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Technology Readiness and Acceptance Model Analysis on Academic Information System Operations at UBJ University

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ABSTRACT

The academic information system (AIS) is part of the operating system at universities, generally used to manage higher education data such as student data, lecturer data, staffing data, syllabus, grades, lecture schedules, libraries, and scheduled activities from universities. UBJ Jakarta University develops its academic information system. In the implementation of AIS, there are several obstacles, including slow response, computer literacy, technology gaps, and the difficulty of changing from manual methods to using information technology, so that the level of AIS use is quite low. These constraints, based on the existing literature, are caused by not being prepared for technology and not accepting technology. This study aims to determine how the influence of technology readiness and technology acceptance on the level of AIS use, using the TRAM model. The data was collated using Google form questionnaires from a total of 386 respondents and processed using path analysis by Amos. The results showed that the Optimism variable had a significant, positive effect on the perceived usefulness. While the other three technology readiness variables have no significant effect on perceived usefulness. Four variables of technology readiness have a significant effect on perceived ease of use, which in turn has a significant effect on perceived usefulness. Perceived usefulness has a significant effect on the usage level of AIS. Perception of ease of use did not have a significant effect on the usage level of AIS. Based on these results, it is recommended that UBJ university develop some actions plan to increase technology readiness and technology acceptance so that can be an increase in the usage level of AIS.

Keywords
Technology readiness; Technology acceptance; TRAM; Path analysis

Introduction

At least there are approximately 3250 universities in Indonesia in various disciplines, which carry out undergraduate, master's, and doctoral as well as vocational education. The implementation of these universities in the industrial era 4.0 certainly cannot be separated from the use of information technology for various activities on campus, ranging from student registration, implementation of the teaching and learning process, managing finances, syllabus, research, and so on. The use of information systems on campus, not all campuses fully use the complete information system as previously mentioned, will greatly depend on the financial capabilities of the college. However, one of the features that portray the quality of education at a university is the use of academic information systems (AIS).

One of the universities in Jakarta, the UBJ university has employed the academic information system for managing important educational data, such as the students, lecturers, academic information, syllabus, teaching-learning schedule, library, admission, financial management, etc. This information system was developed by information system experts from UBJ itself, to maintain the security of the system and its development is estimated to be following campus needs; if there is a new need, then the system is developed. This academic information system serves 6 faculties and 14 study programs, comprises data of about 8000 students, 400 lecturers, and about 300 staff and management, and can be accessed by members of the school structure. By using the AIS, the operations of the university will be more efficient and effective (Panday, 2015b) as every academic activity can be done faster and accurately. However, the implementation of AIS has been fairly unsuccessful due to problems such as computer literacy, slow response, and failure to change conventional standards from manual to computerized operations. All these obstacles come from individuals who use the information system, which can be said to be not ready to use

technology and also not ready to accept technology.
The technology readiness and acceptance levels in individuals are highly important factors in the implementation of the AIS. Technology readiness is formally known as the Technology Readiness Index (TRI) theory, introduced by Parasuraman and Colby (Parasuraman, A., & Colby, 2001), wherein technology readiness consists of four elements, namely optimism, innovation, discomfort using technology, and insecurity when using technology. Technological optimism means having a positive view when using technology, such as when using technology, you become more confident in controlling activities, believe you are more effective in activities, and believe you are more flexible(Parasuraman, A., & Colby, 2001). Innovation is the tendency of a person to be the first to use technology. Discomfort is a feeling of discomfort when using technology, such as having to follow certain rules in the use of certain technologies, being bound by several other rules, dependence on technology. (Parasuraman, A., & Colby, 2001). Insecurity is a feeling of worry when using technology, such as worrying if transacting with digital money the money doesn't get to the destination, worrying if someone can open the password of a software system, etc.(Parasuraman, A., & Colby, 2001). Optimism and innovation are positive traits that encourage someone to use technology, while discomfort and insecurity are traits that prevent someone from using technology. (Parasuraman, A., & Colby, 2001). In using information systems, a person's response to the availability of information systems also varies in terms of optimism, innovation, insecurity, and insecurity in using information systems.(Parasuraman, 2000) (Parasuraman, A., & Colby, 2001). Likewise, what happened at UBJ, some were not optimistic about the system that was made by themselves, pessimistic if the system did not work according to the expectations of lecturers and students. Only a few were the first to use the system. There are even those who are not comfortable using the system, because they believe that there will be many binding rules when using the information system. Another thing is that many feel insecure with the existence of an information system because they are worried that their data can be known by unauthorized parties, it is not safe if the stored data will be lost or changed by others Those who feel uncomfortable and insecure appear to be stronger than those who are optimistic and innovative. From the facts mentioned above, the application of the academic information system at UBJ has not run as expected.

Another thing, when using an information system, with a system made by themselves, users still find it difficult to use the system that was built; feel still not user-oriented, semi-automatic, some steps are done manually, not automatically by the system. So the belief in the ease of using the system is still said to be not high enough. Likewise about the belief in the benefits of the system being built. Still feel that the system that is built by yourself, looks less useful. This is called Technology Acceptance(Davis, 1989).

Technology Acceptance Model (TAM) was introduced by Davis (Davis, 1989). Both theories put together, constitute the TRAM (Technology Readiness Acceptance Model) which explains the intention and behavior of the individuals using the technology, which in this case, is the AIS. Therefore, the purpose of this study is to analyze the influence or effect of technology readiness and acceptance on the implementation of AIS at UBJ university. This research will contribute to its improvement, and further enhance the quality of education through AIS.

Literature Review

Technology readiness (TR) refers to "people's propensity to embrace and use new technologies to accomplish goals in life, at home and workplaces (Parasuraman, A. 2000b). Technology can be used everywhere and in many activities. Personnel skill in using computers, according to Parasuraman, and the ability of an individual to utilize technology, is influenced by 4 dimensions of behavior namely Optimism, Innovativeness, Discomfort, and Insecurity.

Technology acceptance model (TAM), introduced by (Davis, 1989); consists of two central

determinants: Perceived usefulness, which is "the degree to which a person believes that using a particular automated system would enhance their job performance"(Davis, 1989); and perceived ease of use, which refers to "the degree to which a person believes that using a particular system would require little or no difficulty" (Davis, 1989). TAM was specifically designed to explain computer usage behavior. TAM is a development of the Theory of Reasoned Action (TRA) by (Fishbein, M., & Ajzen, 1975), which has been successful in predicting and explaining behavior in general (Malhotra, Y., & Galletta, 1999). (Davis, D., Bagozzi, R. P., & Warshaw, 1989) explained based on the results of the research conducted, that TRA involves things that are felt and are expected to influence the intention to use a system, which in turn affects the actual use of the system. And the, perceived ease of use is hypothesized to have a positive effect on perceived usefulness.

According to (Davis, D., Bagozzi, R. P., & Warshaw, 1989) explained that this hypothesis is logically correct, namely when there is an increase in the ease of use of the system it will contribute to increasing the usability of the system. (Burton-Jones, A., & Hubona, 2006) (King, W. R., & He, 2006) observe that TAM has been used in various research objects related to the use of technology, so this theory has received a lot of support from researchers over the years. This theory has been validated on various systems, about its usefulness and ease of use be reliable and valid in the cognitive dimension. This study used TRI integrated with TAM, in which technology readiness will influence the technology acceptance, which in turn affects ICT behavior and consequently, the actual use. The integrated model was named TRAM (Technology Readiness-Acceptance Model) and has been applied by several researchers such as (Lin, C.-H., Shih, H.-Y., Sher, 2005), (Venkatesh, 2000) and ;(Schepers, J., & Wetzels, 2007). Other researchers include :(Kuang-Ming Kuo, 2013), they applied TRAM in research on mobile electronic medical record systems operated by nurses; (Murat Esen, 2014), researched on E-HRM; (Anders Husa, 2009), researched on Social Media Context;(Mimin Nur Aisyah, Mahendra Adhi Nugroho, 2013), studied and applied it in computer application at UMKM;(Yen, 2014), (H., 2013), researched on M(mobile)-Payment; (Panday & Purba, 2015) studied the technology readiness in using Academic Information System by students and lecturers at X University. (Panday, 2015c) conducted research and tested the TRAM model on the Academic Information System. (Panday, 2015a) also tested the TRAM model on Geodesy students in data compilation using Geographic Information system data, and lastly, (Panday, 2015b) implemented TRAM on project management data processing at PT. Pembangunan Perumahan. All research by R. Panday was conducted using different objects and conditions. Compared with the related studies, this research involves the implementation of TRAM to the AIS at UBJ university, to ascertain the level of technology readiness and acceptance of internal users, and therefore the effect on the actual use.

Prior Research of TRI has been done by most researchers in many fields of marketing, education, business, and community. which used IT.

The study helps e-Insurance marketers to make strategic decisions regarding internet use, based on research conducted by (Steven A. Taylor, Kevin Celuch, 2014).

The study of determining the Technology Readiness Scale for Sports Center RFID Door Security System Users has been carried out by: (Mu-Cheng Wu, Chao-Chien Chen, 2014).

The study examines the influence of the Technology Readiness Index (TRI) to use self-service technology to complete retail transactions applied by (Kevin M. Elliott., 2009).

Study of the factors that influence the use of technology in terms of technology readiness, as well as the role of alternative technologies developed by (Chien-Hung Chen, 2014).

The study of perceptions about certain products and services related to technology readiness is researched by (Ahmet Emre Demirci, 2014).

Jonas Matting, Per Kristensson, and Anders Gustafsson in their paper report how to explore and identify innovative and effective customers to

generate new technology-based service ideas. (Jonas Matthing, Per Kristensson, 2014).

The study investigates the technology readiness of rural communities in Malaysia, based on the gender groupings, as strategies to contribute to the sustainable future of ICT-based initiatives by (Wan Abdul Rahim, 2014).

Research on Customer technology readiness, in predicting consumer perceptions and behavior, with a sample of higher education students in Greek culture was conducted by (Manos Roumeliotis., 2014).

The research about Technology Readiness on Egyptians' Attitude towards E-Shopping has been done by (Gad, 2012).

(Lee, 2001), wrote in his paper discusses the measures in building appropriate human capacities for the adaptation of new technologies in developing countries by focusing on the education strategies of East Asian economies.

(Liljander, 2006) investigated the effect of TR on customer attitudes towards the use of self-service technology for airline check-in.

(Chen, 2011) , In his research, to examine how the influence of technology readiness on consumer loyalty, directly and through mediation of satisfaction, and electronic word-of-mouth.

(Rose & Fogarty, 2010), conducted a study of four dimensions of technology readiness combined with five segments of technology adoption, resulting in that mature consumers tend to be technology pioneers and are more likely to adopt at a growth stage.

This is evidence to suggest that mature consumer markets are heterogeneous and should no longer be viewed as one market.

(Janelle Rose, 2014), his study examines the association between cognitive age and technology readiness and the adoption of technologies among mature consumers. The inclusion of cognitive age in this study has provided an alternative insight into the mature consumer market.

(Mohammad Mobarezi, 2014), their study aims to establish relationships between information technology (IT) effectiveness, technological readiness, and IT flexibility. The results indicate that there is a positive and significant relationship between technological effectiveness and technological readiness and also its dimensions of optimism and innovativeness. Also, the results revealed that there is no significant relation between IT effectiveness and insecurity feeling dimension of technological readiness.

(Oketch, 2013), in his research shows that technology readiness is an important factor in e-learning readiness together with cultural readiness. In addition, there is no significant relationship between age, gender, and education level with e-learning.

(Panday & Purba, 2015) have used technology readiness in using Academic Information System by student and lecturer at X University.

Based on the review literature above, in the field of marketing, education, business, and community, it has adopted, combining, and adapting the technology readiness and IT with each area study. Even combined with demographic variables such as age, gender, status, and occupation along with the segmentation of the consumer as the respondent.

The next are some TR research in the field of operation management:

- The research Readiness for banking technologies in developing countries by (A.D. Berndt, 2014)
- The investigation of the technology readiness of staff of a multinational chemical company operating in Iran by (Asgharpour, 2006)
- The paper proposed a model of VLE (Virtual Learning Education) readiness in higher education institutions by (Abdirahman Abdulahi Ahmed. et al., 2014)
- The research of the readiness of teachers in using the technology in teaching in the classroom by (Jones, 2014)

The discussion of technology readiness in the field of operational management shows that TRI theory can be applied out of the field of marketing. In operation management, the persons who use and applied IT is human capital and must have the personal capacity in the field of IT when working use IT system. Operational management can't run properly if the IT person is not capable in terms have low technology readiness and low technology acceptance.

Another theory used in this study is the technology acceptance model (TAM), which was introduced by (Davis, 1989);

In TAM there are two main variables, namely perceived usefulness, which has an understanding of the extent to which a person believes that using a particular system can improve his job performance. (Davis, 1989); and perceived ease of use, which refers to a person's belief that using a particular system will be effort-free(Davis, 1989). TAM was designed specifically to explain computer usage behavior, but it can be used to explain for another technology usage which embedded the computer or software or the technology related to the computer or software for specific job/work. It is an adaptation of (Fishbein, M., & Ajzen, 1975) Theory of Reasoned Action (TRA), which has been successful in predicting and explaining behavior in general (Malhotra, Y., & Galletta, 1999). Following the theoretical basis of TRA, these perceived characteristics are expected to influence intentions to use a system, which in turn influence actual system usage (Davis, D., Bagozzi, R. P., & Warshaw, 1989). Furthermore, perceived ease of use is hypothesized to influence perceived usefulness. This hypothesis follows from the logic that improvements in ease of use of a system contribute to increased perceived usefulness due to the saved effort (Davis, D., Bagozzi, R. P., & Warshaw, 1989). The TAM has received considerable support over the years and continues in development. It has been validated over a wide range of systems, and perceived usefulness and perceived ease of use have proven to be reliable and valid cognitive dimensions (Burton-Jones, A., & Hubona, 2006) (King, W. R., & He, 2006). Research using the TAM theory has been carried out. Same with TRI, TAM in its development is widely used in the field of marketing related to products that use technology which related to the computer system and software, and then began to try to be used in the field of operations management wherein its operations using technology.

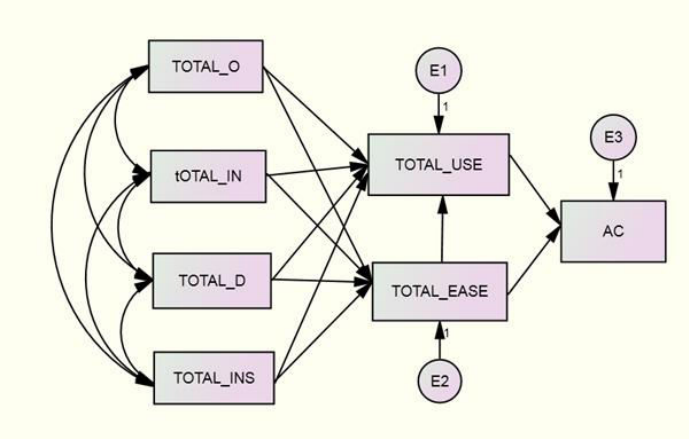
This study used TRI integrated with TAM, which "people's propensity to embrace and use new technologies to accomplish goals in home life and at work" will predict technology acceptance, and the next will influence behavioral intention which represents by actual use or the frequency of use. The integrated model was named TRAM (Technology Readiness-Acceptance Model).

This integrated model has been used by researchers such as (Lin, C.-H., Shih, H.-Y., Sher, 2005). , and, (Venkatesh, 2000), and ;(Schepers, J., & Wetzels, 2007). (Li, Shih-Chih Chen, 2010) , they developed an integrated model designed to predict and explain the use of electronic services based on the concept of Technology Readiness (TR). Technology readiness has a significant effect on attitudes, subjective norms, and perceived behavioral control.(Ethel Claffey, 2014) , did the research that suggests a new model for understanding consumer's‟ technology acceptance of technology-based services. It integrates Parasuraman‟s (2000) taxonomy of technology readiness (TRI) and a modified Unified Theory of Acceptance and Use of Technology (UTAUT). TRAM also has been used by many researchers such as :(Kuang-Ming Kuo, 2013), with their research on mobile electronic medical record systems operated by nurses;(Murat Esen, 2014), their research on E-HRM; (Anders Husa, 2009), their research on Social Media Context; (Mimin Nur Aisyah, Mahendra Adhi Nugroho, 2013), their research on application computer at UMKM (Micro Small Medium Entrepreneur);(Yen, 2014), (H., 2013), their research on M(mobile)-Payment; (Rita Walczucha, Jos Lemmink, 2006), with their research title: The effect of service employees' technology readiness on technology acceptance; (Yen, 2014), with research title: Perspectives from the TRAM Model on Adopting e-Learning: An Analysis of the Chain and Franchise Industry in Taiwan; (Panday, 2015c) used TRAM to test the model on the Academic Information System. (Panday, 2015a) also used TRAM to test the model on Geodesy students in data processing of Geographic Information system data, and last, (Panday, 2015b) has used TRAM on project management data processing at PT. Pembangunan Perumahan. All research by R.Panday, showed different results for each other, cause TRAM was implemented in different conditions and different subjects.

To see the related research, the reported study in this paper is the implementation of TRAM to the electrical and mechanical project at Contractor

company, to see the level of technology readiness and technology acceptance of employee, and their influence, which is different condition compare to previous studies. In the discussion of TRAM literature review, mostly TRAM has been applied in many human activities in the field of operational management. Based on the literature have reviewed, it can be concluded that in general, technology readiness influences technology acceptance. Also, technology readiness has a contribution to technology acceptance. Most research show that Optimism and Innovativeness have great influence and contribution to technology acceptance.
The TRAM model in this research show in Figure 1.

Figure 1 TRAM research model



Note of symbols:	
Total_O =	Optimism
Total_IN =	Innovativeness
Total_D =	Discomfort
Total INS =	Insecurity
Total_EASE =	Perceived ease of use
Total_USE =	Perceived usefulness
AC =	Actual use

According to the research of (Parasuraman, A., & Colby, 2001). and (Tsikriktsis, 2004) and Figure 1., the hypothesized can be formulated as follows:

H1. Optimism is a positive significant effect on perceived usefulness.
H2. Innovativeness is a positively significant effect on perceived usefulness.
H3. Optimism is a positive significant effect on perceived ease of use.
H4. Innovativeness is a positively significant effect on perceived ease of use.
H5. Discomfort is no significant effect on perceived usefulness.
H6. Discomfort is a negatively significant effect on perceived ease of use.
H7. Insecurity is a negatively significant effect on perceived usefulness.
H8. Insecurity is a negatively significant effect on perceived ease of use.

The effects of perceived ease of use contributes to perceived usefulness have done by (King, W. R., & He, 2006), (Lin, C.-H., Shih, H.-Y., Sher, P. J., 2005), [(King, W. R., & He, 2006), Lin, (Lin, C.-H., Shih, H.-Y., Sher, P. J., 2005), (McFarland, D. J., 2006), (Schepers, J., & Wetzels, 2007), (Venkatesh, 2000), (Yang, H.-D., & Yoo, 2004)]. Based on the assumptions that some user-friendly applications could be perceived as useful, but not all useful applications are user-friendly. Thus, the hypothesize can be stated as:

H9. Perceived ease of use is a positive significant effect on perceived usefulness.

Refered to[(Davis, 1989)] and [(Schepers, J., & Wetzels, 2007)]. Thus, the hypothesizes as follows :

H10. Perceived usefulness is a positively significant effect on actual use.
H11. Perceived ease of use is a positive significant effect on actual use.

Methodology

The quantitative method is used in this study. Slovin's formula was used to ascertain the sample size which comprises lecturers, students, staff, and school management. The school population is about 8700. According to Slovin's formula, with a margin error of 5%, the sample size totaled 382 respondents. Data was collated using questionnaires, which is a modification of those made by Parasuraman and Davis. The survey involved the distribution of questionnaires to about 500 respondents via Google Forms. 386 forms in total were filled properly and correctly and tested via the TRAM model shown in Figure 1. Data processing used path analysis in SPSS

Ver.23 and Amos software. Before path analysis, the validity and reliability of the questionnaire data were tested to ensure that the questionnaire was valid and reliable.

Data Analysis and Discussion

Before carrying out further analysis, the validity and reliability of the questionnaire are first tested. The validity results are shown in Table 1.

Table 1 Results of the Technology Readiness and Technology Acceptance Validity

Pearson Correlation									
O1	O2	O3	O4	O5	O6	O7	O8	O9	O10
.509**	.629**	.452**	.578**	.551**	.545**	.704**	.637**	.658**	.613**
IN1	IN2	IN3	IN4	IN5	IN6	IN7			
.729**	.761**	.802**	.762**	.712**	.703**	.767**			
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
.615**	.562**	.660**	.649**	.745**	.734**	.745**	.791**	.771**	.726**
INS1	INS2	INS3	INS4	INS5	INS6	INS7	INS8	INS9	
.747**	.852**	.735**	.853**	.737**	.850**	.736**	.746**	.814**	
USE1	USE2	USE3	USE4	USE5					
.694**	.752**	.722**	.695**	.716**					
EASE 1	EASE 2	EASE 3	EASE 4	EASE 5					
.800**	.765**	.788**	.746**	.777**					

**. Correlation is significant at the 0.01 level (2-tailed).
Source: results of data processing by SPSS ver23

From these results, all variables show significant values, as these values are significant at 0.01, therefore the results of the questionnaire are valid. The reliability computation in table 2 showed that the Cronbach alpha values are greater than 0.6 which further confirms the reliability of the questionnaire.

Table 2 Reliability Values

Cronbach's Alpha					
Optimism	Innovativeness	Discomfort	Insecurity	PEOU	PU
.790	.868	.885	.923	.849	.803

Source: results of data processing by SPSS ver23

The average value of each variable of Technology Readiness and Acceptance is shown in Table 3. The optimism variable is 4.09, which is high, and therefore signifies that the respondents have a positive view of technology and believe it will improve control, flexibility, and efficiency in their lives. The Innovativeness variable is 3.94, which is high and therefore signifies that the respondents tend to pioneer new technology and methods. Due to the high values of both variables, the technology readiness of each respondent is increased and positively influenced. The Discomfort variable value is 2.88, which is moderate, and Insecurity 3.00, which is high, and therefore significant. The insecurity value, therefore, negates or reduces the overall Technology Readiness, because of the lack of trust experienced when confronted with technology. This signifies distrust and skepticism about AIS and its ability to work properly. These two values must have a low average value to achieve a high Technology Readiness.

Table 3 Average Value of Technology Readiness and Acceptance Variables

Average value					
Optimism	Innovativeness	Discomfort	Insecurity	Perceive ease of use	Perceive usefulness
4.09	3.94	2.88	3.00	4.31	4.03
High	High	Moderate	Moderate	High	High
Explanation of the average value scale					
0	1	2	3	4	5
Very low	Low	Moderate	High	Very high	

Source: results of data processing by SPSS ver23

The Technology Acceptance value is influenced by the average values of the perceived ease of use and usefulness variables which are 4.31 and 4.03 respectively. Therefore, these high values signify that the Technology Acceptance level is correspondingly high.

From table 4, the use of AIS or AIS usage has an average value of 4.58, which is classified as high. This signifies that the usage level of respondents who uses the system is about 65%.

Table 4 Range Scale Actual Use

1	2	3	4	5	6	7
		Low		High		
	Very low	enough	Low	High	enough	Very high

Source: results of data processing by SPSS ver23

Path analysis.

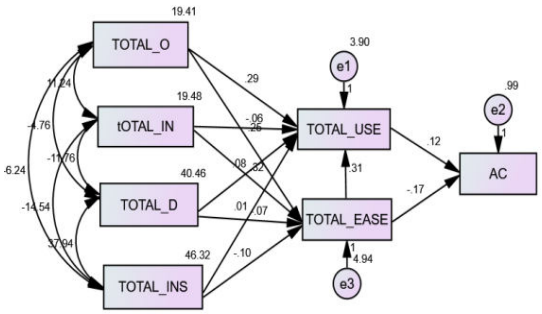


Figure 2 Regression Weights Calculation Results
Source: results of data processing by AMOS

The results in Table 5 and Table 6, show that: Optimism had a positive and significant effect on perceived usefulness of 48.0%, which agrees with hypothesis H1, Innovativeness had a negative and insignificant effect on perceived usefulness of -10.6%, which disagrees with hypothesis H2. Optimism had a positive and significant effect on perceived ease of use as much as 29.9% and therefore supports hypothesis H3. Innovativeness had a positive significant effect on perceived ease of use at 39.2%, which supported the hypotheses H4. The discomfort variable had a positive, significant effect on perceived usefulness as much as 17.9%, which contrasts with hypotheses H5. The discomfort had a negative effect on perceived ease of use of -12.9%, which supported hypotheses H6. Insecurity had a positive but insignificant effect on perceived usefulness of 3.5%, which does not support hypotheses H7. Insecurity had a significant, negative effect on perceived ease of use up to -18.8%, supported the hypotheses H8. Perceived ease of use had a positive, significant effect on perceived usefulness as much as 41.3%, which supports the hypothesis H9. Perceived usefulness had a positive effect on the actual use at 27.7%, and therefore supported the hypotheses H10. Perceived ease of use had a negative effect on actual use as much as -54.4%, which does not support hypotheses H11.

Table 5 Results of Regression Weights Calculations

Variable		Variable	Estimate	S.E.	C.R.	P	Hypotheses
Perceived usefulness	<---	Optimism	.292	.030	9.663	***	H1 supported
Perceived usefulness	<---	Innovativeness	-.065	.035	-1.869	.062	H2 not supported
Perceived ease of use	<---	Optimism	.246	.032	7.773	***	H3 supported
Perceived ease of use	<---	Innovativeness	.322	.035	9.105	***	H4 supported
Perceived usefulness	<---	Discomfort	.076	.033	2.289	.022	H5 not supported
Perceived ease of use	<---	Discomfort	-.073	.037	-1.985	.047	H6 supported
Perceived usefulness	<---	Insecurity	.014	.032	.431	.666	H7 not supported
Perceived ease of use	<---	Insecurity	-.100	.036	-2.787	.005	H8 supported
Perceived usefulness	<---	Perceived ease of use	.307	.045	6.773	***	H9 supported
Actual use	<---	Perceived usefulness	.116	.022	5.291	***	H10 supported
Actual use	<---	Perceived ease of use	-.169	.016	-10.409	***	H11 not supported

Source: results of data processing by AMOS

There are 7 hypotheses supported by this study

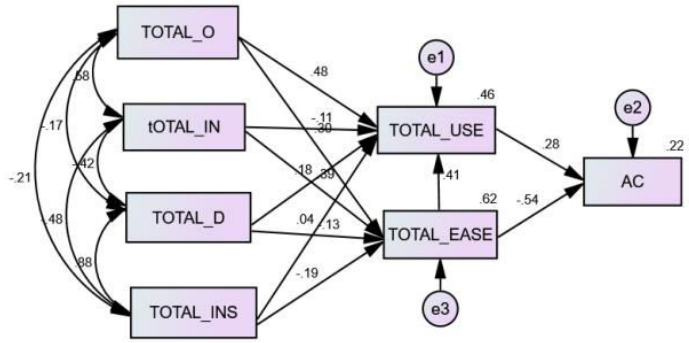


Figure 3 Results of Calculation of Standardized Regression Weights
Source: results of data processing by AMOS

Table 6 Results of Calculation of Standardized Regression Weights

Variable		Variable	Estimate	Hypotheses
Perceived usefulness	<---	Optimism	.480	H1
Perceived usefulness	<---	Innovativeness	-.106	H2
Perceived ease of use	<---	Optimism	.299	H3
Perceived ease of use	<---	Innovativeness	.392	H4
Perceived usefulness	<---	Discomfort	.179	H5
Perceived ease of use	<---	Discomfort	-.129	H6
Perceived usefulness	<---	Insecurity	.035	H7
Perceived ease of use	<---	Insecurity	-.188	H8
Perceived usefulness	<---	Perceived ease of use	.413	H9
Actual use	<---	Perceived usefulness	.277	H10
Actual use	<---	Perceived ease of use	-.544	H11

Source: results of data processing by AMOS

From Table 7, the contribution of Technology Readiness variables on perceived ease of use was as high as 62.4%, which signifies that 35.6% may be affected by an unknown variable that is not defined in this research, while the contribution of Technology Readiness variables on perceived of usefulness was 46.0%, which also means 54% is dependent on another variable[s] that are not defined in this research. Furthermore, the contribution of Technology Acceptance on actual use was 22.0 %, which is therefore low.

Table 7 R square computation result

	Estimate
Perceived ease of use	.624
Perceived usefulness	.460
AC	.220

Source: results of data processing by AMOS

For this study, the Technology Readiness at UBJ is made up of and influenced by behaviors of Optimism, Innovativeness, Discomfort, and Insecurity. The high scores of Optimism and Innovativeness which are the driving factors of Technology Readiness are high, while those of Discomfort and Insecurity factors are moderate and high respectively. The respondents, which are generally users of AIS in this university, continuously experience Discomfort in using the technology, as well as feelings of Insecurity. Therefore the university must ensure that users of the technology are comfortable, to improve its ease of use and user-friendliness. Likewise, the university must ensure the efficient use of the AIS software by training and supervision of its users, which includes educating them on the reliability of the technology, how data is securely processed, stored and accessed, without fear of loss or damage. However, the inhibiting factors are moderate compared to the high scores of the driving factors. The contribution of technology readiness to the perceived ease of use is as high as 62.4% and that of perceived usefulness is 46%. From this phenomenon, the behavior of Optimism is a dominant factor which means that the views of internal users on AIS are positive and they believe it improves control, flexibility, and efficiency in their educational activities. Furthermore, regarding the technology acceptance of UBJ lecturers, in this case, the perceived ease of use is high which indicates that they strongly believe using AIS is stress-free. Additionally, the perceived usefulness is high as well which signifies that they strongly believe using AIS enhances their job performance as internal users.
The frequency of AIS use at UBJ is high, although it contributes as much as 22% to the technology acceptance. This high frequency is not caused by high technology acceptance factors, but other variables which include situations that force the lecturers, students, and staff to utilize the AIS. Thus this study is in line with TRA theory which states that the intensity and frequency of AIS use is dependent on technology acceptance.

Managerial Implication

Based on the discussion above, UBJ University must enact action plans to improve the AIS in terms of the behavior of internal users, facilities, and infrastructure. From the results of this study, the behavior of the internal users at UBJ had reached a high level of Optimism and Innovativeness. it is, therefore, necessary that UBJ maintains these levels by the sustenance and improvement of the AIS facilities and infrastructure. Moreover, the UBJ must strive to reduce the levels of Discomfort and Insecurity, as these two variables are contrary to the TRA theory. To reduce discomfort behavior, UBJ has to reduce the levels of variables that negatively affect the AIS, which include the complex or confusing features hindering its ease of use, and the need of other parties to help operate it.

To reduce Insecurity behavior, UBJ must reduce the following: the possibility of unpleasant or dangerous occurrences happening to the AIS, a systemic implementation that reduces the rate and importance of human interactions, a system utilization that requires colossal amounts of attention and hinders the productivity of its users in other areas, and a hesitation to use it. Lastly, UBJ has to inform the lecturers, students, staff,

and the general academic structure on the latest developments of the AIS, to keep their knowledge current and updated.

Conclusion

Technology readiness and acceptance behavior at UBJ university show a high influence on AIS implementation without significant contribution to its usage. Only one variable of technology readiness significantly influences and contributes to perceived usefulness, which is Optimism. The four variables of technology readiness significantly influenced, and therefore contributed to the perceived ease of use, which, itself, had a positive, significant effect on perceived usefulness. Consequently, AIS usage is only significantly influenced by perceived usefulness.

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