



Investigating the Use of the SISTER Application in LLDIKTI Region II: A UTAUT Framework Analysis

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Abstract

The lecturer workload (BKD) report is the three pillars of higher education (*tridharma*) activity that is required for Foundation Lecturers and civil servant-employed lecturers (PNS-DPK) to carry out every semester. Unfortunately there are still many tertiary institutions that do not monitor their lecturers to conduct BKD reports every semester. This has resulted in lecturers being slow in submitting Academic Position Levels (JJA), and few participants taking part in the Lecturer Certification (Serdos) selection. This study discussed the BKD SISTER Report at Tertiary Education Region II for foundation permanent lecturers using the UTAUT approach model in order to determine the level of acceptance, and those who use BKD SISTER. Data analysis used in this study was Structural Equation Modeling (SEM) with data analysis techniques processed using Smart PLS 3.2.9. The data was processed by validity, reliability and hypothesis testing. The results of the validity and reliability tests stated that all statements were valid and reliable. Therefore, hypothesis testing was able to carry out. Hypothesis testing was carried out by looking at the significance value of the p-value with a significance level of 5% (one-tailed). The significance of the relationship between exogenous and endogenous latent variables was seen from the size of the t-statistic or t-count and p-value. If the t-statistic value was > 1.96 and the p-value was < 0.05 [1][5][14].

Keywords: Analysis, UTAUT, SISTER, Application, SmartPLS

1. INTRODUCTION

The BKD report is a *Tridharma* activity of higher education that is required for permanent foundation lecturers and civil servants to carry out their responsibilities every semester. There are still many universities in LLDIKTI Region II that do not monitor their lecturers to conduct BKD reports every semester through SISTER BKD. This results in lecturers being slow in applying for Academic Position Levels (JJA), and few participants participating in the Lecturer Certification Selection (SERDOS) because starting in 2021 the lecturer workload report is a mandatory requirement to become a lecturer certification participant.

The SISTER BKD report in utilizing information system adoption has never



been analyzed for its effect on users in carrying out their activities. The method for measuring utilization is by using one of the frameworks, namely the Unified Theory of Acceptance and Use of Technology (UTAUT) framework developed by Venkatesh, et al (2003).

The UTAUT framework explains how the influence of individual differences in using information systems such as the relationship between perceived utilization, ease of use, and usage intention that can be moderated by age, gender, and experience in use [9].

By using the variables in the UTAUT framework, the researcher wishes to analyze the success factors in the adoption of the SISTER BKD report at LLDIKTI Region II using the UTAUT approach or framework model. It is expected that the desired results can be better and more appropriate for its users.

2. RESEARCH METHOD

The research method used was quantitative method. Quantitative methods are research methods that use quantitative measurements to test hypotheses with the aim of finding generalizations and emphasize the measurement and analysis of causal relationships between variables [13].

2.1. Research Framework

In this study, a research framework was used as steps that was taken in the research, as follows

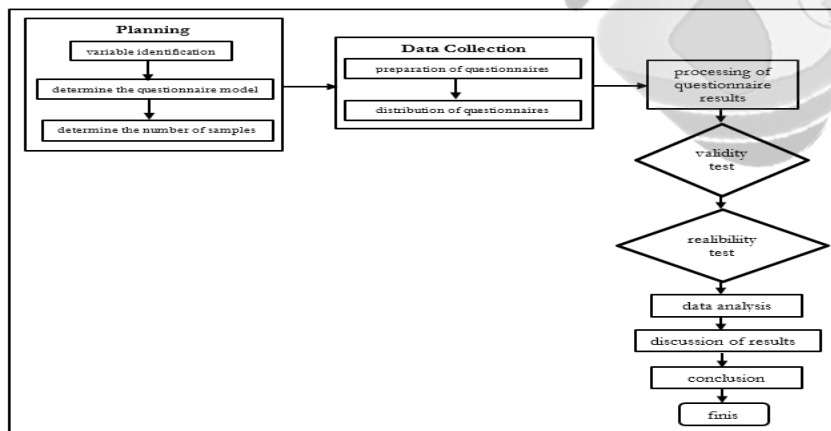


Figure 1 Framework

2.2. Population and Sample

The population in this study was 3,286 permanent foundation lecturers who had not reported SISTER BKD. If the research has several hundreds of subjects in the population, they can determine approximately 25% - 30% of the number of

subjects. If the number of subject members in the population only includes between 100 and 150 people and in collecting research data using questionnaires / questionnaires, the number of subjects should be taken as a whole. So it could be said to be census research [8].

n = Sample size

N = Population size

$$n = \frac{N}{Nd^2 + 1}$$

d² = Limit of the tolerance for sampling error used (5%)

Table 1 Recapitulation of Permanent Lecturers who have not reported BKD

No	PT LLDIKTI Wilayah II	Jumlah Dosen	Persentase
1	Palembang	1576	48
2	Lampung	1213	37
3	Bengkulu	343	10
4	Bangka Belitung	154	5
Jumlah		3286	100

Sumber : SISTERNAS (November 2022)

$$\text{Lecturer : } n = \frac{3286}{3286 \cdot (0,05)^2 + 1} = \frac{3286}{9,215} = 356,5 \text{ or rounded up to } \mathbf{357} \text{ lecturers}$$

2.3. Research Variables

The variables in this study used 3 types of variables, independent variables, dependent variables, and moderating variables. Independent variables were performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. The dependent variable was behavioral intention to use. Moderating variables were age and gender [9][14]. The following was table 2 of the variables and indicators used as well as figure 2 of the hypothesis model.

Table 2 Variables and Indicators

Variables	Indicators	
Performance Expectancy (PE)	PE1	Ease of getting information
	PE2	increase the odds
	PE3	increase effectiveness
	PE4	increase productivit
Effort Expectancy (EE)	EE1	ease of use
	EE2	ease of interaction
	EE3	easy to learn
	EE4	ease of becoming an expert
Social Influence (SI)	SI1	factor of support from technological progress

	SI2	environmental factor
	SI3	factor of support from influential people
Facilitating Condition (FC)	FC1	facilitating internet conditions
	FC2	knowledge in operation
	FC3	adequate device
	FC4	technical support
Hedonic Motivation (HM)	HM1	pleasant
	HM2	user friendly
	HM3	interesting
Price Value (PV)	PV1	affordable prices
	PV2	many advantages
	PV3	unlimited material
Habit (H)	H1	routine
	H2	addiction
	H3	compulsion
	H4	will
Behavioral Intention to Use (BIUS)	BIUS1	use more often
	BIUS2	always use
	BIUS3	use longer
Age	A1	< 30 year
	A2	31-40 year
	A3	41-50 year
	A4	> 50 year
Gender	G1	Man
	G2	Woman

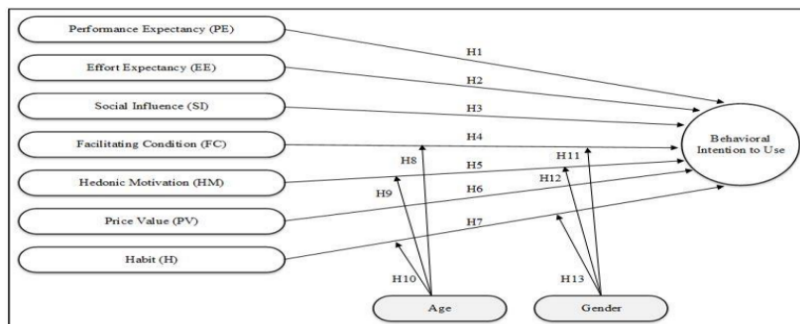


Figure 2 Hypothesis Model

3. RESULTS AND DISCUSSION

Based on the results of research using the SmartPLS 3.2.9 application which was based on the UTAUT 2 framework model and processed from the questionnaire data that had been obtained. The following figure was a diagram of the results that had been complemented by the outer model test results.

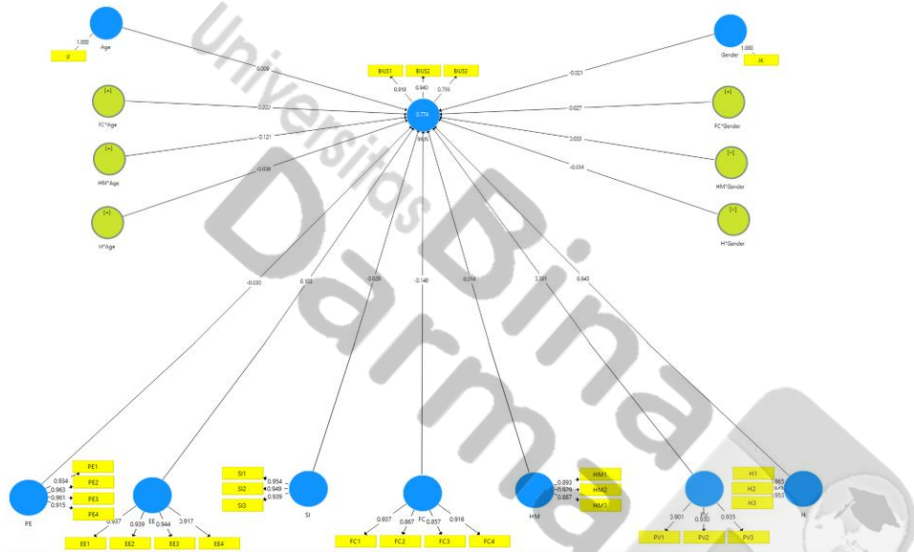


Figure 3 Diagram of Results

3.1. Respondent Characteristics

The respondents used amounted to 357 permanent foundation lecturers who had not reported SISTER BKD even 2021/2022. The characteristics of the respondents in this study were gender, and age. Based on gender data there were 54% or 193 female lecturers and 46% or 164 male lecturers. Meanwhile, from the age characteristics there were 68% or 243 lecturers aged <30 years, 22% or 77 lecturers aged 31-40 years, 10% or 36 lecturers aged 41-50 years and the remaining 0% or 1 person aged 50 years and over.

3.2. Validity Test

This validity test was divided into two which were convergent validity test and discriminant validity test.

A. Convergent Validity

The validity test is carried out to measure the level of validity of an instrument where the indicator can be declared valid if the Average Variance Extracted (AVE) value is > 0.5. If there are variable items that are worth less than 0.5 then the item must be dropped [2][6][10][12].

Table 3 Average Variance Extracted (AVE) Test Results with SmartPLS

Variable	Average Variance Extracted (AVE)
Behavioral Intention to Use (BIUS)	0.765
Effort Expectancy (EE)	0.873
Facilitating Condition (FC)	0.800
Habit (H)	0.849
Hedonic Motivation (HM)	0.816
Performance Expectancy (PE)	0.890
Price Value (FV)	0.850
Social Influence (SI)	0.898

Based on the test results above it could be concluded that the AVE value of all variables was above 0.5, so that testing could be continued.

A. Discriminant Validity

Discriminant Validity is tested at the level of 28 questions indicators and 8 variables. The results obtained in this test were that the loading value on the intended construct was greater than the loading value with other constructs [2][6][10][12].

Table 4 Discriminant Validity Test Results with SmartPLS

Variabel	BIUS	EE	FC	H	HM	PE	PV	SI
BIUS	0.875							
EE	0.762	0.934						
FC	0.745	0.801	0.895					
H	0.840	0.830	0.882	0.921				
HM	0.806	0.871	0.852	0.882	0.903			
PE	0.799	0.853	0.837	0.911	0.876	0.944		
PV	0.815	0.774	0.785	0.810	0.869	0.822	0.922	
SI	0.782	0.802	0.874	0.899	0.856	0.911	0.827	0.947

3.3. Reliability Test

The reliability test is carried out by looking at the composite reliability value if the composite reliability value (> 0.7) it shows a satisfactory value. The reliability test is strengthened by Cronbach Alpha. The expected value (> 0.6) for all constructs [2][6][10][12]...

Table 5 Reliability Test Results with SmartPLS

Variable	Cronbach's Alpha	Composite Reliability
Behavioral Intention to Use (BIUS)	0.847	0.906
Effort Expectancy (EE)	0.951	0.965
Facilitating Condition (FC)	0.916	0.941
Habit (H)	0.910	0.944
Hedonic Motivation (HM)	0.887	0.930
Performance Expectancy (PE)	0.959	0.970
Price Value (FV)	0.912	0.945
Social Influence (SI)	0.943	0.963

Based on the test results it showed that the indicators proposed by the researcher had good statistical value. Then, it could be continued to the next stage.

3.4. R-Square Test

R-Square is a combination of the influence of the independent variable to the dependent variable. The R-Square value ranges from 0 to 1 with a value close to 1 indicating greater prediction accuracy [2][6][10][12].

Table 6 R-Square Testing Results

	R Square	R Square Adjusted
Behavioral Intention to Use (BIUS)	0.774	0.768

Based on the R-square value obtained from the analysis of the behavioral intention to use variable, it was 0.774 or 77%, so it could be continued to the next stage..

3.5. Hypothesis Test

The significance of variables could be evaluated through the bootstrapping resampling procedure with the significance level α or P value used was < 0.05 , and the T-Statistics value was > 1.96 [1][5][7][14].

Table 7 Hypothesis Testing Results

Hipotesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision 5%
1 (PE -> BIUS)	-0.030	-0.025	0.076	0.394	0.694	tidak
2 (EE -> BIUS)	0.103	0.105	0.065	1.574	0.116	tidak
3 (SI -> BIUS)	-0.029	-0.033	0.062	0.473	0.637	tidak
4 (FC -> BIUS)	-0.140	-0.137	0.061	2.282	0.023	signifikan
5 (HM -> BIUS)	0.014	0.013	0.059	0.242	0.809	tidak
6 (PV -> BIUS)	0.391	0.394	0.046	8.542	0.000	signifikan
7 (H -> BIUS)	0.643	0.635	0.070	9.225	0.000	signifikan
8 (FC*Age -> BIUS)	0.222	0.226	0.052	4.254	0.000	signifikan
9 (HM*Age -> BIUS)	-0.121	-0.117	0.056	2.163	0.031	signifikan
10 (H*Age -> BIUS)	-0.038	-0.043	0.054	0.703	0.483	tidak
11 (FC*Gender -> BIUS)	-0.027	-0.028	0.054	0.511	0.610	tidak
12 (HM*Gender -> BIUS)	0.033	0.032	0.048	0.678	0.498	tidak
13 (H*Gender -> BIUS)	-0.034	-0.034	0.048	0.705	0.481	tidak

Based on the table of hypothesis testing results the following results were obtained:

- A. **H1, H2, H3, H5, H10, H11, H12, and H13**, which had **not significant effect** on the intention to use the SISTER BKD application, the T statistic value < 1.96 and the P value > 0.05 , so the hypothesis was **rejected** [14][16].
- B. **H4, H6, H7, H8, and H9**, which had a **significant effect** on the intention to use the SISTER BKD application, the T statistic value > 1.96 and the P value < 0.05 , so the hypothesis was **accepted** [9].

3.6. Discussion

Based on the results of hypothesis testing the results obtained had a significant effect and the hypothesis was accepted on the Behavioral Intention to Use variable (Intention to use the SISTER BKD application). The discussion was as follows:

1. **H4 (FC→BIUS)**, this was because the SISTER PT server is the main thing that universities must have so that lecturers can easily access SISTER anywhere and anytime. The policy of Higher Education leaders who do not have server and internet infrastructure can rent a cloud to install the SISTER application because by renting a cloud, technology

needs especially the internet and infrastructure, of course, will be easier to obtain according to the specifications needed without physically owning the device along with the minimum risk of data loss, storage space and costs that can adjust needs as well as flexibility in accessing SISTER BKD anywhere and anytime. The following is the minimum specifications that can be used by Universities in installing SISTER servers in the cloud.

RAM	CPU	Storage	Transfer
1 GB	1 Core	20 GB	Unlimited

Figure 4 Minimum SISTER Server Requirements in the cloud

2. **H6(PV→BIUS)**, this was because most College SISTER servers are already using the cloud so that without having a physical server device and the need for an expensive public ip, the College can already use it. With the internet cloud in Higher Education, there is no reduction in its use so it can be used by lecturers stably and without obstacles in accessing SISTER BKD.
3. **H7(H→BIUS)**, the results obtained from this study, which means the higher the intensity of use of the SISTER BKD application by the user the better directly proportional to the intention to use SISTER BKD in the future. The belief that using the system has a benefit can also increase a person's intention or interest in using a system or technology, in this case the SISTER BKD application.
4. **H8(FC*Age→BIUS)**, which was based on the actual respondent data for age. It cannot be a reference because of the different percentages for lecturers who had not reported SISTER BKD, which were age < 30 years 68%, 31-40 years 22%, 41-50 years 10%, and > 50 years 0% so that the majority in filling out the questionnaire was < 30 years so that the intention to use information technology was not an obstacle. 5.
5. **H9(HM*Age→BIUS)**, which was based on actual respondent data for age. It cannot be a reference because of the different percentages for lecturers who had not reported SISTER BKD, which were age < 30 years 68%, 31-40 years 22%, 41-50 years 10%, and > 50 years 0% so that the majority in filling out the questionnaire was < 30 years so that the intention to use information technology was not an obstacle.

4. CONCLUSIONS

Based on the research results, the following conclusions could be drawn:

1. The variables that influence the application of the UTAUT 2 model in the SISTER BKD application were the Facilitating Condition, Price Value,

- Habit, Facilitating Condition moderated by Age, and Hedonic Motivation moderated by Age variables.
2. The rejected variables in the application of the UTAUT 2 model in the SISTER BKD application were the variables Performance Expectancy, Effort Expectancy, Social Influence, Hedonic Motivation, Habit moderated by Age, Facilitating Condition moderated by Gender, Hedonic Motivation moderated by Gender, and Habit moderated by Gender.
The intention to use the SISTER BKD application was also very influential on the monitoring and policies of university leaders in fulfilling the tridharma of lecturers every semester and good facilities in the form of supporting infrastructure such as SISTER PT servers, Internet connections or even training or technical guidance on the use of the SISTER BKD application.
 3. Age and Gender had no significant effect on the intention to use the SISTER BKD application.

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