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# Analysis of User Behavior and Satisfaction for the Use of Academic Information System on Universities in Makassar

**Valentino Aris**
Ph.DCandidate,Graduate School of Economics
Hasanuddin University, Makassar
South Sulawesi, Indonesia

**Haris Maupa**
Professor of Economics,Graduate School of Economics
Hasanuddin University, Makassar
South Sulawesi, Indonesia

**Yansor Djaya**
Ph.D of Economics,Graduate School of Economics
Hasanuddin University, Makassar
South Sulawesi, Indonesia

**Idayanti Nursyamsi**
Professor of Economics,Graduate School of Economics
Hasanuddin University, Makassar
South Sulawesi, Indonesia

**Abstract – The problem described in this research was to identify which factor influenced user behavioral intentional for the use of academic information system in universities in Makassar city, Indonesia. The objective to identify factors by proposing a Technology Acceptance Model (TAM), Theory Of Planned Behavior (TPB) and Costumer Perceived Value of an Academic Information System. The research method used in this research was quantitative method. Survey method using questionnaire instrument will be used to obtain primary data. A total sample of 398 student and lecturer from 6 universities were retrieved for the analysis. The method of data analysis used was Generalized Structural Component Analysis (GSCA). This study found that perceived usefulness, perceived ease of use, information quality and availability of information technology resource had a significant effect on behavioral intention and perceived value. Perceived ease of useand behavioral intention had a significant effect on actual use of academic information system while perceived usefulness, information quality, availability of information technology and perceived value was not significant with actual use of academic information system. Finally this study found that actual use of academic information system had a significant effect on user satisfaction.**

**Index terms - generalized structural component analysis, perceived usefulness, perceived ease of use, information quality and availability of information technology resource, perceived value and behavioral intention**

## I. INTRODUCTION

Education as a process and industry doesn't escape from the development of information technology. University is an institution of education providers also affected by the development of information technology. Nugroho (2009) states that the use of information technology in universities canbe a strategy to face the competition. InfoDev (2010) also record that information technology can be used to improve the quality of education. Indrayani (2013) also find that information technology can provide value in the form of transparency, decentralization, integrative, democracy and independence in college. This findings provide empirical evidence of the important role of information technology in university.

Information technology opportunities for entry in university can be seen from the supply side and demand side. When viewed from the demand side, information technology has become an integral part of students' campus life. Real conditions at universities at this time, the majority of students in college are those born in the 1990's (Indrajit, 2014) where Tapscott (2010) explains that those

born in the 1990's is a collection of community "digital native" which is very close and already familiar with information technology. When viewed from the supply side, the readiness of information technology infrastructure in Indonesia shows a positive development. In the Global Information Technology Report (GITR) 2014, network readiness index for Indonesia is rated 64th and became the third best among ASEAN members after Singapore and Malaysia. This GITR report confirm superiority and readiness of Indonesia in the implementation of information technology throughout the industry and the education industry as well of course. By looking at the two sides, namely the supply side and the demand side, then of course university has a great opportunity to apply information technology and become superior because the use of information technology.

However, based on observations by the author (source: APJII, Google Indonesia, e-Marketer) showed that the use of information technology to support university in Indonesia is still lacking. The results of these observations indicate that the majority of information technology used in the commercial sector such as e-commerce, on-line shopping and banking services. The observation of the writer is also strengthened by the statement Soloway and Pryor (1996) and Collis &Winnips (2002) that the use of information technology in university shows the lack of influence and change compared to its use in other industries. Referring to the data TeSCA and Webometrics (2016) shows that the best universities with the best information technology in Indonesia only ranks 763. The data shows the weakness of the use of information technology in universities in Indonesia so that they lose compete with other universities in the world. Therefore, the use of information technology in universities should be a concern to improve the competitive ability of universities in Indonesia, both nationally and internationally.

In universities, information technology is generally used in the form of information systems. The information system is the combination of information technology and user activity in organization to support the operation and management. Wahid (2004) discloses the information system implementation process, one important factor that should be concerned is the human factor like behavior. Guimaraes&Igbaria (1997)states that the user behavioral factors provide an important role in the successful implementation of information systems. Jan & Contreras (2011) also says that the main problem in implementing an information system is user perception whereby if an information system is introduced regardless of the user's perception, it will cause the system information was rejected. Therefore, user behavior in the implementation of an information system will affect the final stage, whether the information system is successful, can receive and remain in use.

Based on the explanation, the authors are interested to study the factors that influence the adoption of information technology in universities by looking at the user behavior of acceptance information system. To get a picture of these factors, it will be used and outlined the theory and some previous research on the acceptance of information technology.

## II. LITERATURE REVIEW

### Consumer Behavior

Mowen & Minor (2002) define consumer behavior as the study of units in learning and exchange processes involving the acquisition, consumption, and disposal of goods, services, experiences, and ideas. Loudon and Bitta (1988) say that consumer behavior may be defined as the decision process and engage in physical activity when evaluating individuals, acquaring, using or disposing of goods and services. In theory of costumer behavior from Mowen& Minor (2002) explained that Belief (beliefs), attitude (attitude) and behavior intentional is the individual factor which influenced the formation of consumer behavior

### Theory Of Reasoned Action (TRA)

This theory was developed in 1967 by IcekAjzen and Martin Fishbein to predict and understand the behavior of a person. According to this theory, a person's behavior is determined by behavioral intention. Behavioral intention is a function of attitudes towards behavior and subjective norm. In summary, behavioral intention is a direct factor that determines a behavior. Attitude is positive or negative perception of someone which is the evaluation of results and perform a particular action. Subjective norm is a person's perception on whether to do or not do certain behaviors based on the views of others and motivation to do the views referent others

### Theory Of Planned Behavior (TPB)

This theory is the development of the Theory of Reasoned Action (Ajzen, 1991). This theory adds perceived behavioral control constructs that is used to calculate the conditions in which the individual has no control or resources required to perform a behavior. This construct also answered the limitations of TRA which assumes that individual behavior is under the control of the individual. In summary, individual behavior is not fully controlled by him, but is influenced by the presence or absence of pre-requisite resources (such as money, time, expertise, cooperation and others) as well as the opportunities identified.

This theory explains that the intentions are the best predictor of an individual's behavior. Therefore, it is assumed that the greatest behavioral intention of a person to perform certain behaviors may lead to the occurrence of these behaviors are also getting bigger. However, this theory is given where it is assumed that a person's behavioral intention, when combined with the perceived behavioral control will help predict behavior with greater accuracy than the previous model (TRA) (Ajzen, 1991)

**Perceived Usefulness**

Perceived Usefulnessintroduced by Davis, (1985) through the Technology Acceptance Model (TAM). In this model, perceived usefulness is one of the determinants of attitude that will affect the use of an information system or information technology. Perceived usefulness was developed with reference to the TRA, which in theory is mentioned that the attitudes that influence behavior and beliefs are formed from the results of the evaluation of the results of doing a particular action. Therefore, perceived usefulness in research Davis et al. (1989) is a form of beliefs that will determine behavioral intention. Some research provide empirical evidence about the influence of the perceived usefulness towards behavioral intention (Jan & Contreras, 2011; Mohammadi, 2015; Motaghian et al., 2013; Punnoose, 2012; Rampersad et al., 2012).

**Perceived Ease of Use**

In addition to perceived usefulness construct, perceived ease of use also encourage user to use an information system Davis, (1985).Same with the perception of usefulness, perceived ease of use is also based on the beliefs construct TRA initially hypothesized to relate directly to attitudes toward the use.Davis (1985) defines the perceived ease of use as the degree to which an individual believes that using a particular system would be free of physical and mental effort. In Davis et al. (1989) study to develop TAM find a significant and direct relation between perceived ease of use and behavioral intention. Some research and then provide empirical evidence about the influence of the perceived ease of use towards behavioral intention (Jan & Contreras, 2011; Mohammadi, 2015; Motaghian et al., 2013; Punnoose, 2012; Rampersad et al., 2012).

**Information Quality**

Implementation of a system mainly depends on the information (Wu and Wang, 2006). It can be said that the better the information that is generated by the system, then the system implementation success rate is also higher. Therefore, before implementing an information system, it should be noted that output or information generated by the system.Study DeLone& McLean (1992) provides a theoretical overview for influence of information quality on the use of an information system. The results show that the success of implementation information systems is influenced by the information quality, in this case is the information. Lin (2007), which examines an IS model success from DeLone and McLean showed that the information quality has a strong and significant influence on the behavioral intention for the use of information systems.Mohammadi (2015) which combines the IS Success and TAM also found a significant effect of information quality with behavioral intention to use e-learning systems in universities.The point is that if information quality generated by an information system is greater, thanuser will continue to use the system.

**Availability Of Information Technology Resource**

Indrajit (2014) described the theory of supply and demand aspects of information where there is a close relationship between information systems and information technology. The information system is the demand side of the organization, while information technology is the supply side of the organization's needs. In conclusion, the implementation of information system required availability of information technology to support the implementation of information systems. Lack of information technology will result in lower interest in the use of information technology by the user.Some studies show the importance of the availability of information technology resource on its use. Usluel (2008) found a positive relationship between the information technology facilities with the use of information technology.Some studyes also confirm the positive effect of the availability of Information Technology and the use of information systems (Barki, 1990; Culnan, 1984; Kraemer, Danziger, Dunkle, & King, 1993; Taylor & Todd, 1995a, 1995b).

The statements above in accordance with Theory of Planned Behavior (TPB) which state that the presence or absence of resources (such as money, time, expertise, cooperation and others) which is a prerequisite for the implementation of a behavior where the behavior is strongly influenced by the desirability of using (TRA). Therefore, in this study, the author tries to develop other constructs that would affect the interest of use to provide a better model to analyze and predict the use of information systems.

**Perceived Value**

Perceived value is a major determinant in the decision to buy and choose products and services. That statement shows the importance of creating value to customers so that they are always keen to create customer interest to make purchases of a service or product. Gardner & Levy (1955) supports this statement by saying that the value can provide a strong influence on behavior.Zeithaml (1988) defines perceived value as the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is givenvalueis a trade-off between giving and getting components. Components are "earned" (get) on the perceived value include the attributes intrinsic (e.g. what is user feel about the service) and attributes extrinsic (e.g., quality and usefulness of the service), whereas the components of the "consequences" (sacrifice) on the perceived value include monetary price and non-monetary price (e.g., time, energy, effort).

Several studies have provided empirical evidence about the effect of perceived value on behavior. Cronin et al. (2000) concluded that the perceived value directly affects behavior.Hsu & Chen (2007) also found that perceived value is the determining factor of behavior. Kim et al. (2007) again confirms the direct effect of perceived value on behavior. Thus, the higher perceived value of a service that user feel then the user's behavior will be formed to continue using the service.in addition to directly influence behavioral intention, some previous studies have also found the ability of perceived value as an intervening variable.Hsu and Chen (2007) conducted a study that examined the impact of perceived value in explaining behavior. The results of this study show that

perceived value have a direct influence to behavioral intention and this study also discover the ability of perceived value as an intervening variable for context variables (such as perceived usefulness, perceived ease of use, information quality, availability of information technology) and behavioral intention. That findings also confirmed by other researchers (Dai &Palvia, 2009; Kwon &Seo, 2013; Roostika, 2012).

**Behavioral Intention**

Fishbein&Ajzen(1975) in TRA explained that the behavioral intention is a direct factor that determines the actual behavior.Davis et al. (1989) use behavioran intention to explain and predict actual use of information systems. The results of this study indicate that the actual use of aninformationsystem is described by behavioral intention.Szajna (1996) conducted empirical tests on TAM and suggests that behavioral intention directly influence the actual usage of information systems. Taylor and Todd (1995a, 1995b) conducted a study that examined TAM and TPB then develop a model called Decomposed Theory of Planned Behavior (DTPB).In TAM, behavioral intention influence actual use of information technology in the amount of 52% and behavioral intention influence actual use of information technology in the amount of 57% in TPB model. In DTPB, behavioral intention influence actual use of information technology in the amount of 60%. This demonstrates the ability of behavioral intention in empirical evidence explaining and predicting the behavior of actual use of an information system.Some researchers then confirmed the relationship between these two constructs (Al-Debei et al., 2013; Jan & Contreras, 2011; Mohammadi, 2015; Motaghian et al., 2013; Rampersad et al., 2012).

**User Satisfaction**

The main goal of most organizations is to meet the needs and satisfaction of users. User satisfaction is an assessment of the extent of the needs, goals and desires of users have been fully met and their overall view of information systems. Petter et al. in (Mohammadi, 2015) mentions that user satisfaction refers to the extent to which users are very pleased with the information systems and support services are provided in the information system.

The theoretical basis of the relationship between the use of information systems and user satisfaction is described in information systems success model DeLone and McLean. Study DeLone& McLean (1992) explained that the success of the interaction between management and information systems can be the measurement of the satisfaction of users. This study explained that user satisfaction can be a measure of the success of the use of information systems. The study shows that the actual use of information systems significantly influence user satisfaction.Several studies have provided empirical evidence about the effect of the actual use of information systems against user satisfaction. Nadia &Pujani (2014) found that the actual use of information systems significantly influence user satisfaction. Similar to the findings, the study Cheok& Wong (2015) also found that user satisfaction is the output of actual use of information systems. Rouibah et al. (2009) also revealed that the actual use of information systems significantly influence user satisfaction.

## III. RESEARCH METHOD AND HYPOTHESIS

The population in this study were students and educators who use academic information systems at six universities, namely University of Hasanuddin (UNHAS), Makassar State University (UNM), Alauddin State Islamic University (UIN), Polytechnic of Makassar, the Indonesian Muslim University (UMI) and the University of Bosowa. Sample was taken from students and educators who use academic information systems through purposive sampling technique. The numbers of respondents were 398 respondents with using inclusion and exclusion criteria. The criteria for student respondents, are: (1) a student who is still active, (2) students who is second semester until last semester, and (3) students who have used the system of academic information at least one time usage. While the criteria for educators respondents, namely: (1) educators with civil servant status at public universities or lecturer who work in private universities, (2) educators with teaching experience at least 3 years, and (3) lecturer who has been using academic information system.

Questionnaires were distributed to students and educators in the form of a closed questionnaire, in which the enclosed questionnaire using a Likert scale of 1-5 where 1 indicates the level strongly disagree, 2 reveals the extent to disagree, 3 shows the level of hesitation, 4 shows the levels agreed were level 5 indicates strongly agree.There are 17 hypotheses of this study are as follows:

1.a. There is a significant and positive influence between perceived usefulness on behavioral intention to use academic information systems.
1.b. There is a significant and positive influence between perceived ease of use on behavioral intention to use academic information systems.
1.c. There is a significant and positive influence between information qualitieson behavioral intention to use academic information systems.
1.d. There is a significant and positive influence between availability of information technology resourceon behavioral intention to use academic information systems.
2.a. There is a significant and positive influence between perceived usefulness on perceived value in the use of academic information systems.

2.b. There is a significant and positive influence between perceived ease of use on perceived value in the use of academic information systems.
2.c. There is a significant and positive influence between information qualityon perceived value in the use of academic information systems.
2.d. There is a significant and positive influence between availability of information technology resource on perceived value in the use of academic information systems.
3.a. There is a significant and positive influence between perceived usefulness on actual use of academic information systems.
3.b. There is a significant and positive influence between perceived ease of use actual use of academic information systems.
3.c. There is a significant and positive influence between information qualityon actual use of academic information systems.
3.d. There is a significant and positive influence between availability of information technology resource on actual use of academic information systems.
3.e. There is a significant and positive influence between behavioral intentions on actual use of academic information systems.
3.f. There is a significant and positive influence between perceived values on actual use of academic information systems.
3.g. There is a significant and positive influence between perceived usefulness, perceived ease of use, information quality, and availability of information technologyon actual use of academic information systems mediated by behavioral intention.
3.g. There is a significant and positive influence between perceived usefulness, perceived ease of use, information quality, and availability of information technologyon actual use of academic information systems mediated by perceived value.
4.a. There is a significant and positive influence between actual uses of academic information systemson user satisfaction.

## IV. RESULT AND DISCUSSION

The characteristics of the respondents under surveyed in six universities in Makassar based on major, gender, universities, age, and study/work period were given at Table 1.

**Table 1. Characteristics of Respondents**

| No. | Characteristic | Category | Frekuensi | % |
|---|---|---|---|---|
| 1 | Major of the study | Eksakta | 208 | 52.26 |
| | | Non eksakta | 190 | 47.74 |
| | | **Total** | **398** | **100.00** |
| 2 | Gender | Male | 124 | 31.16 |
| | | Female | 274 | 68.84 |
| | | **Total** | **398** | **100.00** |
| **No.** | **Characteristic** | **Category** | **Frekuensi** | **%** |
| 3 | Universities | Unhas | 104 | 26.13 |
| | | UNM | 116 | 29.15 |
| | | UIN Alauddin Makassar | 97 | 24.37 |
| | | PNUP | 14 | 3.52 |
| | | UMI | 52 | 13.07 |
| | | UNIBOS | 15 | 3.77 |
| | | **Total** | **398** | **100.00** |
| 4 | Age | ≤ 20 tahun | 232 | 58.29 |
| | | 20 – 30 tahun | 142 | 35.68 |
| | | 31 – 40 tahun | 11 | 2.76 |
| | | 41 – 50 tahun | 11 | 2.76 |
| | | Diatas 50 tahun | 2 | 0.50 |
| | | **Total** | **398** | **100.00** |
| 5 | Study/work period | 2 Semester | 21 | 5.28 |
| | | 4 Semester | 132 | 33.17 |
| | | 6 Semester | 128 | 32.16 |
| | | 8 Semester | 74 | 18.59 |
| | | 10 Semester | 10 | 2.51 |
| | | 1 – 10 Tahun | 18 | 4.52 |
| | | 11 – 20 Tahun | 6 | 1.51 |
| | | 21 – 30 Tahun | 9 | 2.26 |
| | | **Total** | **398** | **100.00** |

| | | | | |
|---|---|---|---|---|
| 6 | Use IT hardware | Experience | 361 | 90.70 |
| | | Not Experience | 37 | 9.30 |
| | | **Total** | **398** | **100.00** |
| | Use IT software | Experience | 350 | 87.94 |
| | | Not Experience | 48 | 12.06 |
| | | **Total** | **398** | **100.00** |
| | IT courses / training / education | Experience | 137 | 34.42 |
| | | Not Experience | 261 | 65.58 |
| | | **Total** | **398** | **100.00** |

From the table above, it can be seen that respondent in this study largely derived from the exact sciences majors. That's explain why respondent in this study have experience in using information in technology. It also shows that the majority of respondents are those aged 20 years and under, with an average study period 4 semester. The majority of educators respondent have 1 to 10 years experience. Table 1 shows that most sample obtained from UNM, Unhas and UIN Alauddin.In terms of the model analysis using GSCA, the detail of the results can be seen at Table 2 and Figure 1 (attached).

**Table 2. Characteristics of Respondents**

| Model Fit | | Notes |
|---|---|---|
| **FIT** | 0.465 | |
| **AFIT** | 0.462 | |
| **GFI** | 0.988 | Good |
| **SRMR** | 0.074 | Good |
| **NPAR** | 103 | Good |

Based on the analysis GSCA, *Goodness-of-Fitmodel*, it can be described as follows:

1. Analysis results show that the FIT of 0.465 which means that the models created can explain all the variables are analyzed at 46.5%.
2. GFI and SRMR, both comparable to the difference between the sample covariance and covariance estimation parameters produced by GSCA. The results of the data analysis looks GFI value of 0.988 when cut off point ≥ 0.9, the models created can be said is appropriate or good. SRMR value of 0.074 indicates that the model is good or appropriate because included in the criteria a good fit (model appropriate) (Solimun, 2013).

In terms of the hypothesis testing, the results were shown at Table 3 below. In this Table, it can be seen both the directand indirect effects.

**Table 3. The Result of Hypotesis Testing**

| Type of Effect | Estimate | SE | CR | Ket. |
|---|---|---|---|---|
| (H1.a) Perceived Usefulness -->Behavioral Intention | 0.143 | 0.056 | 2.58* | Accepted |
| (H1.b) Perceived Easy of Use -->Behavioral Intention | 0.278 | 0.052 | 5.37* | Accepted |
| (H1.c) Information Quality -->Behavioral Intention | 0.183 | 0.060 | 3.06* | Accepted |
| (H1.d) Availibility of IT -->Behavioral Intention | 0.150 | 0.056 | 2.67* | Accepted |
| (H2.a) Perceived Usefulness -->Perceived Value | 0.162 | 0.050 | 3.24* | Accepted |
| (H2.b) Perceived Easy of Use -->Perceived Value | 0.211 | 0.049 | 4.3* | Accepted |
| (H2.c) Information Quality -->Perceived Value | 0.236 | 0.058 | 4.07* | Accepted |
| (H2.d) Availibility of IT -->Perceived Value | 0.204 | 0.057 | 3.57* | Accepted |
| (H3.a) **Perceived Usefulness -->Actual Use** | **0.040** | **0.058** | **0.7** | **Rejected** |
| (H3.b) Perceived Easy of Use -->Actual Use | 0.118 | 0.046 | 2.54* | Accepted |
| (H3.c) **Information Quality-->Actual Use** | **0.107** | **0.059** | **1.8** | **Rejected** |
| (H3.d) **Availibility of IT-->Actual Use** | **-0.059** | **0.058** | **1.01** | **Rejected** |
| (H3.e) Behavioral Intention -->Actual Use | 0.347 | 0.062 | 5.55* | Accepted |
| (H3.f) **Perceived Value -->Actual Use** | **-0.043** | **0.069** | **0.62** | **Rejected** |
| (H4) Actual Use -->User Satisfaction | 0.310 | 0.053 | 5.85* | Accepted |

| H | Independen Variabel | Intervening Variabel | Dependen Variabel | Indirect Effect | Total Effect | CR (Uji T) | Ket. |
|---|---|---|---|---|---|---|---|
| H3.g | P_Use (X1) | Beh_Int (Y1) | Act_Use (Y3) | 0.050 | 0.090 | 2.323 | Accepted |
| H3.g | P_Easy (X2) | Beh_Int (Y1) | Act_Use (Y3) | 0.096 | 0.214 | 3.866 | Accepted |
| H3.g | Inf_Qua(X3) | Beh_Int (Y1) | Act_Use (Y3) | 0.064 | 0.171 | 2.678 | Accepted |
| H3.g | Avai_TI (X4) | Beh_Int (Y1) | Act_Use (Y3) | 0.052 | 0.000 | 2.416 | Accepted |
| **H3.f** | **P_Use (X1)** | **P_Val (Y2)** | **Act_Use (Y3)** | **0.162** | **0.033** | **-0.611** | **Rejected** |
| **H3.f** | **P_Easy (X2)** | **P_Val (Y2)** | **Act_Use (Y3)** | **0.211** | **0.109** | **-0.616** | **Rejected** |
| **H3.f** | **Inf_Qua (X3)** | **P_Val (Y2)** | **Act_Use (Y3)** | **0.236** | **0.097** | **-0.616** | **Rejected** |
| **H3.f** | **Avai_TI (X4)** | **P_Val (Y2)** | **Act_Use (Y3)** | **0.204** | **-0.068** | **-0.613** | **Rejected** |

CR* = significant at .05 level

The above table describes the evaluation of loading factor in the structural model. From 17 hypotesis, it be seen that 12 hypotheses were accepted. In terms of the hypothesis H1a, this study found that this hypothesis was accepted with the coefficient value of 0.143. This means that the relationship was positive. This indicates that the increase in user perception about usefulness of the system will improve user behavioral intention. Thus there is no doubt to accept the truth that perceived usefulness have a significant influence on the user behavioral intention. Several empirical studyes have supported a positive relationship between perceived usefulness and behavioral intention.Legris, Ingham, & Collerette (2003) conduct a litelature review to see the effect of perceived usefulness to behavioral intention. This study found that from 28 article there are 16 article that show the influence of perceived usefulness to behavioral intention. Study Jan & Contreras (2011) found a significant and positive between perceived usefulness and behavioral intention. Recent study by Mohammadi (2015) show that perceived usefulness have a significant and positive to behavioral intention.

In terms of the hypothesis H1b, this study found that this hypothesis was accepted with the coefficient value of 0.278. This means that the relationship was positive. This indicates that the increase in user perception about easy of use the system will improve user behavioral intention. Thus there is no doubt to accept the truth that perceived easy of use have a significant influence on the user behavioral intention. Several empirical studyes have supported a positive relationship between perceived easy of use and behavioral intention. Legris, Ingham, & Collerette (2003) conduct a litelature review to see the effect of perceived usefulness to behavioral intention. This study found that from 28 article there is 10 article that show the influence of perceived easy of use to behavioral intention. Study Rampersad, Plewa, & Troshani (2012)found a significant and positive between perceived easy of use and behavioral intention. Recent study by Motaghian et al. (2013)show that perceived easy of use have a significant and positive to behavioral intention. This study differ from other study that find perceived easy of use is the best variable to explains behavioral intention.

In terms of the hypothesis H1c, this study found that this hypothesis was accepted with the coefficient value of 0.183. This means that the relationship was positive. This indicates that the increase in user perception about information quality will improve user behavioral intention. Thus there is no doubt to accept the truth that information quality have a significant influence on the user behavioral intention. Several empirical studyes have supported a positive relationship between information quality and behavioral intention. DeLone & McLean (1992,2003) provide a theoretical basis about the influence of information quality to behavioral intention. This study show that information quality have a significat effect on behavioral intention.Study from Qutaishat (2013) provide an empirical evidence that show information quality have a significant and positive effect on behavioral intention.A recent study by Mohammadi (2015) confirmed these findings by presenting a positive and significant influence between the quality of information to behavioral intention.

In terms of the hypothesis H1d, this study found that this hypothesis was accepted with the coefficient value of 0.150. This means that the relationship was positive. This indicates that the increase in user perception about the availability of information technology resourcewill improve user behavioral intention. Thus there is no doubt to accept the truth that availability of information technology resourcehave a significant influence on the user behavioral intention. Several empirical studyes have supported a positive relationship between availability of information technology resourceand behavioral intention. The theoretical basis of influence for availability of information technology and behavioral intention to use academic information systems using Theory of Planned Behavior (TPB). TPB stated that the presence or absence of resources (such as money, time, expertise, cooperation and other) also influences behavior. This study provide a emipirical evidence for that statement.

Hypotesis H2a, H2b,H2c, and H2d show factor that influence perceived value of academic information system user. This study provide that perceived usefulness, perceived easy of use, information quality and availability of information technology resourcehave a positive and significant effect on perceived value of academic information system user. That means H2a, H2b,H2c, and H2d is accepted. This findings in this study confirm value based adoption model (VAM) that perceived usefulness as a benefit factor from the use of information system and perceived easy of use as a sacrifice from the use of information system will effect to perceived value. This means that, more usefull and easy of information system when used will increase users perceived value, also on academic information system.Several empirical studyes have supported a positive relationship between perceived easy of use and actual use (Kim et al., 2007; Chu & Lu, 2007; Lin et al., 2010; Cheng et al., 2011; Roostika, 2012). Information qualities also find that it has a significant effect to perceived value. The theoretical basis for that influence based on theory of customer perceived value and value based adoption models. Referring to the theory, the quality of information can be categorized into a benefit that user gain from the use of information system. This study's findings confirm existing theories and provide empirical evidence of significant influence between

information qualities on perceived value.New findings from this research are significant influence between the availability of information technology resource on perceived value of academic information system user. This means, if universities provides information technology infrastructure in the implementation of academic information system then user will perceive the value from the use of academic information systems.

Hypotesis H3a, H3b,H3c,H3d,H3e and H3f show factor that influence actual use of academic information system. This study provide that perceived easy of use and behavioral intention have a positive and significant effect on actual use of academic information system. That means H3b and H3e is accepted while H3a, H3c,H3d and H3f is rejected. The findings in this study indicate that when the system is easy to use, the user will actually use academic information system.Several empirical studyes have supported a positive relationship between perceived easy of use and actual use (Rouibah et al, 2009; Rouibah & Hamdy 2009; Rouibah & Abbas, 2011). In addition, the findings of this study show that with increasing user behavioral intention then it will also increase the actual use of academic information systems.Several empirical studyes have supported a positive relationship between behavioral intention and actual use (Al-Debei et al., 2013; Jan & Contreras, 2011; Mohammadi, 2015; Motaghian et al., 2013; Rampersad et al., 2012).New findings from this research are not significant influence between the availability of information technology resource on actual use of academic information system. This means, information technology infrastructure available at the universities is still low so it can not support the use of information technology. The availability of infrastructure such as servers, generators, and a special room for access the information systems are deemed important to be provided by the universities.

## V. CONCLUDING REMARKS

Based on the analysis and discussion that has been described previously, it can be concluded as follows:

1. Perceived usefulness have a significant and positive impact on user behavioral intention to use academic information system. Thehigher perception about the usefulness of the academic information system, the higher on user behavioral intention to use academic informationsystem.
2. Perceived ease of use have a significant and positive effect on user behavioral intention to use academic information system. The higher the perceived ease of use on academic information system, the higher on user behavioral intention to use academic information system.
3. Information Quality has a significant and positive impact on user behavioral intention to use academic information system. The higher the quality of the information system of academic information system, the higher onuser behavioral intention to use academic information system.
4. Availability of information technology have a significant and positive impact on user behavioral intention to use academic information system. The higher the availability of information technology to support the use of academic information system, the higher on user behavioral intention to use academic information system.
5. Perceived usefulness have a significant and positive impact on perceived value. The higher perception about the usefulness of the academic information system, the higher on user perception about the value of academic information systems.
6. Perceived ease of use have a significant and positive impact on perceived value. The higheruser perception about ease of use of academic information system, the higher on user perception about the value of academic information systems.
7. Information quality have a significant and positive impact on perceived value. The higher the information quality as an output from academic information system, the higher on user perception about the value of academic information systems.
8. The availability of information technology have a significant and positive impact on perceived value by the user.The higher the availability of information technology to support the use of academic information system, the higher on user perception about the value of academic information systems.
9. Perceived usefulness is not significant effect on actual use of academic information systems. Although user perception about the usefulness of academic information system increases but not followed by the actual use of academic information system.
10. Perceived ease of use have a significant and positive impact on the actual use of academic information systems. More higheruser perception about ease of use of academic information system then user will directly use the academic information systems.
11. Information quality is not significant on actual use of academic information systems. Although the quality of information as the output of academic information systems increases but not followed by the actual use of academic information system.
12. The availability of information technology is not significant on actual use of academic information systems. The increase of availability of information technology to support the use of information systems is not followed by the actual use of academic information systems.
13. User behavioral intentions have a significant and positive impact on actual use of academic information systems. The higher the user behavioral intention to use academic information system, the higher on actual use of academic information systems.
14. Perceived value is not significant on actual use of academic information systems. The Increased of user perception about the value from using academic information systems is not followed by the actual use of academic information systems.
15. Actual uses of academic information system have a significant and positive impact on user satisfaction. The increase in actual use of academic information system in universities will be followed with the user satisfaction of academic information systems.

Based on those findings, universities need to maintain toward variables that were found to be significant and make an improvements to the factors which effect in not significant. This improvement is a must to be undertaken by the universities in order to optimize the use of academic information system.

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## ATTACHMENT

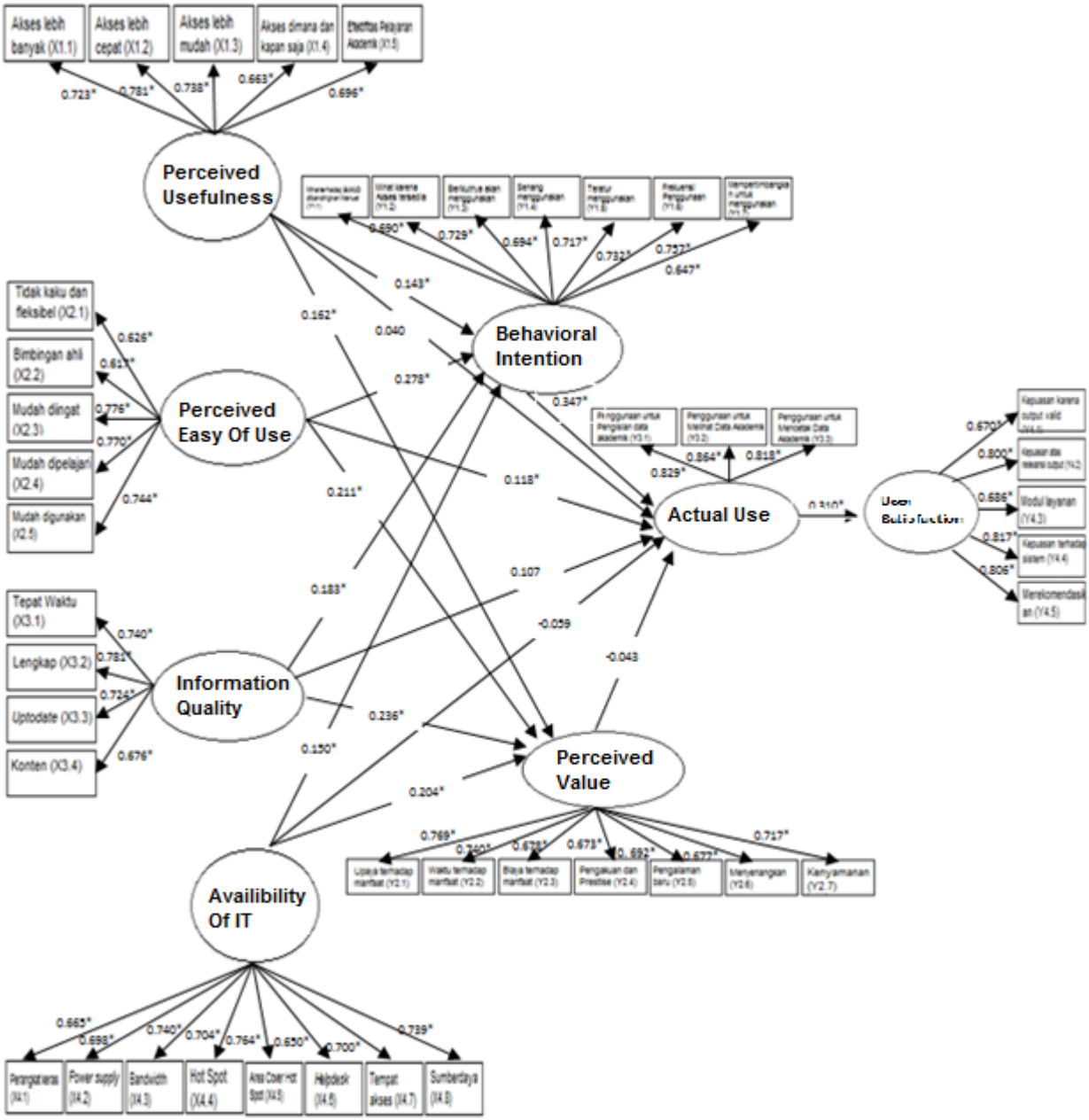


**Figure 1. Coefficient Diagram and Hypothesis Testing**

**Note: X1 = Perceived Usefulness, X2= Perceived Easy of Use, X3 = Information Quality, X4 = Availability Of Information Technology Resource, Y1 = Behavior Intention, Y2 = Perceived Value, Y3 = Actual Use, Y4 = User Satisfaction**

**Table 4. Variable and Indicator**

| No | Variabel | Indicator |
|---|---|---|
| 1 | Perceived Usefulness (X1) | 1. Access more information<br>2. Faster access for information<br>3. Easier access for information<br>4. Access anytime and anywhere for information<br>5. The effectiveness of academic services |
| 2 | Perceived Easy of Use (X2) | 1. Do not rigid and flexible when use<br>2. No need for expert guidance<br>3. Easy to remember how to use<br>4. Easy to learn how to use<br>5. Easy to use |
| 3 | Information Quality (X3) | 1. Timely<br>2. Completeness<br>3. Uptodate<br>4. Content |
| 4 | Availability Of Information Technology Resource (X4) | 1. Hardware<br>2. *Power supply*<br>3. Bandwidth<br>4. Hot Spot<br>5. Hot SpotCover Area<br>6. *Helpdesk*<br>7. Place for access<br>8. Other resource |
| 5 | Perceived Value (Y2) | 1. Effort to benefit<br>2. Time to benefit<br>3. Cost to benefit<br>4. Recognition and Prestige<br>5. New Experince<br>6. Fun<br>7. Convenience |
| 6 | Behavioral Intention (Y1) | 1. Intention to use better than manual ways<br>2. Intention to use because access provide<br>3. Next time will be using<br>4. Glad to use<br>5. Regularly use<br>6. Frequency of use<br>7. Consider to use. |
| 7 | Actual Use (Y3) | 1. Use to input academic data<br>2. Use to seeing academic data<br>3. Use to print academic data |
| 8 | User Satisfaction (Y4) | 1. Satisfied because the output is valid<br>2. Satisfied because output relevance<br>3. Satisfied because the service module<br>4. Satisfied with the system<br>5. Would recommend to use system |