



Analysis of the Acceptance and Use of
e-Campus Based on the Unified Theory of
Acceptance and Use of Technology (UTAUT)
Approach at Pelita Bangsa University

Muhtajuddin Danny

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Analysis of the Acceptance and Use of e-Campus Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) Approach at Pelita Bangsa University

Muhtajuddin Danny
utat@pelitabangsa.ac.id

Informatics Engineering Study Program, Faculty of Engineering, Pelita Bangsa University

Abstract

Campus services using e-Campus are an integrated product of the progress of Information and Communication Technology (ICT), which provides scientific information to users of academic services. The site www.pelitabangsa.ac.id is an academic service of Pelita Bangsa University which has provided digital information services. This study aims to examine the behavior of Pelita Bangsa University academic users based on the factors that influence it with the Unified Theory of Acceptance and Use of Technology (UTAUT) approach, using Structural Equation Modeling (SEM) analysis with Analysis of Moment Structure (AMOS) as software data processing application. This research uses an explanatory

1. Introduction

Academic information system is a system built to manage academic data so as to make it easy for users in campus academic administration activities online.

This is done through information services covering five aspects, namely: information gathering, information processing, information utilization, information dissemination, information maintenance / preservation. Academic Information system that was built to make it easy for users in campus academic online administration activities, such as the New Student Admission process, making curriculums, making lecture schedules, filling in Study Plan Cards (KRS), charging grades, managing data of lecturers & students . This system can also function as a support for data analysis in determining Campus decisions.

Academic information systems manage all data in an integrated manner so that the data will always be up to date / realtime and always ready for use, and reduce the possibility of data duplication because of the intention to use a centralized database system. With automatic email responses, online PMB, class scheduling, online KRS, and online / realtime assessments, all Siakad news or announcements will become a center of information that is always a necessity for the entire campus community.

Academic information systems make it easy for users to always be able to monitor the progress of every activity that is on campus. With the available features, the Academic information system provides communication media facilities for all users, including students, lecturers, academic staff, PMB staff, financial staff, or even system administrators and leaders to always communicate with each other.

The Bekasi Pelita Bangsa academic information system is a Technical Implementation Unit (UPT) which is inseparable from its campus activities, which will play a

quantitative approach with survey methods. The population is Pelita Bangsa University students. Sampling using purposive sampling, with 118 respondents examined through a questionnaire. The partial test shows that the Behavioral Intentions variable has a positive and significant correlation with Use Behavioural (p-value <0.05). While Performance Expectancy, Social Influence, Facilitating Conditions do not have a significant correlation with Behavioral Intentions.

Keywords: *Academic, e-Campus, UTAUT, SEM, AMOS.*

vital function in the success of recovery for both students and lecturers, and other users. This system has several services namely starting from the process of admission of new students (PMB), KRS, lecturing and assessment processes, so that each process can be carried out effectively and efficiently.

Researchers want to find out, whether the use of e-campus.pelitabangsa.ac.id really used for academic activities. Besides that, the researcher wants to conduct an empirical study or study the behavior of e-campus.pelitabangsa.ac.id users based on the factors that influence it with the unified theory of acceptance and use of technology (UTAUT) approach.

2. Literature review

2.1. Communication and Information Technology (ICT)

Information technology is the human need to retrieve and move, process and process information in a social context that benefits oneself and society as a whole. Information Technology covers all matters relating to the process, use as a tool, manipulation, and management of information.

Communication Technology is all matters relating to the use of tools to process and transfer data from one device to another. Information Technology and Communication Technology is an inseparable equivalent that contains a broad understanding of all activities related to processing, manipulation, management, and transfer / transfer of information between media. ICT is a media or a tool used to transfer data both to obtain a data / information and provide information to others and can be used for communication tools either one way or two directions.

With the development of online communication systems such as telephone, sms, or email that can be accessed in cyberspace, of course this affects in various aspects of life, especially in the field of education. This can be seen by the shift in the learning process starting from learning in the

classroom' to 'learning anywhere', from 'paper' to 'on line'. Interaction between teachers and students can not only be done through face-to-face relationships but can be done via telephone, sms, or email.

In the main tasks of a teacher it becomes easier to make preparations for teaching, find sources of teaching materials, even in making evaluations for students that can be given in a variety of ways. This can utilize computer technology. With the use of information technology that is intended to improve the performance of educational institutions in their efforts to improve the quality of Indonesian Human Resources. Teachers and school administrators are no longer busy with operational work, which can actually be replaced by computers. Thus it can provide advantages in time and energy efficiency.

2.2. Structural Equation Model

SEM (Structural Equation Modeling) is an increasingly popular statistical analysis tool. When viewed from the preparation of the model and how it works, actually SEM is a combination of factor analysis and Regression analysis (Santoso, 2011). Nowadays SEM is no longer just linear and the possibility of SEM expansion will exceed the original Lisrel program. SEM provides a satisfying and very general framework for statistical analysis which includes several traditional multivariate procedures, for example factor analysis, regression analysis, discriminant analysis and canonical correlation as special cases. SEM is often illustrated by a flow chart.

2.3. AMOS (*Analysis of Moment Structure*)

AMOS is a program designed to complete covariance-based Structural Equation Modeling (SEM) analysis (Ghozali 2005). AMOS is used to analyze data and test a series of hypotheses that have been formulated simultaneously where there are more than one dependent variable that are interrelated and test the feasibility of a model with research data. As a structural equation model, AMOS is more often used in marketing and strategic management research.

2.4. *Unified Theory of Acceptance and Use of Technology (UTAUT)*

Vekantesh et al., (2003) studies theories about technology acceptance about technology acceptance by system users.

3. Study Overview

3.1. Rita Oluchi ORJI (2010), Impact of Gender and Nationality on Acceptance of a Digital Library: An Empirical Validation of Nationality Based UTAUT Using SEM

Electronic Library Systems (ELS) are an inevitable part of educational institutions. Even though millions of dollars were spent building and developing this system, the results of the study show that millions of potential users can still

ignore them. As a result, different Technology Acceptance Models have been applied to understanding the influence of various end user acceptance factors of the Information System (IS). Gender has been found to be an important factor and, as such, has attracted much attention from the research community. This research, not only based on gender but also based on nationality. This research develops a model based on UTAUT with the aim to explain gender and nationality on the acceptance of the ELS system. Nationality introduced is based on the assumption that the independent construction of UTAUT will have a different impact on acceptance and use when moderated by gender and nationality simultaneously.

3.2. Din Jong dan Tzong-Song Wang (2009), Student Acceptance of Web-based Learning System.

This study uses the UTAUT approach, aimed at determining the acceptance of web-based technology in student learning systems. This study uses cluster sampling and stepwise regression analysis to determine the relationship between constructs. The results showed that performance expectations, user attitudes toward technology use, facilitating conditions, self-efficacy, and social influence had a significant influence on behavioral intentions. In addition, only behavioral intentions, user attitudes toward technology use, and social influence have a direct impact on system use.

3.3. I Gusti Nyoman Sedana dan St. Wisnu Wijaya (2009), UTAUT Model for Understanding Learning Management System.

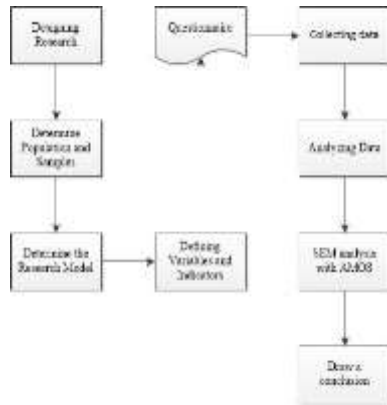
Application of the Utaut Model to Understand the Acceptance and Use of Learning Management System Case Study: Experiential E-Learning Of Sanata Dharma University The data collection technique in this research was survey and data collection through Exelsa database. Sampling using a purposive sampling method. The research instrument used was the UTAUT scale. The finding that performance expectancy has a significant influence on behavioral intention. Respondents assume that the use of Exelsa can help him to get the benefits of performance gains in his work such as, easier and faster in doing and completing college assignments. This assumption will increase his intention to use Exelsa. Based on the results of empirical analysis and the discussion that has been done in this study, it can be concluded that the variable performance expectancy, social influence and facilitating conditions proved to significantly influence the behavioral intention of Sanata Dharma University Students in using Exelsa.

4. Research Methods

This study is an explanatory study of the causal relationship (cause and effect) of the variables observed and examined. The research carried out intends to prove the hypothesis that was built using the Unified Theory of Acceptance and Use Technology (UTAUT) approach, tested using SEM techniques using AMOS 18 tools. With this method an analysis of the factors that influence the utilization of the Pelita Bangsa e-campus system will be carried out.

4.1. Research Steps

The stages carried out in this study can be seen in the image below.



Picture 1. Research Steps

4.2. Designing Research

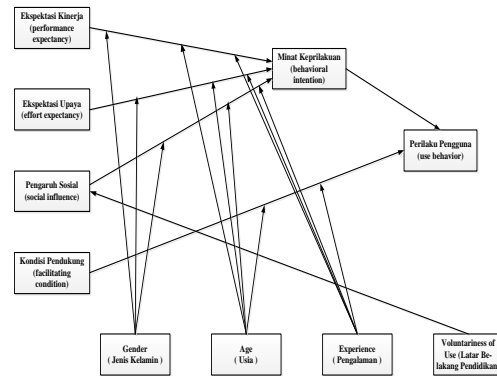
The research conducted is a quantitative study using a survey approach. According to Indrianto and Supomo (1992), "Quantitative approach is a research approach that emphasizes testing theories through measuring research variables with numbers and analyzing data with statistical procedures, this approach aims to test hypotheses through theoretical validation or theory testing. in certain circumstances ". The survey approach was carried out through distributing questionnaires to samples from a predetermined population. The questionnaire was arranged based on the model used in this study, the UTAUT model. Data obtained from the questionnaire were then analyzed using SEM statistical modeling techniques to meet the research objectives.

4.3. Determine Population and Samples

Population is all individuals who are the object of research. While the sample is part of the population, where the data or information needed can be obtained directly. The sample in this study were students of STT and STIE Pelita Bangsa Bekasi. The sampling technique used in this study used a purposive sampling method with the following criteria: 1). The selected students are students who use e-campus.pelitabangsa.ac.id for academic purposes, 2) respondents are students who have been determined at the time of the study, 3) respondents are users of e-campus.pelitabangsa.ac.id. And the type of data used in this study is primary data, i.e. data taken from data sources directly by the researcher or those who represent it where the researchers take their own measurements. In this study the primary data are questionnaire data distributed to students of STT and STIE Pelita Bangsa Bekasi. The minimum recommended number of samples for SEM is 100-200. And in this study the respondents who want to be sampled are 118 respondents.

4.4. Research Model

In the UTAUT model, there are four exogenous variables (independent / independent variables) that have a significant influence on the use of computer technology. The four variables are performance expectancy (the belief that individuals have that their performance will be better when using computer technology), effort expectancy (expectations of ease of use of computer technology), social influence (the level of individual acceptance of the influence of others to use computer technology), and facilitating condition (support facilities / infrastructure owned by individuals to use computer technology).



Picture 2. Research Model

4.5. Make a Questionnaire

After defining the research variables and indicators, a questionnaire was made to serve as test data for this research hypothesis. Questionnaires are questions made by researchers to find out how the influence between Performance Expectancy, Effort Expectancy, Social Influence variables on behavior intention then Facilitating Condition and behavior intention on Use Behavior given to respondents, namely individuals, especially STT students and STIE Pelita Bangsa Bekasi users e-campus.pelitabangsa.ac.id.

4.6. Collecting data

Research data collection was carried out by distributing questionnaires directly to all samples conducted within one week. Data from respondents were obtained from questionnaire instruments, using closed questions where respondents could quickly and easily answer questionnaires, so data from questionnaires could be quickly analyzed statistically. The measurement scale used in filling out the questionnaire is a differential semantic scale. Differential semantic scale is a scale used to measure attitudes, but the form is not multiple choice or checklist, but arranged in a continuum line where a very positive answer is located on the right side of the line, and a very negative answer is located on the left side of the line.

4.7. SEM analysis with AMOS

To conduct data analysis using SEM techniques, the tools used in this study are AMOS 18. The steps undertaken to conduct data analysis using SEM techniques are on AMOS tools.

5. Description of Research Results

Based on the results of research the factors that influence the use of Pelita Bangsa e-campus Pelita Bangsa STT with independent variables or exogenous constructs namely Performance Expectancy (PE) or performance expectations or benefits of using Pelita Bangsa e-campus, effort expectancy, social influence (social influence), facilitating conditions, and endogenous dependent variables or constructs of behavioral intentions / BI, use behavioral / UB or user behavior.

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	52	44.1	44.1	44.1
Female	66	55.9	55.9	100.0
Total	118	100.0	100.0	

Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	52	44.1	44.1	44.1
Female	66	55.9	55.9	100.0
Total	118	100.0	100.0	

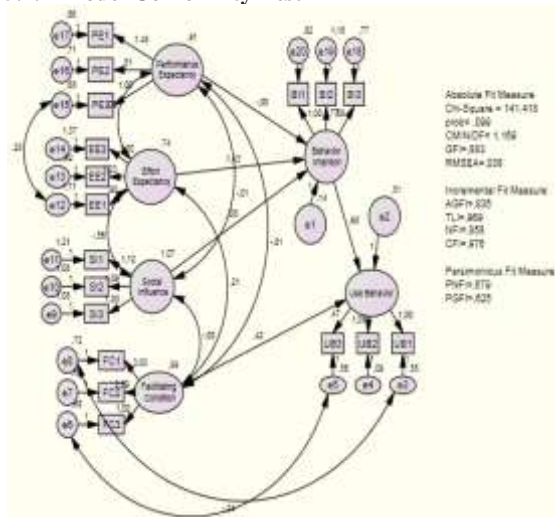
Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	39	34.8	34.8	34.8
Female	49	41.5	41.5	76.3
Total	88	75.4	75.4	100.0

Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	39	34.8	34.8	34.8
Female	49	41.5	41.5	76.3
Total	88	75.4	75.4	100.0

Picture 3. Research Respondent Data

Viewed based on the profile of research respondents, respondents with students of the College of Technology (44.1%) and the College of Economics (55.9%), male gender (59.3%) and Women (40.7), age <21 years (30.5%) and >= 21 years (69.5), those who have a Computer / Laptop (75.4%) and those who do not (24.6%).

5.1. Model Conformity Test



Picture 4. Model Conformity Test

Criteria fit (fit) or not a model is not only seen from the value of the probability alone but also seen other criteria which include: absolute fit size Measure, Increment fit Measure and Parsimonious Fit Measure. To compare the values

obtained in this model with the critical value limits on each of the measurement criteria.

5.2. Structural Test Model

1) Absolute Fit Indices

Notes for Model (Default model)	
Computation of degrees of freedom (Default model)	
Number of distinct sample moments:	171
Number of distinct parameters to be estimated:	50
Degrees of freedom (171 - 50):	121
Result (Default model)	
Minimum was achieved	
Chi-square =	141,418
Degrees of freedom =	121
Probability level =	,099

Picture 5. Computation of degrees of Freedom

Calculate the degree of Freedom (df) :

- Number of distinct sample moments:
Because there are 18 indicators, the number of sample moments is:
 $[18 \times (18 + 1)] / 2 = 171.$

- Number of distinct parameters to be estimated:
 - Amount of Loading Estimates
Practically it can be directly known from the number of one-headed arrows.
Namely the construct relationship with the indicator. In this model, there are three relationships for the construct of performance expectancy, three relationships for the construct of effort expectancy, three relationships for the construct of social influence, three relationships for the construct of facilitating conditions, three relationships for the construct of behavioral intentions, three relationships for the construct of behavioral use.
Then in total there are $3 + 3 + 3 + 3 + 3 + 3 = 18$ loading estimates.

- Amount of Error Variance Estimates
Namely the number of error variables associated with certain indicators. Because there are 18 loading estimates, there are also 18 error variance estimates.
- Number of Exogenous-Endogenous Structural Term
Namely the number of relationships between independent variables (exogenous) with the dependent variable (endogenous). Because there are five relationships, namely PE-BI, EE-BI, SI-BI, FC-UB, and BI-UB, the number is 5.

- Number of Covariance Term constructs
Namely the covariance relationship between constructs. In covariance relationships, the form of two-way arrows. In this model there are 9 covariance, namely the construct of EP with EE, EE with SI, PE with SI, PE with FC,

EE with FC, EE with SI, e15 with e12, e8 with e3, e6 with e5. Then there are 9 of them.
Thus, the total is:
 $18 + 18 + 5 + 9 = 50$

- The df number is the difference between the two parts above, i.e.
 $171 - 50 = 121$

- 2) Output Model Fit
- CMIN section

Model	NP AR	CMIN	DF	P	CMIN /DF
Default model	68	129,777	121	,276	1,073
Saturated model	189	,000	0		
Independence model	36	886,034	153	,000	5,791

Picture 6. Output Model Fit – CMIN

Figures (0.099) greater than 0.02 indicate the model can be considered fit with existing data.

- RMR and GFI sections

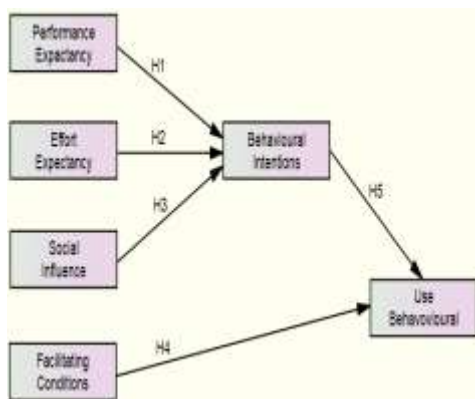
Model	RMR	GFI	AGFI	PGFI
Default model	,104	,883	,835	,625
Saturated model	,000	1,000		
Independence model	,545	,366	,292	,328

Picture 7. Output Model Fit – RMR and GFI

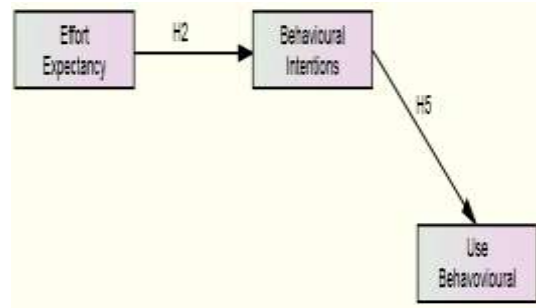
Seen in the GFI and AGFI in the picture above approaching 1 (GFI value > 0.90 and AGFI value > 0.95) accompanied by a smaller RMR number. This supports the statement that the model is fit.

5.3. Model Interpretation

Based on the modification of the model and the results of testing the hypothesis, it can be explained that the model obtained in this study is as follows :



Picture 8. Preliminary Research Model



Picture 9. Final Results of Research Model

In the two pictures above the model can be seen a comparison between the initial model of research and the final model of research results. Based on the final model, it can be seen that the use of Pelita Bangsa e-campus as a means of supporting student learning processes indicates an influence :

1. **H2 : Ease (effort expectancy)** in using academic information systems influences behavioral intention in using Pelita Bangsa e-campus information systems. Test results on the estimated parameters (see table 4.8 regression weight) between effort expectancy to behavioral intention shows a positive relationship of 1.204. Critical ratio (CR) value of 5.802, C.R. above the critical value of ± 1.96 or by looking at the p-value below the significant value of 0.05 which is indicated by the sign (**). Thus the third hypothesis, effort expectancy has a positive and significant effect on behavioral intention.
2. **H5 : User Behavior (Use Behavioural)** in using Pelita Bangsa e-campus is influenced by behavioral intentions. Test results on the estimated parameters (see table 4.8 regression weight) between effort expectancy to behavioral intention shows a positive relationship of 0.715. Critical ratio (CR) value of 7,009, C.R. above the critical value of ± 1.96 or by looking at the p-value below the significant value of 0.05 which is indicated by the sign (**). Thus the third hypothesis, effort expectancy has a positive and significant effect on behavioral intention.

6. Conclusions

From the test results regarding the use of Pelita Bangsa e-campus, as well as based on explanations in previous theories, the authors conclude that:

1. Factors that can influence student behavior in using the Bekasi Pelita Bangsa e-campus in supporting the learning process are the ease (effort expectancy) in using the Pelita Bangsa e-campus.
2. Untuk variabel *Use Behavioural* dalam menggunakan e-campus Pelita Bangsa sangat dipengaruhi oleh minat perilaku atau *behavioural intentions*.
3. Tidak terlihat adanya hubungan antara harapan kinerja (*Performance Expactancy/PE*), pengaruh sosial (*Sosial Influence/SI*), fasilitas kondisi (*Facilitating Conditions/FC*) dengan minat perilaku (*Behavioural Intentions/BI*).

4. Model UTAUT dalam penelitian ini terdapat 3 variabel, yaitu *Effort Expectancy* (EE), *Behavioural Intentions* (BI), *use behavioural* (UB).

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