Dinamika Pendidikan 12 (1) (2017) 2-027

Dinamika Pendidikan

http://journal.unnes.ac.id/nju/index.php/dp

Analysis of Technology Acceptance Model in Understanding of Students Behavior Intention in Use of Sikadu

Ratieh Widhiastuti[1]✉ Arief Yulianto[2]

DOI: 10.15294/dp.v12i1.10583

[1]Department of Economy Education, Faculty of Economics, Universitas Negeri Semarang, Indonesia
[2]Department of Management, Faculty of Economics, Universitas Negeri Semarang, Indonesia

History Article

Received 8 April 2017
Approved 3 May 2017
Published 17 June 2017

Keywords

Ease; Usefulness; Interest; and Use of Sikadu

Abstract

The research aims to know the perception of students of ease use of Sikadu, the perception of students of usefulness use of Sikadu, and the impact of students' perception of ease and usefulness of Sikadu. The approach of this research used quantitative research with descriptive analysis. Sample was students of Faculty of Economics, class of 2015 and 2016. The results of research indicates that students' perception of the menu and display existing is easy to use in lecture activities up to the utilization of obtaining learning result information; students' perception of the menu and display existing in Sikadu is very useful in lecturing activities up to the utilization of learning result information; the ease and usefulness in Sikadu encourages the students to use it although it is still rare used when it is seen from the frequency of using. Students mostly use it at the beginning and end of the semester; and the skill to operate computers. The need and demand to use Sikadu in academic administration becomes the main factors that encourage students to use Sikadu.

How to Cite

Widhiastuti, R. & Yulianto, A. (2017). Analysis of Technology Acceptance Model in Understanding of Students Behavior Intention in Use of Sikadu. *Dinamika Pendidikan*, 12(1), 2-027.

✉ Correspondence Author:
Jl. Sekaran Raya, Sekaran, Gn. Pati, Kota Semarang, Jawa Tengah 50229
E-mail: ratieh.widhiastuti@mail.unnes.ac.id

p-ISSN 1907-3720
e-ISSN 2502-5074

INTRODUCTION

The development of tekonologi globally increases very significantly both in the field of business and education. Nurdianti (2016) stated that the increasing role of information in various life and technology activities and the access to sources and information networks become increasingly important for anyone. The Internet has become one of the most important needs in human life. Nugrahini (2016) mentioned that along with the increasing role of information in various activities of life and technology and the access to sources and information network becomes increasingly important for anyone. The Internet is one part of information and communication technology that is a rapidly growing information network and can be said to be the largest information network in the world today. Various systems are developed to facilitate any access to information.

Semarang State University is one of the State Universities in Semarang that always create various systems to support the vision and mission of the University. To evaluate system acceptance by users requires an evaluation device. Davis (1989) developed the Technology Acceptance Model (TAM) to understand the behavior of technology acceptance. This theory reveals a link among belief, attitude, and behavior. This theory was initiated by Fishbein and Ajzen (1980) under the name of Theory of Reasoned Action (TRA) and then Ajzen (1991) developed TPB theory (Theory of Planned Behavior) that adds the unexisting constructs in the TRA that is perceived behavioral control. This construct is added as an effort to understand the limitations of the individual in order to perform certain behaviors.

Davis (1989) developed the theory of TAM by modifying TRA to understand the behavior of using IT. TAM is started with a perception of usefulness and ease of use of IT. The TAM model is one of the most widely used models for information technology research, because it is simple and easy to apply. The purpose of TAM is to explain the external factors of user behavior of information technology on the acceptance of the use of information technology itself. TAM describes the acceptance of information technology with certain dimensions that may affect whether the information technology is accepted or not by the user. Empirically TAM has been proven to provide an overview on the behavioral aspects of PC users, where many PC users can easily accept an information technology because it is in accordance with what it desires.

The TAM theory shows that the desire of individual behavior to use a system is determined by two beliefs those are: (a) Perceived usefulness, in which one feels confident that using the system will improve the performance of his work. The measurement of this usefulness is based on the frequency of use and the diversity of applications that run. Someone will use IT if knowing the positive usefulness of using the information technology, and (b) Perceived ease of use, in which one feels confident that using the system is free of efforts. Davis (1989) defined usefulness as a level in which a person believes that the use of a particular subject will improve the person's performance / achievement. Benchmark of usefulness is based on the frequency of use and diversification of applications used. Someone will use the information technology system if knowing the positive usefulness of the use of information technology.

The usefulness of the use of information technology can be known from the confidence of information technology users in deciding the acceptance of information technology, which believes that the use of information technology can contribute positively to its users (Nasution, 2004). Previous researches have shown that if someone perceives the usefulness of the information technology, he will have a desire to use the information technology. Undari (2016) stated that the customer's satisfaction is a feeling of disappointment or pleasure, which is a customer's response to the goods or services consumed, which at the time before using the customer has expectations that will cause perceptions of the performance of the product. Satisfaction will be achieved if the performance of the product meets or exceeds the customer's expectations.

A research by Klopping and McKinney (2004) found that someone's desire to use a system is influenced by perceived usefulness, in which he feels the usefulness of the system used then he is willing to use the system. Other researches have found a positive relationship between perceived usefulness and intention to use a system (Malhotra and Galletta, 1999; Saade, Nebebe and Tan, 2007; Lucyanda, 2007). Ease of use is a level where one believes that a system is used because the system is easy to understand and use, so it does not require any effort (free of effort) (Davis, 1989). Ease of use will reduce someone's efforts in studying computers (Nasution, 2004). The ease is shown from someone who works by using information technology more easily than people who work without using information technology (manual). The more frequently used system shows that it is better known, easier to operate, and easier to use by the user (Nasution,

2004). Davis (1989) describes the indicators of ease of use of information technology as follows: a) the computer is very easy to learn, the computer does easily what the user wants, c) the user's skills will increase by using the computer, and d) the computer is very easy to operate.

Previous researches have shown that if someone feels the ease of the information technology, he will have desire to use it (Davis 1989, Igbaria 1994, Adam et al., 1992; Malhotra and Galletta, 1999; Tangke, 2004; Klopping and McKinney, 2004; Saade, Nebebe, and Tan 2007; Lucyanda, 2007). Some researches that have been done in the introductory period have tested TAM more in various technology related activities, for example in the use of word processor (Davis, et al., 1989). In this research, Davis et al. reported that the perceptions of ease of using the system affect the perceptions of usefulness of computers in performing daily tasks. Both the perception of usefulness and the perception of ease of using the computer determine the attitude towards the use of computers in performing daily tasks while this attitude determines the intention and then the behavior of using a computer. Similar results were also reported by Sjana (1994) who investigated the predictive validity of TAM. Using 47 samples of MBA students, Sjana reported that the perception of IT usefulness and the perception of ease of using IT can be used to predict the future behavior of the IT users

Other researches on TAM are as follows: Morris and Dillon (1997) who conducted research on web browser users, websites (Koufaris, 2002), and web-based lectures (Gao, 2005); Kiraz and Ozdemir (2006) who tested the TAM model on teachers; and Fathma et. al (2015) who conducted research in universities. These researches concluded that the individual perception of the perceived usefulness and perceive ease of use in technology significantly affects the intention to use IT. As stated by Yulianto (2016) that interest is a motivational factor that affects someone's willingness to make or determine choices in a job. The interest makes someone have a motivation and a sense of pleasure to the job he wants.

However, there are some researches that do not support TAM as Rohmawati (2013) who explained that the attitude does not affect the intention of using credit cards, subjective norms affect the intention of using credit cards, while the behavior control does not affect the intention of using credit cards, perceptions of risks affect the use of credit cards, perceptions of usefulness affect the usefulness of credit cards. Alharbi and Drew (2014) conducted research in Saudi Arabia on students' interest and behavior that do not necessarily encourage the use of learning management system.

One of the systems created by Universitas Negeri Semarang (UNNES) is Integrated Academic Information System, better known as Sikadu, which is a web-based information system that is built with the aim of organizing the academic data at Semarang State University online. Organizing the data includes the management of registration system and lecturing scheduling system, Study Plan Card (KRS) management, monitoring of lecturing, organizing student value, and handling graduation registration. Sikadu can be accessed online through internet network with address: http://akademik.UNNES.ac.id.

Sikadu is a comprehensive and developed system for the integrated scheduling system and student administration registration services at the undergraduate and diploma level from 2007, while UNNES Postgraduate Program and Master's Doctorate is integrated with Sikadu in 2009. The initial observations are made for freshmen and the first semester at the UNNES Faculty of Economics in an integrated guardianship. It is found that there are difficulties on the new students to understand the menu or application on Sikadu whereas the ability and skill of Sikadu usage are really needed as the students of FE UNNES.

Some facilities available in Sikadu include registration information, student biodata information, lecture schedule, progress information on student learning outcomes, recapitulation and academic value history, lecturer teaching duties, and any other data statistics. In addition, Sikadu also provides printing facilities for academic administration that can be used by all operators either from the university level to the study program. Some information is also provided for members of the official who can be used as a control of various academic processes in the current semester and as the necessary decision-making materials or strategic policy. So from this, Sikadu is needed by the students during their lecturing in UNNES. Therefore, it needs to prepare or build Sikadu to be continuously developed based on the needs and competencies of the students.

Based on previous research findings that are still diverse, and based on the background that has been stated above, this research aims (1) To know the perception of ease of use of the FE UNNES students in the use of Sikadu, (2) To know the perception of usefulness of the FE UNNES students in the use of Sikadu, and (3) To understand the impact of the FE UNNES student's perception of the ease and usefulness of Sikadu

on the behavior of its use.

METHODS

The population in this research is the students of the Faculty of Economics Faculty at the first and third semester. The sampling method is purposive proportional random sampling that is proportional representation from population. The sample of research represents purposively from four departments in FE UNNES those are Management Department, Accounting, Economic Education, and Economic Development. This research is a quantitative research using primary data. The data retrieval tool is a questionnaire with a scale of five that describes the ordinal scale, which then carry out the path analysis testing. This research uses descriptive data analysis that describes the answer of students' perceptions that are then tabulated to know the tendency of respondent's answers.

RESULT AND DISCUSSION

Based on the sampling method, there are 50 students who are members of the sample with the distribution of 17 students (34%), 7 students of Accounting Department (14%), 10 students of Development Economics (20%) and 16 students of Economics Education (32%). Sikadu is a system designed to assist the students' academic fluency during the lectures. The operation of Sikadu relies heavily on computer usage expertise. Based on the results of descriptive statistics known, the students have the ability to operate the computer very well. This students' skill is 94% because they have received computer lessons in previous education level (High School), and only 6% who have never learnt about computer. The new students at UNNES must register online academically through Sikadu at the beginning of the semester. The 6% the number of students who never get a computer lesson perform the academic registration by the assistance of friends, parents, or teachers while still in secondary school.

Descriptive analysis results show that besides utilizing Sikadu for the academic administration, the students also utilize Sikadu to obtain general information. There are 45% of students who access to Sikadu for academic needs such as the need to download lecture materials, to see the schedule of late payment of UKT, to fill the Study Plan Card (KRS), the college schedule, and so forth while there are 5% of students who use Sikadu to seek general information such as graduation announcements, and to monitor the latest information. The menu accessed through Sikadu is described in detail in the Table 1.

Table 1. Menu Accessed to Sikadu

Use of Sikadu	Frequency	Percentage (%)
General Information	5	1
Academics	45	90
Others	0	0
Amount	50	100

Source: Primary Data Processed, 2016.

The level of intensity of Sikadu use based on descriptive statistical analysis is known as 10% of students access Sikadu everyday, 48% access to Sikadu more than twice a week, while 14% stated that they only access to Sikadu five times in a month, the rest 28% very rarely open Sikadu. The students who access to Sikadu every day state that they want to always know the latest information announced on the page of Sikadu, and then they pass the information to other students. The frequency of students in 9accessing Sikadu is described in detail in the Table 2.

The development of the TAM model that is a reasoned theory of action, which is a person's perception of a thing (Sikadu), will determine the interest and use of the Sikadu. The following will be described on (a) perceived ease of use, (b) perceived usefulness, (c) attitude toward use, and (d) behavioral intention to use. The TAM model (Nair and Das, 2012) can be illustrated theoretically in the Figure 1.

Table 2. Frequency of Students of FE UNNES in Accessing to Sikadu

Frequency of Using	Numbers of Students	Percentage (%)
Everyday	5	10
More than twice a week	24	48
More than five times a month	7	14
Others (very rare)	14	28
Amount	50	100

Source: Primary Data Processed, 2016.

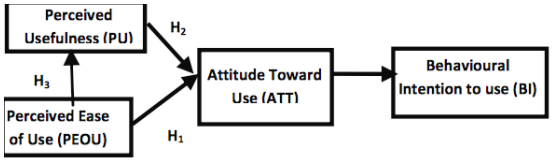

Figure 1. Theoretical Model TAM

Student Perceptions of Faculty of Economics in Using Sikadu (Perceived Ease of Use and Perceived Usefulness)

TAM theory (Davis, 1989) explains that the behavior of individuals using IT begins with the perception of ease and the perception of usefulness. The ease is significant in IT operations, an individual without difficulty or relief from adversity. So in this research the ease is the perception of use of the FE students in using Sikadu without any trouble while the perception of usefulness is the benefit of Sikadu for the FE students.

The respondents' perceptions of aspects of ease of use or operationalization of Sikadu show that 46% of students feel the ease in operating Sikadu. The ease is due to several reasons as follows: (a) the simple Sikadu menu, (b) the use of an easy-to-understand language, (c) the background display (color, font) helps to simplify the use of Sikadu, and (d) the information in Sikadu is always current. The result of student perceptions of the ease of use of Sikadu is described in detail in the Table 3.

Some of the weaknesses felt by students at the time of using Sikadu is at the beginning of the semester where students have difficulty in accessing to Sikadu, which is due to the over traffic internet network. However, this is not a problem because Sikadu is more due to the external factors. In addition, there are some students who consider the combination of colors and fonts in Sikadu less interesting.

Perceived usefulness is perception of individual in this case the students of the Faculty of Economics UNNES of a system that is able to improve its performance. Improved performance can be understood as the carrying capacity of Sikadu towards the improved quality and administration of the lecture during becoming students. Student perceptions of usefulness of Sikadu are described in the Table 4.

Based on Table 4, it is known that Sikadu is very helpful to the students in the academic activities and in obtaining lecture information and supporting lectures. Some inputs from the students of the Faculty of Economics to increase the use of Sikadu are as follows: (a) It needs to add link access to the journal / e-book within the Sikadu page. Thus it will help the students in doing the task of college and while preparing the thesis. (B) Sikadu for the students has not supported yet in improving the quality of the lecture, so that additional facilities are needed to assist the students in the lecture. For the students Sikadu only helps in the activities of educational administration during the lecture at the Faculty of Economics UNNES.

The results of research for the aspects of ease and usefulness of Sikadu are in the following. It is known that most of the students already have sufficient provision of computer mastery, so that the system design can be easily adapted by the students. In the operation of Sikadu most students have easy perception. Ease is in terms of language, appearance, and flow of system operation. The use of Sikadu for the students looks quite meaningful as a source of academic information, knowing learning materials and student learning results. Besides Sikadu is useful for the students, parents can also take advantage of Sikadu to find out their children learning results.

On the affective aspect, it seems that the FE students use Sikadu because of the ease and usefulness. As the students of FE, they cannot be separated from Sikadu so that inevitably they must connect with Sikadu during the learning process at FE UNNES. The result of deepening through interviews shows that if Sikadu based on the students' perceptions is difficult to use, the students will still use Sikadu because they are more concerned with usefulness aspects. This research does not support the TAM model (Davis, 1983) because of differences in research subjects. The subject that Davis used is in organizations

Table 4. Perception of Usefulness of Using Sikadu

Indicators	STS	TS	CS	S	SS
Improving the quality of learning to acquire learning materials or academic information	0%	2%	22%	48%	28%
Including lecturing information and lecturing/ academic support	0%	0%	16%	34%	50%
Knowing the learning results	2%	12%	42%	24%	20%
Supporting the implementation of academic tasks	0%	30%	48%	16%	6%

Source: Primary Data Processed, 2016

that handle software systems, electronic mail, text editors. This is different from the subject of this research that is students in the use of academic information systems.

Students' Behavioral Intention to Use Sikadu

Behavioral intention is a motivation to perform certain behaviors. Someone will do the behavior of accessing to Sikadu if they have the desire or interest to do so. Interests (intention) can be caused by perceptions of ease and usefulness of the Sikadu for the students of the Faculty of Economics. Perceptions of usefulness and perceptions of ease of use affect the attitudes of individuals towards the use of IT, which in turn determines whether people intend to use IT (Intention). The intent to use IT will determine whether people will use IT (behavior).

The development of TAM begins with Davis research, et al. (1989) in the use of WP (word processor). The finding is that the perception of ease will affect the usefulness of its use. Furthermore, perceptions of ease and usefulness or utility influence the attitudes and intentions and impact on usage. Davis (1993) explained in his model (Figure 1) that the perceptions of ease and usefulness are influenced by the design of IT systems. In addition, the perception to use it is strongly influenced by ease. Both of these aspects (ease and usefulness) affect the interest or intention to use the system. The results of research on the students' perceptions of interest in the use of Sikadu are described in the Table 5.

The existing system in Sikadu is found easy to understand because of its ease and very useful for the students in accessing to the academic information at the Faculty of Economics UNNES. Sikadu tends to facilitate the students for academic administration activities, so most respondents are motivated to use Sikadu. There is a small percentage (14%) that does not like online interactions in cycads. Students prefer to come to the administration and communicate directly, as those who have less mastery of computer and live outside the city of Semarang which internet access is less good.

The findings of Davis (1989) are different from the findings in this research. The results of research found that as long as the individual or students of the Faculty of Economics feel that Sikadu is supportive in the academic process in the Faculty of Economics, they will intend to use Sikadu either ease or not based on their perceptions. Or in other words, the utilization of academic system in information technology by the students of Faculty of Economics is due to the needs of students. Although an academic system is not easy (perception of ease) to use but due to the demands from the manager, the students will still access to the system. It can be concluded that the interest of students in using Sikadu is not influenced by the ease and usefulness of the system, but it is more due to the demand and necessity factor.

Behavioral intention to use of information technology or Sikadu can be defined as the intensity or frequency of users in using information technology. This behavior is motivated by an interest in the use of certain technologies. Thus, the greater the intention or interest of a person to engage in a behavior is, the greater his inclination to actually access to Sikadu will be. The students' perceptions in behavior intention to use of Sikadu by themselves are described in detail in the Table 6.

There is interest and encouragement of using Sikadu, so the students of Faculty of Economics are encouraged to access to Sikadu. Table 6 shows that the students use Sikadu to obtain information and academic administration. And they use Sikadu because it simplifies the academic process during the lecture process. But there are a small number of students who do not feel facilitated by Sikadu because of the misperceptions about the information in Sikadu. From the results of interviews, it can be seen that the students expect a link journal, scholarship informa-

Table 5. Perception of Intention in Using Sikadu

Indicators	STS	TS	CS	S	SS
Encouraging interest to access to Sikadu in order to obtain academic information	0%	6%	42%	28%	24%
Encouraging peer's interest to access to Sikadu in order to obtain academic information	4%	28%	48%	18%	2%
Having no motivation to use Sikadu, I prefer offline with a lecturer or FE administration	2%	16%	46%	22%	14%
Sikadu makes it difficult for me, so I am not interested in using Sikadu	34%	24%	34%	4%	4%

Source: Primary Data Processed, 2016

Table 6. Perception of Behavior in Using Sikadu

Indicators	STS	TS	CS	S	SS
Using Sikadu to obtain information and academic administration	0%	2%	22%	36%	40%
Using Sikadu regularly, not only at the beginning and end of the semester	0%	4%	34%	24%	38%
Doing Sikadu for ease the academic process in the Faculty of Economics	2%	2%	42%	38%	16%
To obtain information and academic administration on a regular basis	28%	36%	30%	2%	4%

Source: Primary Data Processed, 2016

tion, and Employee Master's Number for lecturers. But most are assisted by the existence of this Sikadu because the students can see the teaching schedule of lecturers so it is easy to arrange appointments to meet and to see the academic information. So, most of the students have accessed to Sikadu because it is a necessity.

These results indicate that for the students the ease factor does not affect the interest or intention to use the information system. This can be caused by (1) Internal factors in the form of self-confidence from high students that feel no difficulty to use a system. Descriptive research results show that more than 90% of users (students of the Faculty of Economics) have been able to obtain material about computers in the previous education level; (2) External factors are demands that the students have to interact with the academic system. So although the minority of users (less than 10%) has low computer mastery, but there are demands to use it, then in using it they are assisted by friends. For example, at the time of registration that is not conducted alone, they prefer offline relationship with lecturers and academic administration through education personnel.

Several researches support the findings such as Park (2009) who conducted research in Korea on 628 students from various universities. Research findings show that the use of e-learning according to the students is not easy, but in the process of lecturing using e-learning, the students still access to it. Aristiyan et al. (2016) conducted a research on students at Atmajaya Yogyakarta, Indonesia. The result of the research shows that easiness factor has no effect on electronic learning system (e-learning).

CONCLUSION

The conclusion of this research is in the following. The students' perception is that the menu and display that exist in Sikadu is easy to use in lecture activities up to the utilization of obtaining learning result information. And the ease and usefulness in Sikadu will encourage the students to use it although it seems that the frequency of use is relatively rare. Students mostly only use at the beginning and end of the semester. Skill factor of operationalizing computer and requirement and demand to use Sikadu in academic administration become the main factors that encourage the students to use Sikadu.

REFERENCES

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS quarterly*, 21(3), 227-247.

Aristian, M. (2016). Faktor yang Mempengaruhi Niat Penggunaan E-Learning oleh Mahasiswa pada Universitas Atma Jaya Yogyakarta. *Seminar Nasional Teknologi Informasi dan Komunikasi 2016*. Yogyakarta, 18-19 Maret 2016.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.

Alharbi, S., & Drew, S. (2014). Using the technology acceptance model in understanding academics' behavioural intention to use learning management systems. *International Journal of Advanced Computer Science and Applications*, 5(1), 143-155.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.

Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International journal of man-machine studies*, 38(3), 475-487.

Gao, J., Friedrichs, M. S., Dongre, A. R., & Opiteck, G. J. (2005). Guidelines for the routine application of the peptide hits technique. *Journal of the American Society for Mass Spectrometry*, 16(8), 1231-1238.

Igbaria, M. (1994). An examination of the factors contributing to microcomputer technology accep-

tance. *Accounting, Management and Information Technologies*, 4(4), 205-224.

Kiraz, E. & Ozdemir, D. (2006). *The Relationship between Educational Ideologies and Technology Acceptance in Preservice Teachers*. Educational Technology & Society, 9(2), 152-165.

Klopping, I. & McKinney, E. (2004). Extending the Technology Acceptance Model and the Task-Technology Fit Model to Consumer E-Commerce. *Information Technology, Learning, and Performance Journal*, 22(1), 35-48.