoy the use of LMS in their daily academic activities". The figure of this item indicates a nervousness response between 15-20% in enjoying the use of LMS both for lecturers and students. This condition is reasonable because the implementation of LMS takes place suddenly and allows it to produce a culture of learning shock.
3. "I think lecturers/students in my study program will be constrained in using LMS in their daily academic activities". Different from other items, this item identifies obstacles that might be experienced by both lecturers and students in using LMS. From the responses, there are quite a lot of responses on "agree" and "strongly agree." In this item, the pattern that indicates obstacles in using LMS is increasingly confronting. It's just that the response is still leaning towards neutral, disagree, and strongly disagree.
4. "I think lecturers/students in my study program believe that the LMS application can be a useful educational tool in their daily teaching/learning activity". In this item, the pattern is not much different from items 1 and 2. This condition indicates that 75% of lecturers and students are identified as ready to use LMS, but 25% of responses are doubtful in its implementation.
5. "I believe that the lecturers/students in my study program have sufficient technical skills to use the LMS application in their daily teaching/learning activities". This item identifies the readiness of technical skills that might provide particular irritation to learning activities because migration to the LMS will certainly provide irritation during the transition so that the respondents' confidence level is slightly reduced.

Table 2. Descriptive Statistics

No.	Indicators	Respond					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Belief toward lecturer readiness							
1.	I think lecturers in my study program will support the use of LMS	1	2	19	108	96	226
		.4%	.9%	8.4%	47.8%	42.5%	100%
2.	I believe that the lecturers in my study program will enjoy the use of LMS in their daily academic activities	1	4	34	102	85	226
		.4%	1.8%	15.0%	45.1%	37.6%	100%
3.	I think lecturers in my study program will be constrained in using LMS in their daily academic activities	24	42	78	49	33	226
		10.6%	18.6%	34.5%	21.7%	14.6%	100%
4.	I think lecturers in my study program believe that the LMS application can be a useful educational tool in their daily teaching activity.	0	3	35	100	88	226
		.0%	1.3%	15.5%	44.2%	38.9%	100%
5.	I believe that the lecturers in my study program have sufficient technical skills to use the LMS application in their daily teaching activities.	3	5	56	107	55	226
		1.3%	2.2%	24.8%	47.3%	24.3%	100%
Belief toward student readiness							
6.	I think students in my study program will support the use of LMS	3	3	44	92	84	226
		1.3%	1.3%	19.5%	40.7%	37.2%	100%
7.	I believe that the students in my study program will enjoy the use of LMS in their daily academic activities	2	6	46	97	75	226
		.9%	2.7%	20.4%	42.9%	33.2%	100%
8.	I think students in my study program will be constrained in using LMS in their daily academic activities	32	51	66	55	22	226
		14.2%	22.6%	29.2%	24.3%	9.7%	100%
9.	I think students in my study program believe that the LMS application can be a useful educational tool in their daily learning activity.	1	4	39	102	80	226
		.4%	1.8%	17.3%	45.1%	35.4%	100%
10.	I believe that the students in my study program have sufficient technical skills to use the LMS application in their daily learning activities.	1	5	35	115	70	226
		.4%	2.2%	15.5%	50.9%	31.0%	100%

3.2. ANOVA

The test of ANOVA in this study was conducted to control response bias in the results of the descriptive statistics above. In general, the response is divided into two role groups and two gender groups namely lecturers and students as well as men and women. Then, the ANOVA was also carried out to review the differences in the readiness to use LMS owned by lecturers and students. Therefore, the test of ANOVA in this study was carried out in three stages. First, examine the differences in responses given by the two groups of respondents based on their roles, lecturers, and students, both in measuring the readiness of lecturers and students. Second, examine the different responses given by the two groups of respondents based on gender, male and female, both in measuring the readiness of lecturers and students. Third, examine the differences in the readiness of the lecturers and students from the overall response. Even the data used is the sum of the five items of readiness in the questionnaire. The first and second tests were carried out between samples, while the third tests were conducted within samples.

The results of data analysis showed that there were no significant differences in the first, second, or third test. The difference of responses between lecturer and student tests gets a p-value of 0.930 (> 0.05) in the belief of lecturer readiness toward ICT-integration and 0.980 (> 0.05) in the belief of student readiness toward ICT-integration. While testing the difference of responses between gender gets a p-value of 0.556 (> 0.05) on the belief of lecturer readiness toward ICT-integration and 0.734 (> 0.05) on the belief of student readiness toward ICT-integration, then on testing the differences of lecturer and student belief on readiness toward ICT-integration for the overall response also get a p-value of 0.505 (> 0.05) which shows no significant difference between the two data. Thus, the responses given by both lecturers and students have a consistency which means they are free from response bias as well as the responses given by female and male samples. Furthermore, at the level of readiness to use LMS for lecturers and students also found no significant differences. So that lecturers and students have the same level of readiness in the process of migrating teaching

and learning activities to online platforms. The overall ANOVA results can be observed in table 3 below.

Table 3. Results of ANOVA

No.	Indicators	F-value	p-value
1.	The Difference of Responses between Lecturer and Student (between sample)		
a.	Belief of Lecturer Readiness toward ICT-Integration	0.008	0.930
b.	Belief of Student Readiness toward ICT-Integration	0.001	0.980
2.	The Difference of Responses between gender (between sample)		
a.	Belief of Lecturer Readiness toward ICT-Integration	0.328	0.556
b.	Belief of Student Readiness toward ICT-Integration	0.116	0.734
3.	The Difference of Perceived Readiness (within sample)		
a.	The Differences of Lecturer and Student Belief on Readiness toward ICT-Integration	0.446	0.505

The Faculty of Economics, Unimed, faces a higher level of challenges. The availability of technological infrastructure, which is a prerequisite for online learning and often becomes a significant obstacle in developing countries, is no longer an obstacle [36]. The availability of hardware benefits from the almost total ownership of computers and mobile devices at the Faculty of Economics students, Unimed. Because undergraduate students in 2020 are generally digital natives who make information technology a basic necessity. Besides, Unimed has also prepared an LMS to facilitate blended learning, although it is not fully online, since 2018 ago. Unimed has also trained lecturers in stages to use SIPDA (Unimed's LMS). But it's still a transition period, and entirely online is always different from blended learning. Therefore, researchers say the Faculty of Economics, Unimed, faces a higher level of problem. Problems arise in the human side as end-user computing of LMS to be operational [37], [38].

Overall, the data indicate there is no significant difference in responses between lecturers and students. Furthermore, the data pattern shows that both lecturers and students have relatively high normative beliefs related to the readiness of the use of learning management systems in daily teaching and learning activities. However, the response patterns also indicate the nervousness of lecturers and students in the aspects of comfort, usefulness, and technical implementation of learning and teaching.

Normative beliefs possessed by lecturers and students can be expected to be formed due to initial knowledge related to the use of technology in general. Referring to previous research, initial ability, technological literacy, and awareness of the usefulness of ICT as a learning medium are useful starting capital in building ICT user readiness in learning and teaching [18]. Although LMS and the nature of instructional activity are entirely different from the use of ICT for

entertainment or other productive purposes [15], [39], but this initial knowledge is quite capable of building beliefs within lecturers and students. This view is in line with previous research findings, which suggest that the readiness of educational organizations in integrating technology in learning activities depends on teacher readiness and teacher readiness depends on belief and perceived skills [11], [40].

Thus, the availability of firm normative belief in the lecturers and students of the Faculty of Economics, Unimed, has become an excellent capital in terms of end-user computing, especially in shaping intrinsic motivation in him [40], [41]. Copriady [42] argues that self-motivation possessed by teachers and students is an essential mediator for their readiness to apply ICT in teaching and learning. However, some items appear that nervousness occurs between lecturers and students. This condition can be accepted as fairness because learning and teaching activities are complex activities and require social interaction. At once, its complexity brought to the platform, which suddenly becomes online based. This condition is also justified by education researchers who suggest that adaptation and adjustment processes are needed for both lecturers and students even though the infrastructure is already available both hardware and software [20], [27]. Besides, careful replanning is needed, primarily related to learning design and evaluation design, to produce learning on the new platform [20], [43]. While the development of pedagogic theory and research on the online platform is still developing and still requires further validation and experimentation [15], [16]. This condition is a further challenge for future researchers in developing quality online learning models, especially in developing countries.

Furthermore, what should be a concern for higher education providers, regulators, and digital learning researchers is how to increase the engagement and social presence of students and lecturers in teaching and learning activities carried out on the digital platform. Because previous researchers have found that students who take part in online learning mostly experience less quality of teaching practices and low levels of interaction [44]. Therefore, after lecturers and students gaining cognitive belief for readiness to carry out online learning, the next researcher should continually develop an interactive and engaging learning design. Lai [45], Badia, Meneses, & Sigales [37] and Mayende et al. [46] revealed that valuable interactions in online learning require careful pedagogic planning, coordination, and measurable curriculum implementation. The scientific process must, of course, be carried out gradually and continuously until students and lecturers are ready not only when facing it, but also during the process and evaluation of online learning and teaching.

4. CONCLUSION

This study aims to measure the readiness of faculty and students of the Faculty of Economics, Unimed, in dealing with online learning. This study reviews the readiness from the perspective of normative belief. Normative belief is one of the critical antecedents of the emergence of behavioral intention, as explained in The Theory of Planned Behavior [1]. The results of this study indicate that lecturers and students have beliefs regarding their readiness to migrate learning activities on the online platform. Likewise, the findings of this study also indicate nervousness in the migration. Actually, nervousness is not a limitation but rather because of the process of migration that occurs suddenly.

Therefore, this reasonableness is a challenge for learning researchers and Education technology to produce recommendations for learning models that are suitable for creating quality learning on a digital platform. As discussed, that learning on digital platforms carries the risk of reduced interaction, engagement, and social presence. In contrast, the learning process requires strong social interaction resulting in an exchange of knowledge, discussion, and problem-solving. The same challenges are faced with universities and regulators. Universities must take the role of rapidly developing best practices in online teaching practices. While the government or policymaker must be able to establish regulations that facilitate and urge innovation in teaching practices.

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