FACTORS AFFECTING USER ACCEPTANCE OF E-LEARNING IMPLEMENTATION IN THE CONTEXT OF HIGHER EDUCATION: A CASE STUDY OF HEALTH SCIENCE

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ABSTRACT

The level of elearning utilization varies across educational institutions according to the readiness of their stakeholders. This study analyzes the factors that influence the acceptance and use of elearning by users at STIKes XYZ, a college of health sciences in Indonesia. This study uses both quantitative and qualitative approaches. The theory of acceptance and use of technology (UTAUT) was used in this study with several variables that have been customized for the study. Quantitative data collection was carried out using an online questionnaire. The respondents of this questionnaire were students and lecturers at STIKes XYZ. The quantitative data analysis used Partial Least Square Structural Equation Modelling (PLS-SEM) with the help of smartPLS tools and revealed that habit, hedonic motivation, and information quality have a significant influence on the user's intention to use the elearning system. Also, habit and behavioral intention affect the actual use of elearning systems. The qualitative data analysis used open coding, and the results were grouped into 28 labels and ten categories that influenced user acceptance of elearning. These results were used to deepen the analysis of the quantitative findings. There are five recommendations presented in this paper to increase the acceptance of elearning systems.

Keywords: elearning, acceptance, UTAUT, PLS-SEM, higher education

INTRODUCTION

Advances in technology enable students to learn without the limitations of time and place. Online learning continues to increase in the world of education (Isaac et al., 2019). Online learning in the literature takes different forms called blended learning, elearning, and distance learning. According to Smaldino et al. (2005), the advantages of elearning include convenience and flexibility. With online learning, users can access the available content whenever they want, which makes it easily accessible to them (Aldholay et al., 2018).

The XYZ College of Health Sciences (STIKes) is one of the 2,507 higher education institutions in Indonesia (Directorate General of Higher Education Republic of Indonesia, 2019). STIKes XYZ has four study programs, notably Nursing Professional Study, Nursing (S1), Public Health (S1), and Midwifery (D3) (STIKes XYZ, 2018b). STIKes XYZ has been using elearning for two to three years. By implementing elearning, STIKes XYZ expects to be able to adjust to technological developments. These adjustments start with the elearning method. The Head of the Nursing Study Program of STIKes XYZ stated that the luxury of utilizing a learning method that has no distance limit is one of the goals of STIKes XYZ (R.

Wibawa, personal interview, October 25, 2019).

In the 2018/2019 Operational Plan, STIKes XYZ expected to use elearning instead of classroom learning for as much as 60% of the method of instruction in 2018 and 65% for 2019 (STIKes XYZ, 2018a). In reality, based on an interview with Deputy Chair 1 for Academic Affairs, elearning was no longer used in early 2018, and this caused the 60% target to not be achieved in 2018. Not meeting the objective of utilizing elearning had an impact on students, instructors, and organizations. Students learned less because they received material passively from the instructors. Instructors also grew less because they used the old teaching method where they actively taught in class.

The present research examined issues related to passive users in using the elearning system. Users who are inactive in using the system can influence the use of elearning. We expected that by focusing on this problem, the factors that affect the use of elearning at STIKes XYZ can then be used as references to increase user acceptance of elearning implementation.

Based on the analysis of the problem, we proposed the following research question: What are the factors that influence the acceptance of the elearning system by users at STIKes XYZ? The users of elearning at STIKes XYZ include students, instructors, and administrators, But in this paper, users is limited only to the students and instructors.

RELEVANT LITERATURE REVIEW

In conducting a theoretical review, we used the Kitchenham (2004) search method for the study exploration. The search was performed on Scopus with "elearning and acceptance and higher education" as the keywords, and we obtained 305 research articles. Then, we filtered the articles with the following criteria: (a) a publication date in the last three years, (b) a journal article or conference proceeding, (c) the title and abstract contain the search keywords, and (d) the contents of the article relate to the research topic. After filtering the 305 research articles, we selected 17 research articles as a theoretical review for this research.

The following section is an explanation of the literature results that we obtained. The section explains elearning and the models related to information technology acceptance. Then, related works and the theoretical framework are also explained in this section.

eLearning

In their research, Sensuse and Napitupulu (2017) cited several researchers, such as Smaldino et al. (2005), Napitupulu (2016), and Dalimunthe and Wibisono (2013), who defined elearning. According to Smaldino et al. (2005), elearning is an electronic delivery of learning content using computers or computer-based media. Meanwhile, according to Napitupulu (2016), e-learning is interpreted as the delivery of learning material using electronic media such as video, audio, compact disk, television, a stand-alone computer, and computers connected via an intranet or the internet. However, Dalimunthe and Wibisono (2013) mentioned that most of the popular implementation of elearning in the world of education is the usage of learning materials through the internet using computers. In the world of education, elearning is changing the way education is implemented in the classroom. The main component of eLearning is the Learning Management System (LMS), which manages all curriculum and lessons for students from the very beginning of the course. The LMS records every progress in the learning process and reports the results for each study unit in detail (Wongvilaisakul & Lekcharoen, 2015).

eLearning is an essential component in the education world, and formal instruction in the use of elearning is indispensable. Instructors need to be taught how to manage and design elearning courses. The application of elearning in higher education can make students more independent and change the learning process from one that is centered on lecturers to learning that is self-regulated by students (Ramírez-Correa et al., 2015). There are quite a lot of studies related to student metacognition and self-regulated learning in the context of online learning. In the research conducted by Ejubovic and Puska (2019), there was a positive correlation between self-regulated learning dimensions and academic performance, with metacognitive strategies as part of the dimensions.

Theory of Information Technology Acceptance

From earlier studies, there are two commonly used theories of information technology acceptance: the Technology Acceptance Model

(TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). In general, these theories have differences in the composition of the variables used to determine the acceptance factor of information technology. TAM is a theory that was introduced before UTAUT. On the other hand, UTAUT is a theory that adopts many other theories, and TAM is one of those theories. The following is an explanation of TAM and UTAUT.

Technology Acceptance Model (TAM)

TAM was first introduced by Davis (1989) and has been used to explain user habits in using technology. TAM is a theory adapted from the theory of reasoned action (TRA). The model of the TAM is shown in Figure 1.

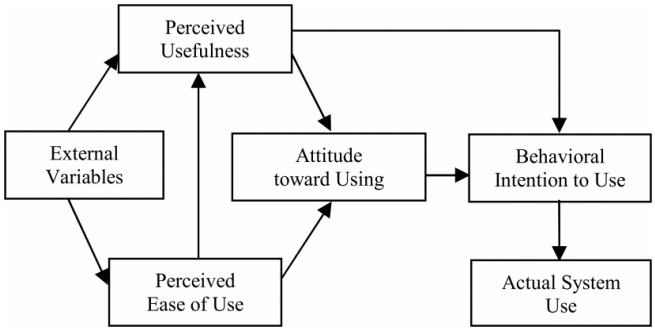

Figure 1. The Model of TAM by Davis (1989)

In the TAM model, the use of the system is significantly affected by the behavioral intention of the user to use the system. The intention to use the system is influenced by the perceived usefulness and the attitude towards using the system. Both are influenced by the level of perceived ease of use of the system. The perceived usefulness and ease of use are influenced by external variables that can be defined by the researcher.

The following is an explanation of each variable in Figure 1. External Variables is a factor that comes from outside the system that can affect the level of user acceptance in using the system. Perceived Usefulness is a factor that shows the level of user confidence in the system used to provide benefits. Perceived Ease of Use is a factor that shows user perceptions of the technology used and whether it is easy to understand and use. Attitude toward Using is the user's attitude towards the use of a system in the form of acceptance or rejection. Behavioral Intention to Use is the user's interest in continuing to use the system. Actual System Use is the actual conditions of use of the system.

According to Wongvilaisakul and Lekcharoen (2015), in implementing elearning systems that are then used by users, the right way to apply technology should be determined. Presently, TAM is one of the most accepted methods in information systems research to learn about user acceptance habits. TAM is applied to learning in computer and technology acceptance in the field of information systems research (Straub et al., 1997).

Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT is a technology acceptance model that combines several models at the same time (Venkatesh et al., 2003). The models that are combined are the technology acceptance model (TAM), innovation diffusion theory (IDT), the theory of reasoned action (TRA), the theory of planned behavior (TPB), motivational model (MM), a model combining TAM and TPB (c-TAM-TPB), the model of PC utilization (MPCU), and social cognitive theory (SCT). UTAUT has been used to explain a person's acceptance of technology (Dwivedi et al., 2017).

The model of the UTAUT by Venkatesh et al. (2003) is shown in Figure 2. In the UTAUT model, the four variables have an essential role in user acceptance, particularly in terms of performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, and actual use. Also, there are four moderators used in the model, namely gender, age, experience, and voluntariness of use.

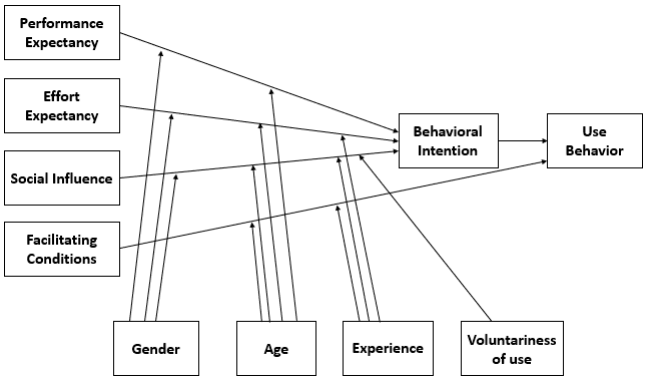

Figure 2. The Model of UTAUT

Then, in 2012, Venkatesh et al. developed UTAUT into UTAUT2. There are three additional constructions in the new model, namely hedonic motivation, price value, and habit. Also, there are changes in the moderator's attributes where

moderators in UTAUT2 include the following three types: age, gender, and experience. Hedonic motivation is the pleasure in using technology, price value is the cost of expenditure that is spent when using technology, and habit is a manner of using technology. Figure 3 is the UTAUT2 model founded by Venkatesh et al. (2012).

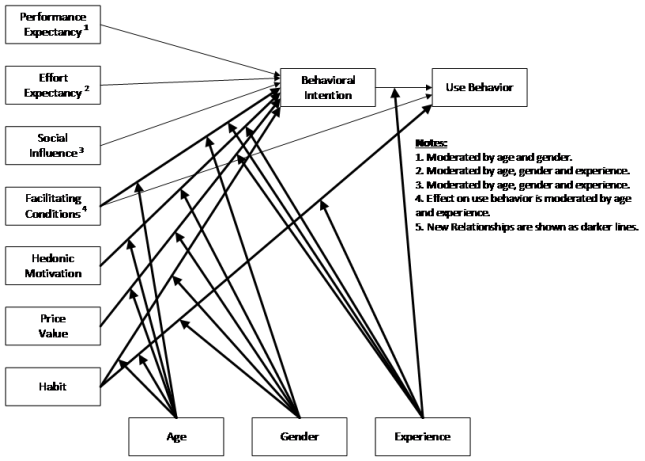

Figure 3. The Model of UTAUT2

In the model of UTAUT2, there are eight variables applied to determine the factors that influence users on the acceptance and use of technology, namely performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habits, and behavioral intention. The moderators that are utilized are age, gender, and experience.

Related Works

The previous research obtained from the literature search amounted to 17 studies. From the 17 studies, we found that the methods utilized to look for the factors of acceptance of a system for learning or elearning were the TAM and UTAUT methods. Previous studies using the TAM method totaled 11 studies, while those using the UTAUT totaled six studies.

In the conducted research, we used the UTAUT method. This method was chosen instead of TAM because the construction that forms the TAM model already exists within the UTAUT framework. The perceived usefulness and perceived ease of use are already contained in performance expectancy and effort expectancy in the UTAUT construction (Yakubu & Dasuki, 2019). Furthermore, the subjective norm construction in TAM2 is included in the social influence construction of UTAUT. Existing construction on UTAUT was also the result of a combination of the construction of eight models ranging from the TAM, IDT, TRA, TPB, MM, c-TAM-TPB, MPCU, and SCT models. Also, UTAUT currently has updated its construction variables, specifically the addition of hedonic motivation, price value, and habits, and these make UTAUT have more building variables when compared to TAM. Previous researchers who used UTAUT were Chavoshi and Hamidi (2019), Moorthy et al. (2019), Patel et al. (2018), Salloum and Shaalan (2019), Yakubu and Dasuki (2019), and Zwain (2019).

Yakubu and Dasuki (2019) researched to find the factors that influence the acceptance and use of elearning at a tertiary institution in Nigeria. They carried out experiments on the factors of performance expectancy, effort expectancy, social influence, and facilitating conditions on the acceptance of elearning systems. Respondents in the research were limited to students from tertiary education in developing countries where data collection was carried out through online surveys. The data obtained and processed were composed of 286 students. The data processing method was based on SEM with the help of the IBM Amos 22.0 application. The results of the research showed that the performance expectancy and effort expectancy factors influenced behavioral intention in using the system with a p-value of < 0.001, while the social influence factor was less influential. Facilitating conditions and behavioral intentions were factors that directly influenced users in using elearning systems in real time by students.

Moorthy et al. (2019) conducted research to identify factors that influence accounting students in using mobile learning. This research used the UTAUT2 method, where the technique has been used by researchers in various fields such as mobile payments, elearning, mobile banking, and online shopping. Some of the factors used in this research are performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habits. Data processing was performed using Partial Least Square Structural Equation Modelling (PLS-SEM). The result of the research implied that habit has the greatest influence on behavioral intention, which is followed by hedonic motivation, price value, and social influence of accounting students to adopt

mobile learning. Moorthy et al. (2019) also used moderator variables, particularly gender, but these did not affect mobile learning acceptance.

Salloum and Shaalan (2019) conducted research to identify factors that influence accounting students in using mobile learning at universities in the United Arab Emirates (UAE) as a representation of developing countries. In this research, the method used was UTAUT with the following variables: social influence, performance expectancy, effort expectancy, and facilitating conditions. Data were collected by surveying 280 students from two universities in UAE and processed using PLS-SEM. The results of the research in 2019 show the factors that influence user intentions to use elearning systems in higher education. These include social influence, performance expectancy, and facilitating conditions.

Chavoshi and Hamidi (2019) researched the factors that influence the acceptance of mobile learning in higher education in Iran. The research conducted by Chavoshi and Hamidi (2019) combined the TAM and UTAUT methods with cultural factors and social structures to find out what factors determine users that use the system. The model was then tested using Partial Least Squares-Artificial Neural Network (PLS-ANN) to analyze linear and nonlinear relationships. The questionnaire in this study was distributed online and in real life and had 257 respondents. In the results of the research, it was mentioned that the perceived usefulness and perceived ease of use factors were effective factors that influenced the acceptance of m-learning in Iran. Cultural factors, social structure, and personal innovation do not affect the acceptance of m-learning. In the research, Chavoshi and Hamidi (2019) used samples from one university in Iran. Thus, they could not generalize their conclusions from the results of the research.

Research conducted by Patel et al. (2018) focused on identifying the perceptions and use of elearning systems that have an impact on adoption in rural higher education institutions in South Africa. The proposed framework for the study was UTAUT. The target respondents of the study were 112 students from Venda University. The data collection process was carried out by surveying with a questionnaire. The data obtained were analyzed using SPSS (Statistical Package for Social Sciences). The results of the research indicated that students had a positive perception of technology, and the main factor influencing the acceptance of elearning was the lack of institutional support from management and teaching (social influence).

Research conducted by Zwain (2019) was a cross-sectional examination with a survey to expand the UTAUT2 model by exploring the effects of two new predictors, namely technological innovation and information quality, as well as learning value and fundamental determinants that influence faculty and student acceptance of the Moodle Learning Management System. The target respondents were users who were lecturers and students of Kufa University in Iraq. The data collected were composed of 228 lecturers and 553 students. The data obtained were then processed using PLS-SEM. Data processing was carried out separately between lecturer respondent data and student respondent data. The factors that influence the acceptance of the lecturers are social influence, facilitating conditions, hedonic motivation, habits, technological innovation, and information quality. The factors that influence student acceptance are performance expectancy, facilitating conditions, learning values, hedonic motivation, habits, technological innovation, and information quality.

The present research adopted previous studies related to variables from UTAUT, which have a significant effect. These variables are performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habits, information quality, and learning value. Also, we adopted a technique used to process quantitative data, particularly PLS-SEM, which provides many advantages for researchers who use structural models. We used PLS-SEM because it relates to research with abnormal data, small sample sizes, and formative indicator measurements (Hair et al., 2014). None of the previous studies combined quantitative and qualitative methods to find out the factors that influence the acceptance of elearning. In this research, we used a mixed-method approach where the quantitative data were gathered and analyzed to find out the influencing factors, and the qualitative data were used to deepen the analysis of the findings of these factors.

Theoretical Framework

The theoretical framework for our research is shown in Figure 4. In the figure, there are nine

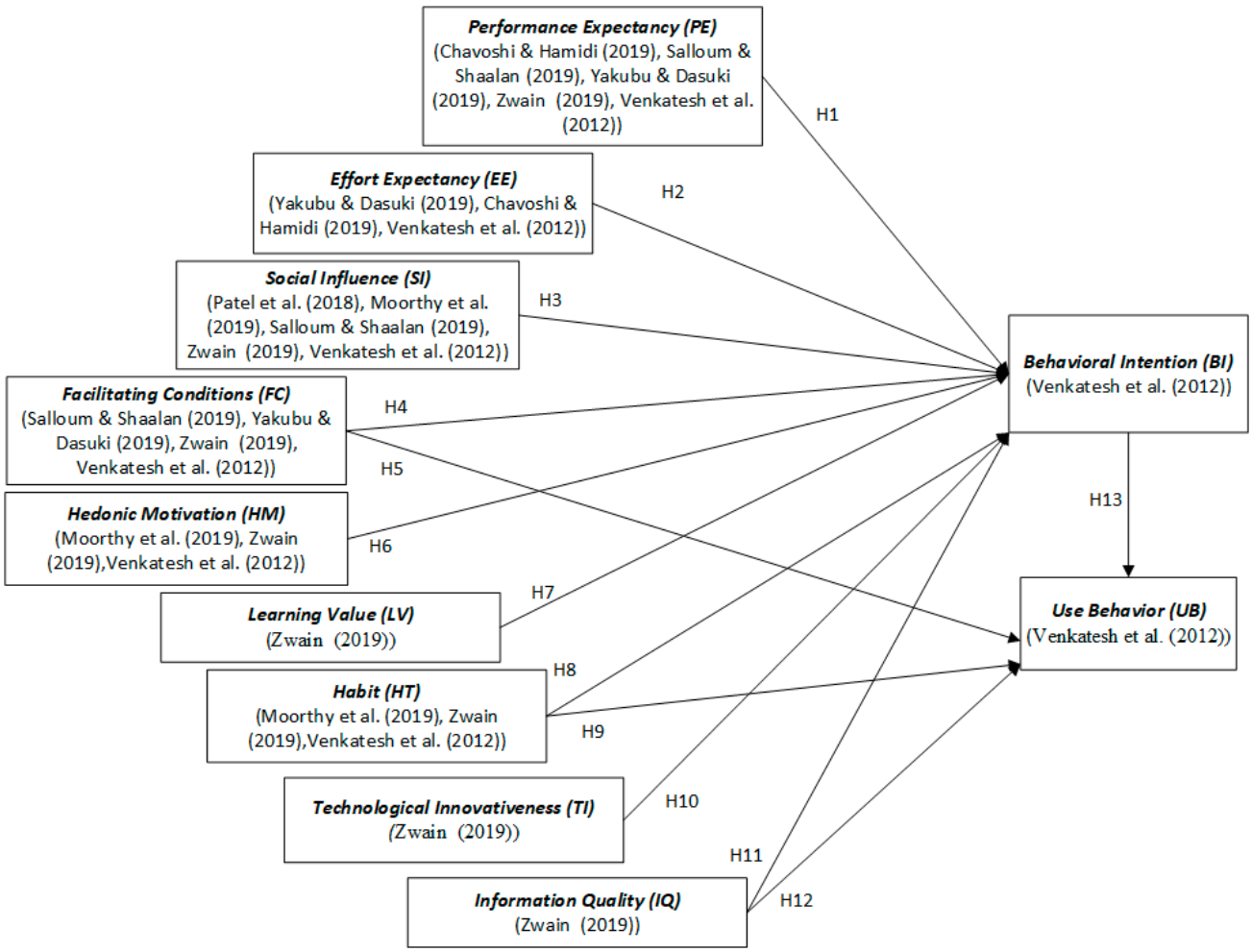

Figure 4. Theoretical Framework

variables we used that affect user intentions, namely performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, learning values, habits, technological innovation, and information quality. Behavioral intention, facilitating conditions, habits, and information quality directly affect the actual use of elearning systems.

The following is an explanation of the construction variables used in the theoretical framework in Figure 4:

- Performance Expectancy is a person's level of confidence that using the system will help them in achieving expected work performance.
- Effort Expectancy is the level of ease in using the system.
- Social Influence is the level of one's belief that other people believe that they must use the system in question.
- Facilitating Conditions are the level of a person's hope that the organization and existing technical infrastructure can support the use.
- Hedonic Motivation is the level of pleasure in using the system.
- Habit is the level of manner related to using the system.
- Technological Innovativeness is the readiness of individuals to use each new technology.
- Information Quality is the quality of outputs, such as relevance, timeliness, scope, and the accuracy of information produced by information systems.
- Learning Value is the value that is observed or obtained from elearning from the time and effort spent.

- Behavioral Intention is the user's intention to use a system.
- Use Behavior is the user's actual use of the system (Venkatesh et al., 2003).

Moderators in the UTAUT model such as age, volunteerism, and experience were not considered in this research. Volunteerism in using the system was not included because the use of the elearning was due to reciprocating academically. The use of elearning system is included in the operational plan of higher education as it was requested in the teaching and learning process. Experience is not used because the respondents were considered new users. After all, the elearning system at STIKes XYZ had just been implemented for less than two years. So, we assumed that the respondents had similar experiences in using the system. Age as a moderator was not used because STIKes XYZ does not look at age when using this system.

In the previous research conducted by Chavoshi and Hamidi (2019), Moorthy et al. (2019), Patel et al. (2018), Salloum and Shaalan (2019), Yakubu and Dasuki (2019), and Zwain (2019), we found that there were variables that had effects and those with no effects on the acceptance of elearning system. In this research, we suspected that the variables in the theoretical framework (Figure 4) affected the user acceptance of elearning implementation. Table 1 shows the list of the hypotheses we used.

From Table 1, a total of 13 hypotheses need to be verified by the research conducted. The test of each hypothesis was carried out after data processing. The method used, results, and discussions are explained in the following sections.

METHODS

Context of the Study

The research was conducted at the STIKes XYZ, with the target respondents being the students and instructors using the elearning system. This research was conducted to analyze the factors that influence the acceptance of using elearning and to provide recommendations for improvement. A mixed-methods approach was used in this study, which has never been used by previous studies. Data were collected using a questionnaire with one survey (cross-sectional) and then processed quantitatively for closed question data and qualitatively for open question data. The results of qualitative data processing were used to deepen the analysis of the results of quantitative data processing.

In this research, 11 stages were carried out. The stages are initial data collection, problem formulation, literature study, preparation of theoretical frameworks, preparation of research hypotheses, preparation of questionnaires, testing of surveys, data collection, data processing and analysis, preparation of recommendations, and presentation of conclusions and suggestions. The initial stages until the end of the research took approximately five months to complete.

Table 1. Research Hypotheses

Code	Hypotheses
H1	Performance expectancy (PE) has a significant influence on behavioral intention (BI) in using elearning.
H2	Effort expectancy (EE) significantly influences behavioral intention (BI) in using elearning.
H3	Social influence (SI) significantly influences behavioral intention (BI) in using elearning.
H4	Facilitating condition (FC) significantly influences behavioral intention (BI) in using elearning.
H5	Facilitating condition (FC) significantly influences use behavior (UB) in using elearning.
H6	Hedonic motivation (HM) significantly influences behavioral intention (BI) in using elearning.
H7	Learning value (LV) significantly influences behavioral intention (BI) in using elearning.
H8	Habit (HT) significantly affects behavioral intention (BI) in using elearning.
H9	Habit (HT) significantly influences use behavior (UB) in using elearning.
H10	Technological Innovativeness (TI) significantly influences behavioral intention (BI) in using elearning.
H11	Information quality (IQ) significantly influences behavioral intention (BI) in using elearning.
H12	Information quality (IQ) significantly influences use behavior (UB) in using elearning.
H13	Behavioral intention (BI) substantially influences the use behavior (UB) in using elearning.

Table 2. Research Indicators

Var	Research Indicators
PE	• I find that the elearning system is useful in teaching and learning. • The elearning system helps me complete class activities faster. • The elearning system increases my learning productivity.
EE	• I discovered that the elearning system is easy to use. • Learning how to operate an elearning system is easy for me. • My interaction with the elearning system is clear and understandable. • It's easy for me to become skilled at using elearning systems.
FC	• I have the resources (e.g., computer equipment, internet connection, or smartphone, etc.) needed to use the elearning system. • I have the necessary knowledge to use the elearning system. • I get help from someone when I have difficulty using the elearning system.
SI	• A friend who influences my behavior believes that I have to use an elearning system. • An essential friend to me believes that I have to use an elearning system. • The instructor or facilitator, whose opinion I value, would prefer that I use the elearning system.
LV	• Learning through elearning systems is more valuable when compared to the time and effort spent when using it. • In a short amount of time, the elearning system allows me to share knowledge with others quickly and easily (e.g., through chat, forums, blogs, etc.). • The elearning system allows me to increase knowledge and control my success (e.g., through quizzes and tasks/assessments, etc.).
HM	• I feel comfortable using the elearning system. • I enjoy using the elearning system. • Using the elearning system is very entertaining for me.
HT	• The use of elearning systems has become a habit for me. • I am addicted to using elearning systems to complete my learning process. • I have to use the elearning system for my lessons.
TI	• If I hear about the new technology provided by the elearning system, I will examine ways to try it. • Among my friends, I am usually the first to try new information technology provided by elearning systems. • I like to experiment with new information technology provided by elearning systems.
IQ	• Information provided by the elearning system is the latest. • Information provided by the elearning system is complete. • Information provided by the elearning system is relevant.
BI	• I plan to continue using the elearning system going forward. • For my lessons, I will use the elearning system. • I will use the elearning system regularly.
UB	• I often use the elearning system during my academic period. • I use many elearning system functions (e.g., discussion forums, chat, messages, download class content, upload assignments, etc.). • I depend on the elearning system.

Open Questions: In your opinion, what factors influence you in using the elearning system at STIKes XYZ

Participants

The respondents in this research were users of the elearning system in the STIKes XYZ. The target number of respondents was 603 users, with a breakdown of 571 student users and 32 lecturer users. From the target users who had been given the questionnaire, 223 respondents filled it out. The data were later filtered by removing duplicate, incomplete, and inconsistent data. From this process, a total of 205 respondent data were obtained, consisting of 191 student data and 14 lecturer data. Student data were used as material for quantitative and qualitative data analysis. In contrast, lecturer data were used only as a qualitative data analysis material.

Measures

The instrument used in this research was a questionnaire. The indicators in the questionnaire were derived from the indicators of research conducted by Venkatesh et al. (2012) and Zwain (2019). The indicators have gone through four stages of adjustment: (a) the process of language transfer with forward and back translation, (b) the process of adjusting the research topic, (c)

the process of face validity by a representative of STIKes XYZ and three experts (a lecturer at the Faculty Computer Science of the University of Indonesia, Head of the Sub Directorate for Special Learning Recognition of the Director-General of Belmawa Kemenristekdikti, and a research assistant at the Digital Library and Distance Learning Lab—Faculty of Computer Science University of Indonesia), and (d) readability test by prospective respondents.

There were eleven variables measured in this research, and 34 indicators were used to measure the variables. The measured variables are performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), social influence (SI), learning value (LV), hedonic motivation (HM), habits (HT), technological innovation (TI), information quality (IQ), behavioral intention (BI), and use behavior (UB). The indicators used in this research are shown in Table 2.

The indicators in Table 2 are used in the questionnaire in the form of questions. The answer is in the form of a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Furthermore, there was one open question related to the factors that influence the use of elearning systems according to respondents. The answer was in the form of free text.

Data Collection Procedures

The questionnaire was distributed using Google Forms to target respondents. Data collection was carried out for two weeks. The data from the completed questionnaire were automatically recorded in a database and were then extracted and analyzed.

Data Analysis

The process of analyzing the research data consisted of two stages, namely the stages of processing quantitative data and qualitative data. Quantitative data processing used the PLS-SEM method with the help of smartPLS software version 3. Data processing started by constructing structural models, making measurement models, evaluating measurement models (conducting tests of convergent validity, discriminant validity, and reliability), and evaluating structural models (measuring R-square, f-square, model significance, and hypothesis testing). Qualitative data processing used text analysis or coding methods. The analysis began with collecting qualitative data, understanding the contents of the data, and conducting the coding process. The coding process was achieved by creating a label for each keyword that was obtained from the data and then grouping the data into variables that were

Table 3. Respondent Demographics

Group	Category	Students		Lecturers	
		Total	Percentage	Total	Percentage
Gender	Male	13	7%	0	0%
	Female	178	93%	14	100%
Study Program	Nursing	124	65%	5	36%
	Midwifery	1	1%	5	36%
	Public Health	66	35%	4	29%
Admission Year	2019	53	28%	2	14%
	2018	77	40%	3	21%
	2017	57	30%	1	7%
	<=2016	4	2%	8	57%
Experience in using elearning	<1 year	149	78%	9	64%
	2–3 years	33	17%	5	36%
	>3 years	9	5%	0	0%
Age	15–20 years	152	80%	0	0%
	20–25 years	39	20%	4	29%
	25–30 years	0	0%	1	7%
	>30 years	0	0%	9	64%

in the theoretical framework. Data processing results were utilized to strengthen the results of quantitative data processing. Next, we discuss the results of the research, make recommendations, and provide conclusions and suggestions.

RESULTS

From the distributed questionnaire, 205 valid data were obtained, consisting of 191 student respondent data and 14 lecturer respondent data. The student data were analyzed with PLS-SEM, but the lecturer data were not analyzed with PLS-SEM because they did not meet the minimum number of samples (Hair et al., 2014). Table 3 shows the results of the descriptive statistical analysis of respondent data.

As Table 3 shows, most respondents in this study were female students, under 20 years old, and in the nursing science study program. Most of the respondents had one year of study in the STIKes XYZ, and they had less than one year of experience in using the elearning system.

Statistical Analysis of Research Indicators

Table 4 shows the results of the statistical research indicators from the student respondent data. The statistical analysis results include the average value of the indicator answers in the questionnaire and the related variables. The value was measured on a Likert scale from one (strongly disagree) to five (strongly agree) with statements in the questionnaire.

Table 4 shows that the average value of the research indicators is above 3 (neutral) or almost agree. However, there is no research indicator with an average value greater than or equal to 4 (agree). The Facilitating Conditions variable has the highest level of agreement with an average value of 3.81, followed by Performance Expectancy, Effort Expectancy, Learning Value, and Information Quality. The lowest level of agreement is Habit with an average value of 3.27.

Table 4. Descriptive Statistics of the Research Indicators

Variable	Indicator	Indicator's Average	Variable's Average
Performance Expectancy	PE1	3.87	3.74
	PE2	3.79	
	PE3	3.57	
Effort Expectancy	EE1	3.85	3.69
	EE2	3.72	
	EE3	3.60	
	EE4	3.58	
Social Influence	SI1	3.21	3.30
	SI2	3.29	
	SI3	3.41	
Facilitating Conditions	FC1	3.98	3.81
	FC2	3.75	
	FC3	3.71	
Learning Value	LV1	3.46	3.66
	LV2	3.71	
	LV3	3.82	
Hedonic Motivation	HM1	3.64	3.57
	HM2	3.67	
	HM3	3.39	
Habit	HT1	3.36	3.27
	HT2	3.10	
	HT3	3.35	
Technological Innovativeness	TI1	3.60	3.33
	TI2	3.13	
	TI3	3.26	
Information Quality	IQ1	3.67	3.56
	IQ2	3.52	
	IQ3	3.50	
Behavioral Intention	BI1	3.58	3.46
	BI2	3.40	
	BI3	3.39	
Use Behavior	UB1	3.58	3.40
	UB2	3.59	
	UB3	3.03	

Evaluation Results of the Measurement Model (Outer)

Evaluation of the measurement model (outer) was done with Convergent Validity, Discriminant Validity, and Reliability testing for each research indicator. We used reflective indicators that describe the conceptual domain of construction. Indicators that did not pass this evaluation had to be eliminated, which can be done without changing the meaning of the construction (Hair et al., 2014). The criteria and results of the outer model of our research are shown in Table 5.

Table 5. Evaluation Results of the Measurement Models

Testing	Parameter	Criteria	Result	References
Convergent Validity	Standardized loading factor (λ)/outer loading	>0.7	Valid	(Hair et al., 2014)
	Average Variance Extracted (AVE)	≥0.5	Valid	(Hair et al., 2014)
Discriminant Validity	Cross-loading (discriminant validity)	<0.7 in one variable	Valid	(Hair et al., 2014)
Reliability	Composite reliability	>=0.7	Reliable	(Hair et al., 2014)

From Table 5, the criteria of convergent validity testing are as follows: the value of the loading factor of greater than 0.7 and the Average Variance Extracted of greater than or equal to 0.5. Then, in the discriminant validity criteria, the value of cross-loading is less than 0.7 in one variable. In the reliability testing criteria, the value of composite reliability is greater than or equal to 0.7.

The tests were done in this research with the previous criteria. The results are that the indicators are valid and reliable and have passed in terms of Convergent Validity, Discriminant Validity, and Reliability evaluation. All indicators can be used as a measure of latent variables.

Evaluation Results of the Structural Model (Inner)

An evaluation of the structural models was carried out to test the predictive ability of the model and the relationship between constructs (endogenous). In this research, the inner model testing was done with the determinant coefficient (R-square), effect size (f-square), and path coefficients measurement. The following are the results of an evaluation of the structural model of this research.

R-Square Measurement

From the results of the R-square measurement, the inner BI variable value is 0.568, and the UB variable value is 0.56. This means that the BI variable can be explained by independent latent variables that affect it at 56.8% and 43.2%, is defined by other variables. A value of 0.56 in the UB variable means that 56% of the variance in the variable can be explained by independent latent variables that affect it and 44% is explained by other variables.

Effect Size Measurement (f-square)

The results of the f-square measurements are shown in Table 6. The f-square value was calculated by making sure nothing changed from the R-square value if the specific construction was omitted from the model. The values are used to see the effect of exogenous variables in affecting endogenous variables. The effect size consists of three types, namely small (value of 0.020), medium (value of 0.150), and large (value of 0.350) (Cohen, 1988).

Table 6. Measurement Result of Effect Size

Endogenous Variable	Exogenous Variable	f-square Value	Effect
UB	BI	0.129	Small
UB	FC	0.013	None
UB	HT	0.134	Small
UB	IQ	0.009	None
BI	EE	0.002	None
BI	FC	0.000	None
BI	HM	0.026	Small
BI	HT	0.228	Medium
BI	IQ	0.029	Small
BI	LV	0.007	None
BI	PE	0.002	None
BI	SI	0.002	None
BI	TI	0.005	None

Table 6 shows that of the 13 exogenous variables, only five affect endogenous variables. First, the effect of IQ BI is small with an f-square value of 0.029. Second, the effect of BI to UB is small with an f-square value of 0.129. Third, the effect of HM to BI is small with an f-square value of 0.026. Fourth, the effect of HT to UB is small with an f-square value of 0.134. Last, the HT to BI effect is medium with an f-square value of 0.228, and this is the most significant variable effect if compared with the others.

Measurement of Significance

The test is carried out to see the significant effect of the variables in the structural model that represents the research hypotheses. A variable has a significant effect if it has a t-statistic value greater than or equal to 1.96 (two-tailed) with a p-value of 0.05 (Sarstedt et al., 2017). The testing

was carried out using a bootstrapping technique with a sample size of 5000, a significance level of 0.05 with a two-tailed test type. The measurement results are presented in Table 7.

The HT, IQ, and HM variables have a significant effect on the BI variable. The BI and HT variables also have a significant effect on the UB variable. These variables affect because they have a t-statistic value greater than or equal to 1.96 and a p-value of less than 0.05. The influence from variables EE to BI, FC to BI, FC to UB, IQ to UB, LV to BI, PE to BI, SI to BI, and TI to BI are absent because they have a t-statistic value of less than 1.96 and a p-value greater than 0.05.

Table 7. Results of the Measurement of Significance

Influence of Variables	T Statistics (|O/STDEV|)	P Values	Significance
BI → UB	3.895	0	Yes
EE → BI	0.633	0.527	No
FC → BI	0.115	0.909	No
FC → UB	1.279	0.201	No
HM → BI	2.067	0.039	Yes
HT → BI	5.746	0	Yes
HT → UB	4.596	0	Yes
IQ → BI	2.179	0.029	Yes
IQ → UB	1.127	0.26	No
LV → BI	1.196	0.232	No
PE → BI	0.568	0.57	No
SI → BI	0.665	0.506	No
TI → BI	0.934	0.35	No

Qualitative Data Processing

Qualitative data processing was performed on the student data and the lecturer data. These data were collected from the responses to the open questions. The number of data collected was 205 data, but after removing the blank and out of topic answers, a total of 181 valid qualitative data were obtained. The data were collected in one document for the process of understanding the content and coding by using labels. Table 8 shows the results of the coding process on the data using open coding. The data were grouped into 28 labels and categorized into ten categories of factors affecting user acceptance of elearning systems.

Table 8 shows that the factors that influence the acceptance and use of elearning systems are performance expectancy, effort expectancy, social influence, facilitating conditions, learning value, habit, technological innovativeness, information quality, behavioral intention, and other factors. For lecturer users, the factors that affect the acceptance and use of elearning systems are performance expectancy, effort expectancy, social influence, facilitating conditions, and technological innovativeness. A total of approximately 50% of lecturer users and 27.47% of student users mentioned that the facilitating condition was the most important factor that influenced them in using the elearning system.

DISCUSSION

Based on the measurements and evaluations that we performed, the following is a discussion of the result of testing each hypothesis.

Hypothesis 1: *Performance expectancy (PE) has a significant influence on behavioral intention (BI) in using elearning.*

Based on the results of the structural model evaluation, the performance expectancy variable does not affect behavioral intention in the use of elearning systems. Thus, the hypothesis is rejected. However, based on the results of qualitative data processing, 19% of student respondents mentioned that performance expectancy affects users in using elearning systems. One respondent mentioned that they used the elearning system because the elearning system helped them answer exam questions or do assignments given by lecturers more quickly, and the results could also be known immediately. Also, based on the results of the descriptive statistical analysis of the questionnaire data, most users agree that the elearning system is useful for the learning process. The elearning system can help in completing class activities faster and increasing productivity. The results of this study are consistent with the research conducted by Patel et al. (2018) and Moorthy et al. (2019). However, the results contradict the previous research conducted by Chavoshi and Hamidi (2019), Salloum and Shaalan (2019), Yakubu and Dasuki (2019), and Zwain (2019). In the study conducted by Zwain (2019), the effect of performance expectancy on behavioral intention was observed only for student users.

Table 8. Results of Qualitative Processing

Variable Category	Label	Student		Lecturer	
		Total	Percentage	Total	Percentage
Performance Expectancy	Efficiency	19	9.00%	NA	NA
	Effectiveness	2	0.95%	NA	NA
	Performance expectations	1	0.47%	NA	NA
	Usefulness	17	9.00%	2	14.3%
Effort Expectancy	Ease of use	17	8.53%	1	7.1%
	Practically	3	1.42%	NA	NA
	Business influence	2	0.95%	NA	NA
Social Influence	Lecturer demand	1	0.47%	NA	NA
	External	1	0.47%	NA	NA
	Learning factors	1	0.47%	NA	NA
	Obligations	16	8.06%	1	7.1%
	Technological development	3	1.42%	NA	NA
Social Influence	Friends	1	0.47%	NA	NA
	Assignments	8	3.79%	NA	NA
	Assignment and examinations	1	0.47%	NA	NA
Facilitating Conditions	Conditions of facilities	10	5.21%	1	7.1%
	Internet connections	41	22.27%	6	42.9%
Learning Value	Insight additions	1	0.47%	NA	NA
	Time	4	1.90%	NA	NA
	Learning value	3	1.42%	NA	NA
	Success factor	1	0.47%	NA	NA
Habit	Habit	5	2.37%	NA	NA
Technological Innovativeness	Variation	0	0.47%	1	7.1%
	Technology innovation	3	1.90%	1	7.1%
Information Quality	Information quality	7	3.32%	NA	NA
Behavioral Intention	Behavioral intention	3	1.52%	NA	NA
	desires	6	3.05%	NA	NA
Others	Environmentally friendly	3	1.52%	NA	NA

Hypothesis 2: *Effort expectancy (EE) significantly influences behavioral intention (BI) in using elearning.*

Based on the results of the significance and f-square test, the effort expectancy variable shows no effect on behavioral intention of using the elearning system. However, based on the results of qualitative data processing, 11% of student respondents mentioned that effort expectancy affects them in using elearning systems. Some respondents mentioned that they used the elearning system because of its ease of use and the practicality of the system. Also, the results of the descriptive statistical analysis of the questionnaire data found that most users responded with agreed on effort expectancy indicators, which states that the existing elearning system is easy to use and operate, and it has a clear and understandable interaction. The existing elearning system has made users more skilled. The results are consistent with the results of research conducted by Moorthy et al. (2019), Patel et al. (2018), Salloum and Shaalan (2019), and Zwain (2019). However, the results contradict the research conducted by Chavoshi and Hamidi (2019) and Yakubu and Dasuki (2019).

Hypothesis 3: *Social influence (SI) significantly influences behavioral intention (BI) in using elearning.*

Based on the results of the structural model

evaluation, the social influence variable had no significant influence and no effect on behavioral intention of using the elearning system. Nevertheless, based on the results of the data processing of open-ended questions, 24.3% of the student respondents stated that social influence affected them in using elearning systems. Some respondents mentioned that they used the elearning system because of assignments and exams. Some aspects of social influence that influence users in using the elearning system include the demand of lecturers, work assignments and examinations, obligations from management, the influence of the surrounding environment, and technological development. However, from the statistical analysis of research indicators, we found that users preferred to be neutral regarding statements about friends who influence users in using elearning systems. These results are consistent with the results of research conducted by Yakubu and Dasuki (2019) and Zwain (2019). In the research, social influence also has no significant effect on behavioral intention of using elearning. However, the result contradicts the research conducted by Moorthy et al. (2019), Patel et al. (2018), Salloum and Shaalan (2019), and Zwain (2019) for lecturer users.

Hypothesis 4: *Facilitating conditions (FC) significantly influence behavioral intention (BI) in using elearning.*

Based on the results of structural model measurements, facilitating conditions do not influence the behavioral intention to use the elearning system because there are no significant effects on the significance test and no effects on the effect size measurement. Nevertheless, based on the results of qualitative data processing, 27.8% of student respondents stated that the facilitating condition factor influenced them in using the elearning system. Some respondents mentioned that the factors that influenced using the elearning system were slow internet connection when accessing the elearning system. However, based on the results of the distribution of questionnaires, the users had sufficient resources such as a computer, internet connection, and smartphone to access the elearning system. They also possessed the necessary knowledge and could get help when in trouble. These results are consistent with the results of the research conducted by Moorthy et al. (2019), Patel et al. (2018), and Zwain (2019). In the research, facilitating conditions also has no significant effect on behavioral intention in using elearning.

Hypothesis 5: *Facilitating conditions (FC) significantly influence use behavior (UB) in using elearning.*

Based on the results of the significance test, the facilitating condition variable does not significantly influence the use behavior variable in using elearning. Also, the results of the f-square measurement do not produce an effect between these variables. It can be said that facilitating conditions do not significantly influence the use behavior in using the elearning system. These results are not consistent with the results of research conducted by Shaalan (2019), Yakubu and Dasuki (2019), and Zwain (2019). In the research, facilitating conditions have a significant effect on use behavior in using elearning.

Hypothesis 6: *Hedonic motivation (HM) significantly influences behavioral intention (BI) in using elearning.*

Based on the results of tests and measurements that have been done previously, we found that the hedonic motivation variable has a significant effect on the intention to use the elearning system. However, based on qualitative data processing, the hedonic motivation factor does not affect the use of elearning. Nevertheless, based on the results of the analysis, users seem to be satisfied and contented when using the elearning system. These results are consistent with the research conducted by Moorthy et al. (2019) and Zwain (2019), where the hedonic motivation variable also has a significant effect. However, it is contrary to the research conducted by Chavoshi and Hamidi (2019), Patel et al. (2018), Salloum and Shaalan (2019), and Yakubu and Dasuki (2019).

Hypothesis 7: *Learning value (LV) significantly influences behavioral intention (BI) in using elearning.*

Based on the results of the significance measurement, we found that the influence of learning value on behavioral intention is not significant. Also, measurements with the f-square indicate that these variables do not affect behavioral intention. Thus, learning value does not influence the behavioral intention of using the elearning

system. However, based on the results of qualitative data processing obtained, as much as 4.3% of the respondents said that learning value affected them in using the elearning system. Also, we found that users feel better in using the elearning system in the process of teaching and testing rather than spending more time and energy coming to class, and that users feel that an elearning system can make it possible for them to quickly and easily share knowledge with others and allow them to increase their knowledge and control their success. All of these can be seen from the value of learning value indicators, which have predominantly agree (value of 4) responses. These results are not consistent with the results of research conducted by Zwain (2019). In the research, the learning value variable has a significant effect on the behavioral intention for students and lecturers.

Hypotheses 8 and 9: *Habit (HT) significantly affects behavioral intention (BI) and use behavior (UB) in using elearning.*

The habit variable has a moderate effect on behavioral intention and use behavior in the use of elearning systems at STIKes XYZ. These results are in line with the results of the qualitative data processing where as many as 2.4% of student respondents mentioned aspects of their habits affecting them in using elearning. Nevertheless, based on the results of the distribution of the questionnaire, the user did not feel accustomed to utilizing the elearning system. This can be observed from most users who give a value of 3 (neutral) on the habit indicator. Based on the descriptive statistics of the respondents' distribution of answers, most users have less than one year of experience in using the elearning system. We suspect that the users are not accustomed to using elearning systems because they have not been using the elearning system for very long. These results are consistent with the research conducted by Moorthy et al. (2019) and Zwain (2019), where the habit variable also has a significant effect. Previous research that contradicts the results are Chavoshi and Hamidi (2019), Salloum and Shaalan (2019), and Yakubu and Dasuki (2019).

Hypothesis 10: *Technological innovativeness (TI) significantly influences behavioral intention (BI) in using elearning.*

Based on the results of significance testing and the measurement of f-square value, the results show that technological innovativeness has no significant effect on the behavioral intention of users in using the elearning system. However, based on the results of qualitative data we found that a total of 4.3% of students said that the technological innovativeness influenced users in using the elearning system. Based on the results of the statistical analysis of the responses, most users agree that the technological innovations of the elearning system prompt users to find ways to use the system. However, users have not felt motivated to be the first to try to experiment with new information technology provided by elearning systems. Most users gave a value of 3 (neutral) to the related statements. These results are not consistent with the research conducted by Zwain (2019). In Zwain's research, the technological innovativeness variable has a significant effect on the behavioral intention of students and lecturers.

Hypothesis 11: *Information quality (IQ) significantly influences behavioral intention (BI) in using elearning.*

The information quality variable influences the intention to use elearning systems by users at STIKes XYZ. These results are consistent with the results of qualitative data processing. As many as 3.3% of student respondents mentioned that information quality affected their use of elearning systems. Based on the processing of questionnaire distribution data, users declared that the information provided by the elearning system is the latest information and is complete and relevant. This was indicated by the large number of respondents who agreed with the indicators that are related to renewal, relevance, and completeness. The results of this research are consistent with the research conducted by Zwain (2019), where the information quality variable also significantly influences behavioral intention in using elearning. However, it is contrary to the research conducted by Chavoshi and Hamidi (2019), Moorthy et al. (2019), Patel et al. (2018), Salloum and Shaalan (2019), and Yakubu and Dasuki (2019).

Hypothesis 12: *Information quality (IQ) significantly influences use behavior (UB) in using elearning.*

Based on the test results in the significance measurement, we found that the information

quality variable does not significantly affect the use behavior in using the elearning system. The result of the f-square measurement also shows the same result where the information quality variable does not affect use behavior. These results are consistent with the research conducted by Zwain (2019). The information quality variable affects the lecturers but not the students.

Hypothesis 13: *Behavioral intention (BI) substantially influences the use behavior (UB) in using elearning.*

The behavioral intention variable has a significant effect on the use of elearning systems in a real way. These results are in line with the results of qualitative data processing, where as many as 4.3% of student respondents mentioned that behavioral intention affected them in using elearning systems. Nevertheless, based on the results of the distribution of the questionnaire, users choose to respond in a neutral manner to relevant statements about the user's plan to use the elearning system for lessons and regular use. However, users will still use the elearning system going forward. This can be seen from the majority of those who gave a value of 4 ("agree"). The results of this study are consistent with the results of research conducted by Moorthy et al. (2019) and Patel et al. (2018), where the performance expectancy variable also does not significantly influence use behavior. However, it is contrary to research conducted by Chavoshi and Hamidi (2019), Salloum and Shaalan (2019), Yakubu and Dasuki (2019), and Zwain (2019).

RECOMMENDATIONS

The following are recommendations for increasing the acceptance of elearning.

First, increase usage by using the elearning system. This is not only confined to working on examinations and online lectures for certain classes but also for other teaching and learning activities, and this applies to all classes and study programs.

Second, increase the use of elearning systems by making users feel more comfortable and satisfied when using elearning systems. This can be accomplished by improving the quality of the content or course material that is in the elearning system to make it more attractive and to enhance the appearance of the elearning system.

Third, provide students with more complete, relevant, and up-to-date information for using the elearning system. Not only should the lecturers upload lecture material on the elearning system, but lecturers can also upload supporting content such as other reading materials, videos, and lecture recordings.

Fourth, establish a policy from management to use the elearning system in a way that is not limited to using it only for the midterm or final semester exams. This is to increase the willingness of lecturers to utilize the elearning system. Management can implement a system of rewards for those who do implement the elearning system and sanctions for those who do not.

Fifth, improve the conditions of supporting facilities to strengthen the implementation of elearning, such as the internet network.

CONCLUSION AND FURTHER WORK

We conclude that the factors that influence the acceptance of elearning systems at STIKes XYZ are habit, information quality, and hedonic motivation, which all have a significant influence on the user's intention or behavior to use the elearning system. Also, habit and behavioral intention affect the use of elearning systems in a concrete way.

The following are some suggestions for further research. First, future research should take notice to all types of users, such as students, instructors, management, administrative staff, and other parties involved in the use of elearning. In addition, further research could include the respondents' profiles, such as age, year of admission, experience in using elearning, and gender, which were not used in this research.

Second, one can add another reputable database, such as the Journal of Association for Information Systems, while conducting the systematic literature review. Boolean operations that are utilized can also use "OR" to be able to get more literature in the search database and then one could perform the filtering. This would allow for more abundant literature to be obtained. Also, this would enable future researchers to use other methods to formulate new research.

Third, researchers should consider other indicators of user readiness factors in using elearning. Readiness can be on the side of

the students, lecturers, administrative staff, management, and other relevant parties. This can be identified by first conducting an interview process with the related parties. Last, one should prepare additional time to validate the recommendations.

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REFERENCES

Aldholay, A., Isaac, O., Abdullah, Z., Abdulsalam, R., & Al-Shibami, A. H. (2018). An extension of Delone and Mclean IS success model with self-efficacy: Online learning usage in yemen. The International Journal of Information and Learning Technology, 35(4), 285–304. https://doi.org/10.1108/IJILT-11-2017-0116

Chavoshi, A., & Hamidi, H. (2019). Social, individual, technological and pedagogical factors influencing mobile learning acceptance in higher education: A case from Iran. Telematics and Informatics, 38, 133–165. https://doi.org/10.1016/j.tele.2018.09.007

Cohen J. (1988). Statistical power analysis for the behavioural science (2nd ed.). Lawrence Erlbaum Associates.

Dalimunthe, N., & Wibisono, H. (2013). Analisis penerimaan sistem e-learning SMK Labor Pekanbaru dengan menggunakan technology acceptance model (TAM). Jurnal Sains dan Teknologi Industri, 11(1), 111–117. http://ejournal.uin-suska.ac.id/index.php/sitekin/article/view/564/536.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly: Management Information Systems, 13(3), 319–340. https://doi.org/10.2307/249008

Directorate General of Higher Education Republic of Indonesia. (2019). Grafik jumlah perguruan tinggi. https://forlap.kemdikbud.go.id/perguruantinggi/homegraphpt

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2017). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. Information Systems Frontiers, 21, 719–734. https://doi.org/10.1007/s10796-017-9774-y

Ejubovic, A., & Puska, A. (2019). Impact of self-regulated learning on academic performance and satisfaction of students in the online environment. Knowledge Management & eLearning, 11(3), 345–363. https//doi.org/10.34105/j.kmel.2019.11.018

Hair Jr., J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. European Business Review, 26(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Isaac, O., Aldholay, A., Abdullah, Z., & Ramayah, T. (2019). Online learning usage within Yemeni higher education: The role of compatibility and task-technology fit as mediating variables in the IS success model. Computers & Education, 136, 113–129. https://doi.org/10.1016/j.compedu.2019.02.012

Kitchenham, B. (2004). Procedures for performing systematic reviews. Joint Technical Report: Keele University Technical Report (TR/SE-0401) and NICTA Technical Report (0400011T.1). Keele University, UK, and National ICT, Australia. https://www.inf.ufsc.br/~aldo.vw/kitchenham.pdf

Moorthy, K., Tzu Yee, T., Chun T'ing, L., & Vija Kumaran, V. (2019). Habit and hedonic motivation are the strongest influences in mobile learning behaviours among higher education students in malaysia. Australasian Journal of Educational Technology, 35(4), 174–191. https://doi.org/10.14742/ajet.4432

Napitupulu, D. (2016). E-government maturity model based on systematic review and meta-ethnography approach. Jurnal Bina Praja, 8, 263–275. https://doi.org/10.21787/jbp.08.2016.263-275.

Patel, N. M., Kadyamatimba, A., & Madzvamuse, S. (2018). E-learning adoption in rural-based higher education institutions in South Africa. In 2018 Open Innovations Conference, (OI) 2018 (pp. 320–324). https://doi.org/10.1109/OI.2018.8535601

Ramírez-Correa, P. E., Arenas-Gaitán, J., & Rondán-Cataluña, F. J. (2015). Gender and acceptance of e-learning: A multi-group analysis based on a structural equation model among college students in Chile and Spain. PLoS ONE 10(10), e0140460. https://doi.org/10.1371/journal.pone.0140460

Salloum, S. A., & Shaalan, K. (2019). Factors affecting student's acceptance of elearning system in higher education using UTAUT and structural equation modeling approaches. Advances in Intelligent Systems and Computing, 845, 469–480. https://doi.org/10.1007/978-3-319-99010-1_43

Sarstedt, M., Ringle, C., & Hair, J. (2017). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann,& A. Vomberg (Eds.). Handbook of market research (pp. 1–40). Springer. https://doi.org/10.1007/978-3-319-05542-8_15-1

Sensuse, D. I., & Napitupulu, D. (2017). The study of user acceptance toward elearning system in higher education. Indonesian Journal of Electrical Engineering and Computer Science, 7(2), 466–473. https://doi.org/10.11591/ijeecs.v7.i2.pp466-473

Smaldino, S. E., Lowther, D. L., & Mims, C. (2005). Instructional technology and media for learning (8th ed.). Pearson/Merrill/Prentice Hall.

STIKes XYZ. (2018a). Rencana operasional sekolah tinggi xyz 2018-2019. STIKes XYZ.

STIKes XYZ. (2018b). Rencana strategis sekolah tinggi ilmu kesehatan XYZ 2018–2020. STIKes XYZ.

Straub, D., Keil, M., & Brenner, W. (1997). Testing the technology acceptance model across cultures: A three country study. Information and Management, 33(1), 1–11. https://doi.org/10.1016/S0378-7206(97)00026-8

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. Management Information Systems Quarterly, 27(3), 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. Management Information Systems Quarterly, 36(1), 157–178. https://doi.org/10.2307/41410412

Wibawa, R. (2019, October 25). Personal interview [Personal interview].

Wongvilaisakul, W., & Lekcharoen, S. (2015). The acceptance of elearning using SEM approach: A case of IT literacy development for PIM students. In 12th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON) 2015 (pp. 1–6). https://doi.org/10.1109/ECTICon.2015.7207117

Yakubu, M. N., & Dasuki, S. I. (2019). Factors affecting the adoption of elearning technologies among higher education students in Nigeria: A structural equation modelling approach. Information Development, 35(3), 492–502. https://doi.org/10.1177/0266666918765907

Zwain, A. A. A. (2019). Technological innovativeness and information quality as neoteric predictors of users' acceptance of learning management system: An expansion of UTAUT2. Interactive Technology and Smart Education, 16(3), 239–254. https://doi.org/10.1108/ITSE-09-2018-0065