

MAPPING IDEA & LITERATURE FORMAT | RESEARCH ARTICLE

Explaining Student Intention to Use E-Learning Policy in Coastal and Archipelagic Regions: The Role of Facilitating Conditions and Trust

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ABSTRACT

The digitalization that has occurred has changed the way universities in Indonesia implement the learning process. The government's push for e-learning the best solution for students and lecturers to carry out their learning activities. The emergence of a series of innovative findings related to online learning would certainly provide the government with insight into formulating regulations in the face for Students in the Coastal Area. The findings of research on the usage of information technology are not limited to universities as service providers, as well as on the student intentions of technology users. This paper will investigate how students intend to use e-learning in in the Coastal Area. Quantitative approach was conducted in Riau Island Province, involving 150 students. The main construct of the UTAUT Model, was studied and tested with Structural Equation Modeling. The results of the analysis show that only Facilitating Conditions and Trust have a positive and significant effect on the intention to use e-learning. The study suggests to government should prioritize improving the equitable distribution of technological infrastructure and internet accessibility, particularly in coastal areas, small islands, and border regions within the Riau Islands Province.

Keywords: Intention to Use, E-Learning Policy, Facilitating Conditions, Trust, UTAUT.

I. Introduction

The role of information technology in education continues to evolve and is a key focus in various academic studies (Abbad, 2021). The development of digital technology has driven the transformation of the education system toward more flexible, adaptive, and technology-based learning. In line with this, theories regarding technology adoption in education are also evolving to explain how users accept and utilize technology in the learning process. Information technology's role in education is continuously being discussed. The development of technology adoption theory continues to develop in the field of education.



The government tried to implement its responsibilities in providing quality education services (Tria, 2020). Carrying out education using information technology in a new normal physical distance situation would be an ongoing effort. Information technology at university is now acceptable to run the learning process. Particularly in the provision of learning services to students.

Now, while entering a new era, online learning is indeed continuous. The continued implementation of government policies had already certainly encouraged universities to adjust to the new online learning system (Afrizal et al., 2024). There is no specific application from the government for online learning. However, tertiary institutions are trying their best to prepare e-learning systems and to consider the use of all support systems and applications in the teaching process (Ansong-Gyimah, 2020). The emergence of various online classroom applications to meet online has been shown to be of value to lecturers and students in the process of learning. However, the success of using online learning technology is not solely determined by the availability of learning systems and applications. The use of online learning technology is also greatly influenced by the readiness and acceptance of users, particularly students as the primary users of the learning process. Students are required to adapt to the shift from conventional to technology-based learning (Bouzidi & Kabaii, 2026). Therefore, student intention to use online learning technology is a crucial factor in determining the success of e-learning system implementation in higher education (Mai & Khairani, 2026).

Universities in the province of Riau Island have implemented online learning for the whole of their students. The government's policy to normalize online learning, which is caused by various factors and conditions, has certainly become a problem for students in coastal island areas. In the process, a paucity of facilities and infrastructure, networks, and individual competencies becomes a common major obstacle. The routines of students that have studied conventionally had already dramatically changed using online learning to become such a serious hurdle as all student. Table 1 Explains that the number of students spread across a variety of public and private universities that are still involved in the online learning process.

Table 1. Number of universities as in the province of Riau Island 2025

No	Regency/Municipality	Under the Ministry of Education		Under the Ministry of Religious Affairs	
		public	Private	public	Private
Regency					
1	Karimun	-	-	-	211
2	Bintan	-	826	1.899	...
3	Natuna	-	181	-	1.070
4	Lingga	-	-	-	133
5	Kepulauan Anambas	-	131	-	1
Municipality					
6	Kota Batam	12.129	28.387	-	1.857
7	Kota Tanjungpinang	9.006	5.014	-	608
Total		21.135	34.539	1.899	3.880

There are 5 regencies and municipalities in the province of Riau Island Indonesia, many more as 21.135 students at public universities and 34.539 students at private universities under the auspices of the Minister of Education. Meanwhile, under the Ministry of Religion, there are 1.899 students from public universities and 3.880 students from private universities. Students who have studied at universities that are located in mainland, large and developed urban areas that have used e-learning do not use behavior issues in technology adoption. However, students who live in coastal areas of small and remote islands and those located on border islands feel different things. Limited network access, supporting facilities, and the ability to use technology can influence students' desire to use online learning systems optimally. The intention of students to utilize the e-learning system is one of several elements that influence the use of information technology (Odewumi et al., 2018). According to research findings, the user's intention is the most important determinant of technology use (Gupta, 2018). Therefore, it is important to understand how students' intentions to use online learning technologies are formed, particularly for students in island regions with

limited geography and infrastructure . Understanding these intentions to use online learning technologies is expected to help universities improve the effectiveness of e-learning implementation and support the success of learning processes in the digital age.

II. Literature Review and Hypothesis Development

Unified Theory of Acceptance and Use of Technology (UTAUT) is a theory used to analyze the intention of users of technology (Venkatesh et al., 2011; Afrizal & Wallang, 2021) . This theory has been developed and applied in a variety of aspects. This model is a model that is best in predicting the use of technology in the future (Dwivedi et al., 2020; Abbas, 2018). Testing of this theory is also widely carried out and confirms that this theory is indeed appropriate for the technology usage (Afrizal, 2020). The emergence of research on the UTAUT model, in particular in the context of educational research, is developing many new variations that can be added as the future of this model. The main model is visualized in Figure 1 below:

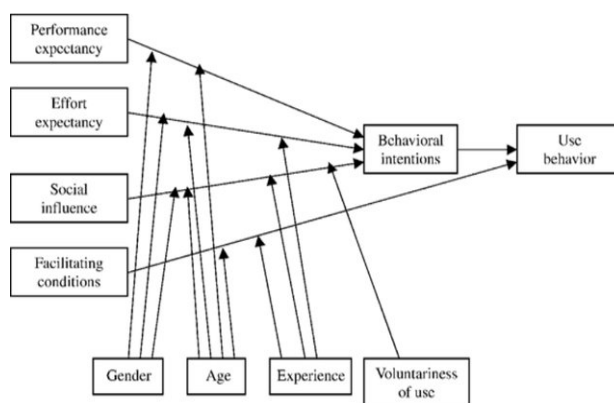


Figure 1. UTAUT Model (Venkatesh et al., 2003)

2.1. Performance Expectancy (PE)

PE is defined as the degree to which users believe that they will benefit from this system for their work(Hildawati et al., 2026). According to many studies related to this theory, PE correlates positively with a personal desire to use technologies. PE is a critical component to examine while researching the behavior of technology users, according to studies on technology adoption. The results of PE on the intent utilize in the field of education have been widely presented (Alwahaishi, 2021; Abdekhoda et al., 2022) (Sumak & Sorgo, 2016). It really is clear that PE predictor of intention to use technology. The research hypothesis is concluded from this statement:

H1: PE has a positive effect and significant on ITU e-learning

2.2. Effort Expectancy (EE)

EE is a measure of user confidence that accelerates the user's accomplishment. Other than that, EE is an important factor when it comes to the intention to use technology. Research on the EE in the field of education has certainly been done a great deal (Antoniadis et al., 2022; Hasan et al., 2025). EE has a substantial impact on intent to use (Abdekhoda et al., 2022) . Different findings found that EE did not have a significant effect . This is why EE is such a crucial aspect in determining technology users' intentions. The research hypothesis is concluded from this statement:

H2: EE has a positive effect and significant on ITU e-learning

2.3. Social Influence (SI)

It was a description of the extent to which Individual feels that important people believe that the system should have been used. There has certainly been a great deal of research on the educational aspect of SI. Several researchers have discovered that a person's intention to utilize technology is strongly influenced by social influence (Arif, Ameen & Rafiq, 2018). Based on previous findings, when it comes to the intention to employ technology, the effect of SI is also a significant factor. Other findings are actually contradictory, where the findings found that social influence did not have an effect (Hasan et al., 2025) (Abbad, 2021). The research hypothesis is concluded from this statement:

H3: SI has a positive effect and significant on ITU e-learning

2.4. Facilitating Conditions (FC)

FC is the degree to which an individual feels that an organizational and technological infrastructure exists to support the operation of the system. There was certainly a lot of research on the educational aspect of the facilitating conditions at the moment. FC refers to a user's trust also in tools that help them are using the system. Many new findings suggest that facilitating conditions is an influential factor when it comes to the intention of a technology user (Yacob et al., 2025; Lallmahomed et al., 2017). In contrast to these findings, SI does not have a significant effect (Hasan et al., 2025). The research hypothesis is concluded from this statement:

H4: FC has a positive effect and significant on ITU e-learning

2.5. Trust (TR)

Trust is important for users of technology services. The same matter is said that trust is an important aspect of the provision of electronic services. Many have recommended that trust should have been included in the UTAUT model. Factual concepts from researchers show that trust is a fundamental element in the development of UTAUT model (Witarsyah, 2017). The importance of trust is also seen in previous research which it has been shown that user trust has an influence on the intention to use (Alwahaishi, 2021). In contrast to this, trust did not emerge as significant direct predictors (Weis et al., 2026). The research hypothesis is concluded from this statement:

H5: TR has a positive effect and significant on ITU e-learning

The author formulates the research framework described in Fig 2.

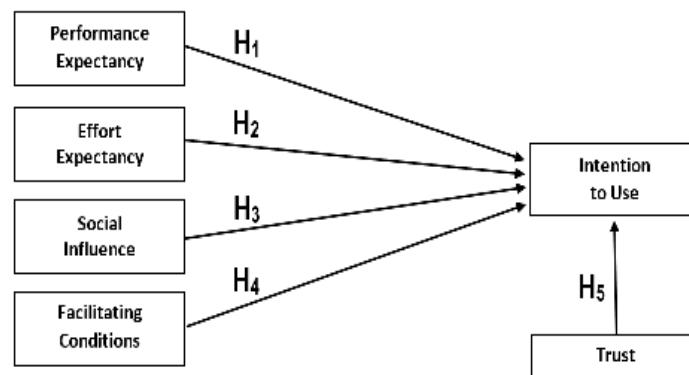


Figure 2. Research Framework

III. Method

This study was carried out using quantitative methods. The quantitative method was chosen because this research focused on testing the relationship between variables and analyzing the influence of factors that influence students' intention to use the online learning system. The respondents are Riau Island Province students who have used an online learning system. Research respondents came from various public and private universities spreaded in the Riau Islands Province area. The sample of 150 students have used Quota Sampling technique (Jonathan, 2006). This sampling technique is used so that researchers can determine the number of respondents according to the characteristics required in the research. The questionnaire was adapted from various research questionnaires, which were related to research questions raised by researchers. The research instrument was developed based on variable indicators from UTAUT Model that have been used in previous studies, so it has a strong theoretical basis. The distribution of questionnaires was decided to make using the google form application (online questionnaire)(Yusuf et al., 2021). The use of google forms facilitates the process of distributing questionnaire to respondents in various islands and speeds up the data collection process. The questionnaire obtained is then tested for validity and reliability in such a manner that it focuses only on data analysis in the discussion (Thompson, 2004). Validity testing is conducted to know the level of accuracy of the instrument in measuring research variables, while reliability testing is used to know the consistency of respondents' answers to each research indicator. The results are presented using SEM analysis and the support software SMART PLS 3.3.3. The use of structural equation modeling (SEM) aimed to analyze the structural relationship between research variables and to testing the research model as a whole.

IV. Results and Discussion

The initial step in this research will be to test validity and reliability. This is intended to determine whether the constructs used are strong enough to measure the variables used (Hair et al., 2012). The step that has been taken is to look at the validity namely, outer model, Fornell-Larcker Criterion, Cross Loadings test. From the data, the findings of the research can be seen and analyzed in depth. The Evaluation of the Measurement Model is carried out in the first stage.

Table 2. Outer Model

		EE	FC	ITU	PE	SI	Trust
EE	1	0,864					
	2	0,861					
	3	0,888					
	4	0,834					
	5	0,894					
	6	0,820					
FC	1		0,826				
	2		0,865				
	3		0,880				
	4		0,862				
	5		0,802				
	6		0,743				
	7		0,883				
ITU	1			0,826			
	2			0,880			
	3			0,881			
	4			0,803			
	5			0,804			
PE	1				0,748		
	2				0,720		
	3				0,857		
	4				0,841		
	5				0,894		

		EE	FC	ITU	PE	SI	Trust
EE	1	0,864					
	2	0,861					
	3	0,888					
	4	0,834					
	5	0,894					
	6	0,820					
	6				0,859		
SI	1					0,736	
	2					0,834	
	3					0,804	
	4					0,802	
	5					0,845	
	6					0,877	
Trust	1						0,812
	2						0,885
	3						0,848
	4						0,883
	5						0,884
	6						0,745

The Evaluation of the Measurement Model is carried out in the first stage. The initial stage is to test the value of the loading factor in each indicator with a limit above 0.7, the result all of which is $\geq 0,7$. In addition, for the DVT, the Fornell Larcker Criterion (FLC) looks at the value of the variable on its own, the value of which is greater than the comparison of other variables (Hair Jr et al., 2014)

Table 3. Fornell-Larcker Criterion

	EE	FC	ITU	PE	SI	Trust
EE	0,861					
FC	0,844	0,839				
ITU	0,747	0,829	0,839			
PE	0,781	0,767	0,674	0,822		
SI	0,826	0,834	0,763	0,717	0,817	
Trust	0,728	0,745	0,720	0,574	0,745	0,844

The results indicate that all values obtained from the Fornell-Larcker Criterion (FLC) demonstrate adequate discriminant validity among the constructs. Specifically, the diagonal values for each construct were as follows: EE \rightarrow EE = 0.861, FC \rightarrow FC = 0.839, ITU \rightarrow ITU = 0.839, PE \rightarrow PE = 0.822, SI \rightarrow SI = 0.817, and Trust \rightarrow Trust = 0.844. These values are higher than the correlations between each construct and the other variables, indicating that each construct possesses stronger relationships with its own indicators than with other constructs in the model. Furthermore, the results of the Cross Loadings analysis are presented as follows:

Table 4. Cross Loadings

		EE	FC	ITU	PE	SI	Trust
EE	1	0,864	0,777	0,665	0,703	0,730	0,643
	2	0,861	0,744	0,646	0,723	0,732	0,668
	3	0,888	0,706	0,650	0,646	0,691	0,625
	4	0,834	0,663	0,566	0,691	0,714	0,540
	5	0,894	0,696	0,639	0,664	0,701	0,590
	6	0,820	0,759	0,677	0,608	0,698	0,677
FC	1	0,698	0,826	0,661	0,711	0,737	0,560
	2	0,710	0,865	0,772	0,647	0,730	0,695
	3	0,793	0,880	0,693	0,676	0,779	0,658

		EE	FC	ITU	PE	SI	Trust
	4	0,675	0,862	0,758	0,734	0,717	0,562
	5	0,665	0,802	0,554	0,515	0,622	0,604
	6	0,678	0,743	0,576	0,543	0,566	0,676
	7	0,740	0,883	0,797	0,646	0,723	0,637
ITU	1	0,555	0,689	0,826	0,579	0,594	0,572
	2	0,673	0,773	0,880	0,556	0,748	0,613
	3	0,693	0,696	0,881	0,611	0,653	0,645
	4	0,522	0,631	0,803	0,547	0,567	0,445
	5	0,673	0,680	0,804	0,538	0,624	0,726
PE	1	0,669	0,594	0,504	0,748	0,568	0,475
	2	0,549	0,462	0,450	0,720	0,436	0,370
	3	0,619	0,629	0,583	0,857	0,573	0,502
	4	0,663	0,664	0,566	0,841	0,627	0,435
	5	0,665	0,743	0,634	0,894	0,676	0,532
	6	0,688	0,658	0,567	0,859	0,630	0,501
SI	1	0,654	0,582	0,504	0,462	0,736	0,467
	2	0,623	0,645	0,603	0,576	0,834	0,505
	3	0,614	0,622	0,535	0,566	0,804	0,642
	4	0,694	0,665	0,595	0,666	0,802	0,572
	5	0,694	0,725	0,707	0,598	0,845	0,735
	6	0,761	0,812	0,746	0,631	0,877	0,690
Trust	1	0,599	0,618	0,678	0,531	0,606	0,812
	2	0,692	0,717	0,690	0,536	0,702	0,885
	3	0,652	0,635	0,646	0,577	0,676	0,848
	4	0,524	0,565	0,532	0,363	0,585	0,883
	5	0,678	0,691	0,590	0,468	0,660	0,884
	6	0,499	0,510	0,447	0,376	0,506	0,745

The data indicate that the Cross Loadings values of the variables EE, FC, ITU, PE, SI, and Trust are higher than their correlations with other variables. This finding demonstrates that the factor loading values are valid and satisfy the discriminant validity criteria. The reliability test, the Construct Reliability and Validity results show that the Average Variance Extracted (AVE) value for each variable is entirely ≥ 0.5 . This indicates that all constructs have achieved adequate convergent validity.

Table 5. Construct Reability and Validity

	Con.alpha	rho_a	Composite reliability	AVE
EE	0,930	0,931	0,945	0,741
FC	0,929	0,938	0,943	0,703
ITU	0,895	0,899	0,923	0,705
PE	0,903	0,912	0,926	0,676
SI	0,900	0,913	0,923	0,668
Trust	0,919	0,929	0,937	0,713

All Cronbach's Alpha and Composite Reliability values for each variable are above 0.7. These results indicate that all indicators are reliable and suitable for use in the research model.

Table 8. Result P Values

	(O)	M	STDEV	O/STDEV	P values
EE -> ITU	0,012	0,008	0,111	0,106	0,916
FC -> ITU	0,516	0,493	0,120	4,289	0,000
PE -> ITU	0,062	0,063	0,065	0,950	0,342

SI -> ITU	0,138	0,156	0,083	1,675	0,094
Trust -> ITU	0,189	0,198	0,092	2,060	0,039

From the results obtained, P Values, which are below the significance threshold of 0.05. FC variable produced a path coefficient value of 0.516, with a T-Statistic of 4.289 and a P Value of 0.000. These findings demonstrate that FC has a positive and significant effect on ITU. In other words, the availability of adequate facilities, technological infrastructure, and institutional support for online learning significantly increases students' intention to use online learning technology. Furthermore, the Trust variable also showed a positive and significant effect on ITU, with a path coefficient of 0.189, a T-Statistic value of 2.060, and a P Value of 0.039. This result indicates that students' trust in the reliability, security, and effectiveness of online learning systems contributes positively to their willingness to adopt and utilize such technologies in the learning process.

In contrast, EE was found to have no significant effect on ITU. The variable generated a path coefficient value of 0.012, with a T-Statistic of 0.106 and a P Value of 0.916, which exceeds the significance level of 0.05. This finding suggests that the perceived ease of using online learning systems does not significantly influence students' intention to adopt online learning technology. Similarly, Performance Expectancy (PE) did not demonstrate a significant influence on ITU. The results showed a path coefficient of 0.062, a T-Statistic of 0.950, and a P Value of 0.342. This indicates that students' perceptions regarding the potential benefits and performance improvements gained from online learning systems are not the primary factors determining their intention to use the technology. In addition, SI exhibited a positive but statistically insignificant effect on ITU, with a path coefficient of 0.138, a T-Statistic value of 1.675, and a P Value of 0.094. This result implies that social factors, including the influence of peers, lecturers, and the academic environment, are not sufficiently strong to shape students' intention to use online learning systems. Overall, the findings of this study reveal that facilitating conditions and trust are the dominant factors influencing students' intention to use online learning technology in the Riau Islands Province.

V. Conclusions

The results of the analysis show that Facilitating Conditions (FC) and Trust have a positive and significant effect on Intention to Use (ITU) online learning systems. This finding suggests that the availability of supporting infrastructure, technological facilities, and students' trust in the reliability of online learning platforms play a crucial role in encouraging the adoption of online learning technology. In contrast, Effort Expectancy (EE), Performance Expectancy (PE), and Social Influence (SI) were found to have no significant effect on students' intention to use online learning systems. These results imply that perceived ease of use, effort expectancy, performance expectancy, and social influence are not the primary determinants of technology adoption among students in this context. This condition associated with the geographical and infrastructural limitations experienced by students living in coastal and island regions, where access to digital resources and internet connectivity remains challenging. Overall, this study highlights that facilitating conditions as a form of technical support and user trust are more influential than other examined factors in shaping students' behavioral intention toward online learning technology. Therefore, the author suggests that the government should prioritize improving the equitable distribution of technological infrastructure and internet accessibility, particularly in coastal areas, small islands, and border regions within the Riau Islands Province. Furthermore, there are some limitations to this study. In the first place, the results could not be generalized since this study only involved university students without involving all levels of education. Second, the sampling method used in this study was based on several area. On the basis of these limitations, we therefore propose some ide for future studies.

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