

Intention to use E-Journal; A Unified Theory of Acceptance and use of Technology Perspective

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Abstract: This paper investigates factors that are expected to influence the intention of students to use e-journal based on Unified Theory of Acceptance and Use of Technology (UTAUT) model. UTAUT model has demonstrated the influencing factors for generic information systems use such as tablet personal computer (TPC) and mobile communication. Sample of this research is students of Economic Education Department, Faculty of Economics, Semarang State University. The variables of this research are performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating condition (FC), behavioral intention to use (BI), and actual use of e-journal (AU). Data analysis used regression analysis. Results show that performance expectancy and social influence are positively related to the intention to use e-journal. But, there is no positive and significant relationship effort expectancy to behavioural intention. We also found that facilitating condition and behavioural intention are positively related to actual use of e-journal. The result support the UTAUT to understand students's intention to use e-journal.

Keywords: performance expectancy, effort expectancy, social influence, facilitating condition, intention to use e-journal, actual use, age, gender, UTAUT

I. Introduction

The availability of online journals or electronic journals (e-journal) for students and lecturers were very helpful as a learning resource or reference in the study. Ease of access and the number of articles that can be downloaded are the reason for researchers to be able to obtain the latest reference. Recently, most libraries have been provided e-journal as a source of reference. Rusydi (2014) stated that the college library as a center of research have to be able to provide relevant sources of information / literature to support a researcher in his research. Journal is a serial publications literature to support researches. E-journal can be applied to enrich the library literature, especially the electronic library (e-library) and educational facilities (e-education).

Department of Economic Education Faculty of Economics Semarang State University (Unnes) manages two journals; there are: Journal of Economic Education Dynamics (JPEDP) and Economic Education Analysis Journal (EEAJ). JPEDP is referred to publish scientific papers written by professors, teachers, practitioners, and the public who are interested in the field of economic education. While EEAJ is used to publish students' scientific papers as their final project. EEAJ is created as a response to the provisions of the Ministry of Education and Culture in 2012 requiring. Ministry of Education and Culture has mandate regarding publication for students who will graduate. Both journals that are managed by the Department of Economic Education is in the same situation with other departments in the Faculty of Economics.

Table 1 below describes the number of visits and e-journal citations in the Faculty of Economics Unnes. The number of visits illustrates how many or how often the journal is seen by the user. While the number of citations shows how many authors or researchers who use the articles published as their research reference. Table 1 describes two important phenomenon. First, the number of visitors from Indonesia to the EEAJ is 47.152 visitors, place the EEAJ as the least visited journal. This number is contradict with the visitors of Accounting Analysis Journal, which reached 151.136 visitors. Second, the citations number of the two journals managed by Department of Economic Education FE Unnes is not as much as another journals run by other majors. EEAJ only cited in 62 times while JPEDP only cited in 68 times. It is very ironic because the number of students write their final project in Department of Economics Education is more than those in other department in the Faculty of Economics.

Table 1: Number of Visits and Citations of E-Journal in the Faculty of Economics Unnes

No.	Journal Description	Number of Visits		Number of Citations
		Indonesia	Abroad	
1.	Accounting Analysis Journal	151.136	10.460	255
2.	Management Analysis Journal	56.898	3.825	109
3.	Economics Development Analysis Journal	50.614	5.982	95
4.	Economic Education Analysis Journal	47.152	5.251	62
5.	Jurnal Dinamika Manajemen	61.528	5.669	280
6.	Jurnal Dinamika Akuntansi	74.641	6.405	160

7.	JEJAK: Jurnal Ekonomi dan Kebijakan	11.386	1.421	64
8.	Jurnal Dinamika Pendidikan	31.382	3.377	68

Source: journal.unnes.ac.id and scholar.google.com/semarangstateuniversity (accessed on 15 April 2016)

The table 1 above shows information on the use of e-journal that is managed by the Department of Economic Education FE Unnes. There was small number of professors and students who search and download the available articles. This phenomenon drew attention to find out more about the factors that affect students in the use of e-journals. Many theories can be used to understand this phenomenon as described by Rahman et al. (2011), they are: *Theory of Reasoned Action (TRA)*, *Technology Acceptance Model (TAM)*, *Motivation Model (MM)*, and *Theory of Planned Behaviour (TPB)* and *Unified Theory of Acceptance and Use of Technology (UTAUT)*. UTAUT the latest theories and considered to be more precise in predicting and explain the intentions of system utilization. Moreover, Silinskyte (2014) added the theory, such as *CTAM-TPB*, *Model of PC utilization (MPCU)*, *Innovation Diffusion Theory (IDT)*, and *Social Cognitive Theory (SCT)*.

In the perspective of TAM, the results of a study conducted by Kardoyo et al. (2015) showed that the intention of m-learning use for Economic Education FE Unnes students was very great. Two primary variables (perceived usefulness and perceived ease to use) has a positive influence on attitude toward using and behavioral intention to use m-learning. Furthermore, the external variables (perceived mobility value, perceived social interaction value and prior experience) was proved a positive influence on perceived usefulness. In addition, the variable of enjoyment perceived also gave positive effect on the variables of perceived to use and attitude toward using m-learning. While Nusantari et al (2013) proved that the biggest factor in influencing the intention of utilizing electronic journals for postgraduate students in IPB (intention to use) is ease of use and quality of information, systems interface and the ability computer.

This paper uses Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the determinants factors in the utilization of e-journal. Some researchers have proved this theory, as Rahman et al. (2011), Akbar (2013), Ayele and Sreenivasarao (2013), and Silinskyte (2014). Rahman et al. (2011) proved that performance expectancy, effort expectancy and information quality have positive effect on the intentions of digital library utilization, while the service quality has negative impact. The variables of age and sex have not proved as moderating variables, while experience has proved significantly.

Akbar (2013) found a positive relationship on performance expectancy, effort expectancy, facilitating conditions and attitude towards using technology to technology acceptance. And the moderating variables (age, gender, experience, willingness to use) had been proved to have a positive effect. Ayele and Sreenivasarao (2013) found evidence that all the variables affect the use of e-library. The similar result was also found by Silinskyte (2014). Silinskyte found that the factors influence the behavioral intention is performance expectancy and effort expectancy and the factors affecting actual usage is facilitating condition and behavioral intention. Nevertheless, the findings are not overly support the original concept of UTAUT.

II. Literature Review

2.1 Concept of A Unified Theory of Acceptance and Use of Technology

There are models or theories to predict the intentions of technology utilization. UTAUT model is the latest model found by Venkatesh et al. (2003) and this model is considered as the most appropriate model. UTAUT suggests that four core constructs are direct determinants of technology acceptance (behavioral intention) and use (behavior): Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. The theory also suggests that the effect of these four constructs is moderated by four other variables: age, gender, experience and voluntariness of use. Venkatesh et al., (2003) showed that UTAUT explains 70% of the variation in usage intention (acceptance) of technology which is greater than each of the eight previous models and their extensions. This model is described in the following figure:

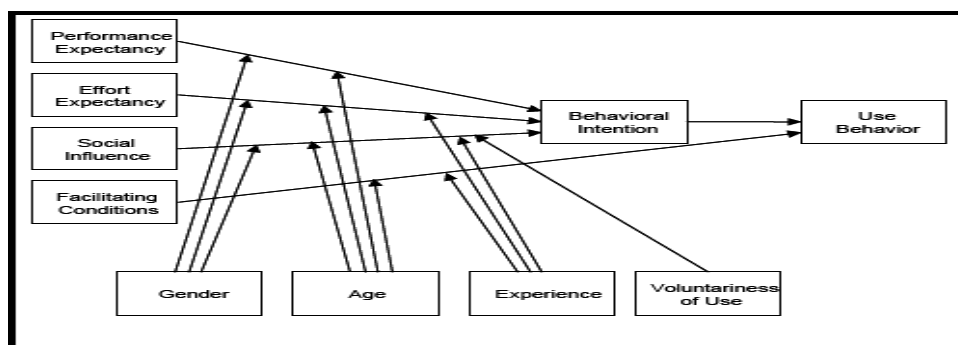


Figure 1 Unified Theory Of Acceptance And Use Of Technology (UTAUT)

(Source: Venkatesh et al., 2003)

Akbar (2013:3) stated UTAUT has been tested in several cultures and organizational contexts. Research on cross-cultural validation of UTAUT includes a study on employees' acceptance and use of computers, educational technology acceptance, MP3 player and internet banking, among others. Mixed support for the original UTAUT theory was found when UTAUT was applied in other cultural contexts which led some researchers to argue that UTAUT should be extended to include cultural constructs alongside the current constructs. Besides being tested in several cultures, UTAUT has also been tested in several organizational contexts including healthcare organizations, business organizations, government organizations, and Educational institutions.

2.2 Utilization of E-journal

The first concept of the electronic journal is as an electronic version of the printed journal, however e-journal evolved as stated by Quinn (1999) that the term electronic journal refers to the exclusively electronic publication. That is internet-based journal without any form of printed journal. Meanwhile, Prytherch (2000) in Harrod's Librarians' Glossary and Reference Book defines electronic journal as the journal in which all aspects (preparation, review, publication and dissemination) is conducted electronically (Andriaty, 2005: 26). Rusydi (2014: 205) mentioned some benefits of e-journal, they are: stimulate interest in reading; easy access and wide publicity; improve competitiveness, quality, creativity, science and the knowledge of researchers/authors; proving the quality and credibility of the issuing institution that eventually became a media promotion, and improve the ranking of the universities.

This study uses UTAUT models to predict the factors that influence the intention of e-journal using in the Faculty of Economics Unnes. It is based on the phenomenon that there is least citation and visit to the e-journal that is managed by the Department of Economic Education FE Unnes. UTAUT models proposed by Venkatesh et al. (2003) is a new model and is considered as the most appropriate model to predict. This model incorporates various constructs and variables in the previous models. Some intention to accept and use a technology is not merely influenced by the convenience and usefulness of these technologies. However, it is also influenced by other factors, such as environment or availability (presence) supporting facilities to be able to use the technology properly.

Students' intention to use e-journal is affected by the belief that the e-journal is very helpful. In the study of UTAUT, it is called performance expectancy. The greater the belief the greater the intention in the use of e-journal. Ease of access to the e-journal is the next determinant factor. Students will not utilize the e-journal if the existing article is not easily accessible and downloadable (effort expectancy). In addition, environmental factors and the availability of existing facilities to support the use of e-journal is also a very influential factor (social influence and facilitating conditions). Other factors such as age and gender is strengthen or weaken factors. Furthermore, male students tend to have better technology ability. Likewise, younger students tend to have more willing in utilizing the technology.

This research frameworks described in Figure 2 below.

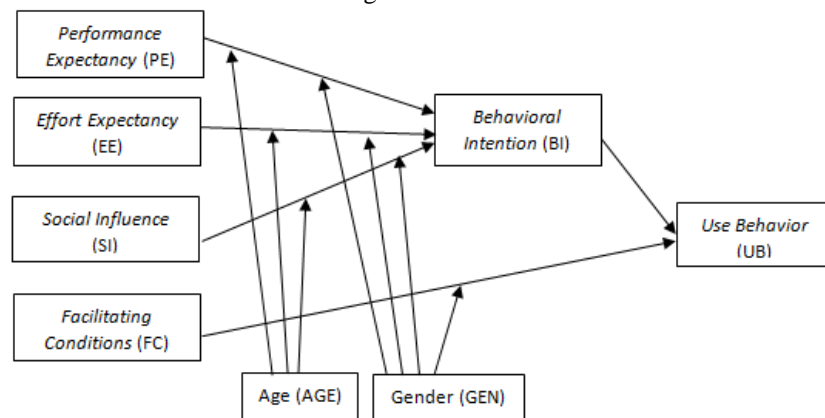


Figure 2. Research Framework

While, the research hypothesis presented are as follows:

- H1 : Performance Expectancy has positive and significant impact on the Behavioral Intention to Use e-journal
- H2 : Effort Expectancy influences positively and significantly to the Behavioral Intention to Use e-Journal.
- H3 : Social Influence has positive and significant effect to the Behavioral Intention to Use e-journal.
- H4 : Facilitating Condition has positive impact on the Use Behavior
- H5 : Behavioral Intention to Use e-journal has positive impact on the Use Behavior.

H6, H7, H8

: Age moderate the influence of Performance Expectancy, Effort Expectancy, and Social Influence to the Behavioral Intention to Use e-journal.

H9, H10, H11

: Gender moderate the impact of Performance Expectancy, Effort Expectancy, and Social Influence on the Behavioral Intention to Use e-journal.

H12 : Gender moderate the effect of Facilitating Condition to the Use Behavior of e-journal.

III. Method

3.1 Research Design

Quantitative research design is used to explain the factors that affect the acceptance and the utilization of e-journal in the perspective of Unified Theory of Acceptance and Use of Technology(UTAUT).

3.2 Population and Research Sample

The population in this study is students from the Department of Economic Education Faculty of Economics, Semarang State University year 2012. Purposive sampling method is used to determine the sample. The sample criteria is students who are completing their final project and has embarked on a comprehensive examination and use more e-journal.

3.3 Research Operational Variable Definition

Based on the theory of UTAUT and the questionnaire developed by Akbar (2013), the definition of research operational variables are as follows;

No.	Construct	Definition	Measurement
1.	Performance Expectancy (PE)	the degree to which an individual believes that using a system will help him or her to attain gains in job performance.	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 4 items
2.	Effort Expectancy (EE)	the degree of ease associated with the use of the system.	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 4 items
3.	Social Influence (SI)	The degree to which an individual perceives that important others believe he or she should use the new system	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 4 items
4.	Facilitating Conditions (FC)	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 4 items
5.	Behavioural Intention (BI)	The strenght of e-journal users' intensity to use e-journal for obtaining digital information resource for his/her tudy/research.	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 3 items
6.	Use Behaviour (UB)	Actual use by e-journal users	measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with 2 items
7.	Age (AG)	relates to the age of the particular users which is measured by years	Measured by age of student
8.	Gender (GEN)	relates to sexual categories of the digital library users which is either male or female	Measured by gender of student

3.4 Data Collection and Analysis Methods

The data collection method used was a questionnaire which refers to the research conducted by Akbar (2013). While descriptive analysis and path analysis are used to explain the factors that influence the use of e-journal.

IV. Result

4.1 Descriptive Statistics

This study was conducted with a sample of Economic Education FE Unnes students who have completed a thesis proposal and following a comprehensive examination. The instruments are deployed as many as 132. The instruments are returned and ready to be processed as many as 102. So it is a response rate of 77%. Based on the calculation, descriptive statistics of research variables shown in Figure 3 below.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PE	102	8	27	19.72	3.668
EE	102	6	24	17.35	3.581
SI	102	6	26	18.28	3.641
FC	102	8	24	17.31	3.430
BI	102	3	18	12.17	3.447
AU	102	4	14	9.42	2.487
GEN	102	0	1	.12	.324
AGE	102	20	23	21.55	.556
Valid N (listwise)	102				

Figure 3 Descriptive Statistics

4.2 Results of Hypothesis Testing

Results of testing the hypothesis by using SPSS tool shown in Figure 4 and Figure 5. Figure 4 shows the test results first model with BI as the dependent variable and PE, EE, and SI as independent variables. It can be seen that the sig value of PE is 0.31 and SI is 0,000 that less than 0.05. Sig value of EE is 0.630 and more than and 0.05. Thus, it can be stated that the H1 and H3 can be received while H2 is unacceptable. Therefore, PE and SI proved positive and significant impact on BI. There is no evidence that EE positively and significantly related to BI. The magnitude of these three variables contribute to the BI was 37.8%.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.227	1.624		-.139	.889
	PE	.214	.098	.228	2.186	.031
	EE	.051	.105	.053	.484	.630
	SI	.398	.110	.421	3.607	.000

a. Dependent Variable: BI

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.630 ^a	.397	.378	2.718

a. Predictors: (Constant), SI, PE, EE

Figure 4 Results Hypothesis Testing 1, 2, and 3

Figure 5 shows that the sig value of BI and FC are 0,023 and 0,003, or less than 0.05. Thus, H4 and H5 can be accepted. It means that FC and BI proved positive and significant impact on the AU.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.756	1.068		2.581	.011
	BI	.188	.081	.260	2.310	.023
	FC	.253	.082	.349	3.093	.003

a. Dependent Variable: AU

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.558 ^a	.312	.298	2.084

a. Predictors: (Constant), FC, BI

Figure 5 Results of Testing Hypotheses 4 and 5

The test results of AGE and GEN as moderating variables shown in Table 2. It show that sig value greater than 0.05. So, H6 up to H12 are unacceptable. That is, the variable AGE and GEN are not proven significantly as a moderating variable.

Table 2 Testing Hypotheses AGE and GENDER as a moderating variable

Hipotesis	Description	t value	Sig	Conclusion
H6	AGE*PE => BI	-1,106	0,271	Rejected
H7	AGE*EE => BI	-0,711	0,479	Rejected
H8	AGE*SI => BI	-1,382	0,170	Rejected
H9	GEN*PE => BI	-0,033	0,974	Rejected
H10	GEN*EE => BI	0,628	0,532	Rejected
H11	GEN*SI => BI	-0,932	0,353	Rejected
H12	GEN*FC => AU	-0,694	0,489	Rejected

V. Discussion

The results showed that PE and SI proved positive and significant influence on BI. The results are consistent with the findings of Rahman et al. (2011), Akbar (2013), dan Silinskyte (2014). Rahman et al. (2011) have proven that performance expectancy was significantly and positively related to intention to use digital library. Specifically, the result implied students who acknowledged the advantages and benefits of digital library would be more intention to use digital library. Performance expectancy is the best single predictor of intention to use digital library. Akbar (2013) had proven than performance expectancy, effort expectancy, facilitating conditions and attitude towards using technology were significant determinants of technology acceptance.

Silinskyte (2014) stated that in line with Venkatesh et al. (2003) suggestion, this research confirms that performance expectancy (PE) has a significant positive effect on behavioural intention (BI) to use Bitcoin. But, social influence (SI) is not influencing behaviour intention (BI) to use Bitcoin. Lewis et al. (2013) found that in the context of instructors' use of technology, the most important antecedents are performance expectancy, effort expectancy, social influence, and habit with more complex effects when gender is added as an interaction term.

Meanwhile, EE did not prove positive and significant influence on BI. This research support Silinskyte (2014) that effort expectancy (EE) affects behavioural intention (BI) as well. This contrasts with research that has been done by Rahman et al. (2011) dan Akbar (2013). The study of Rahman et al. (2011) has proven that effort expectancy is significantly and positively related to intention to use digital library. This implies that students who perceived highly on the ease of use of digital library would have high intention to use digital library. Akbar (2013) also has proven that effort expectancy partially had a significant influence on behavioral intention to use technology.

The results also show that FC and BI proved positive and significant influence on the AU. The result support Silinskyte (2014) that facilitating conditions (FC) have a positive effect on actual Bitcoin usage (USE) and behaviour intention (BI) affects actual usage as per UTAUT model. These findings point out the significant role of facilitating conditions and behavioural intention, which means that successful actual usage of Bitcoin rely on friendliness of the Bitcoin community, possibilities for easy learning, as well as compatibility with existing technologies and living conditions.

The presence of AGE and GEN as a moderating variable was not proven to be significantly in this study. So it does not support the UTAUT model. Silinskyte (2014) also did not succeed to prove it. He concluded that it is clear, that from the proposed structure model for the acceptance of Bitcoin both control variables age and gender have no moderating effect on any of the relationships between the four core dimensions: performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention to use Bitcoin or actual use of Bitcoin. Lewis et al. (2013) found specifically indicated that the relationship between performance expectancy and effort expectancy on intention to use classroom IT was stronger for males, while the relationship between social influence and usage was stronger for females.

It is presumed due to the characteristics of the samples obtained. The age composition of the study sample only the range of 20 and 23 years of age. That is, the sample has a comparatively homogenous. So it can not be used to predict the outcome as a moderating variable. Meanwhile, the gender variable was allegedly not proven due to the current use of technology is not affected by gender. Students men and women have the same ability in using technology (e-journal).

VI. Conclusion

We conclude that performance expectancy and social influence positive and significantly influence to intention to use e-journal. But, there is no significant relation effort expectancy on intention to use e-journal. We also found that facilitating condition and behavioural intention had a positive and significant relation to actual use. Beside that, there is no determinant of age and gender as moderating variabel in the UTAUT perspective.

References

- [1] Akbar, F. 2013. What affects students' acceptance and use of technology? A test of UTAUT in the context of a higher-education institution in Qatar. Tesis. Information Systems, Dietrich College, Carnegie Mellon University.
- [2] Ayele, A. A., and V. Sreenivasarao. 2013. A Case Study of Acceptance and Use of Electronic Library Services in Universities Based on SO-UTAUT Model. *International Journal of Innovative Research in Computer and Communication Engineering*. 1 (4): 903-911.
- [3] Andriaty, E. 2005. Pemanfaatan Jurnal Elektronik Dan Kemutakhiran Informasi Yang Disitir Dalam Publikasi Primer. *Jurnal Perpustakaan Pertanian*. 14 (2): 25-31.
- [4] Kardoyo, A. Nurkhin, dan S. Arief. 2015. The Determinant Of Student's Intention To Use Mobile Learning. *PEOPLE: International Journal of Social Sciences*. Special Issue, 2015:102-117.
- [5] Lewis, C. C., C. E. Fretwell, J. Ryan & J. B. Parham. 2013. Faculty Use of Established and Emerging Technologies in Higher Education: A Unified Theory of Acceptance and Use of Technology Perspective. *International Journal of Higher Education*. 2 (2): 22-34.
- [6] Nusantari, D. D., A.R. Saleh, dan Yusalina. 2013. Analisis Pemanfaatan Jurnal Online Sciencedirect Di Perpustakaan IPB (Studi Kasus pada Mahasiswa Pascasarjana IPB). *Jurnal VISI PUSTAKA*. 15 (2): 89-95.
- [7] Rahman, A.L.A., A. Jamaludin and Z. Mahmud. 2011. Intention to Use Digital Library based on Modified UTAUT Model: Perspectives of Malaysian Postgraduate Students. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*. 5 (3): 270-276.
- [8] Rusydi, I. 2014. Pemanfaatan E-Journal Sebagai Media Informasi Digital. *Jurnal Iqra'*. 08 (02): 200-210.
- [9] Silinskyte, J. 2014. Understanding Bitcoin adoption: Unified Theory of Acceptance and Use of Technology (UTAUT) Application. Master's Thesis. Leiden Institute of Advanced Computer Science (LIACS), Leiden University, Netherlands.
- [10] Venkatesh, V., M. G. Morris, G. B. Davis, and F. D. Davis. 2003. User Acceptance Of Information Technology: Toward A Unified View. *MIS Quarterly*. 27 (3): 425-478.