

**ACADEMIC INFORMATION SYSTEM USER SATISFACTION MODEL USING
TECHNOLOGY ACCEPTANCE MODEL (TAM) WITH END USER COMPUTING
SATISFACTION (EUCS) MODIFICATION**

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ABSTRACT

User satisfaction with system performance is a benchmark for applying information technology. Academic Information System faculty of Compur Science University of Duta Bangsa Surakarta are used as a media support the campus academic process. This study aims to determine the relationship between content (content), the level of accuracy of the system (accuracy), format, easy of use, timeliness, organizational support, user attitudes towards the information system and perceived attitude of top management on the level of satisfaction of using the academic information system in faculty of Computer Science, University of Duta Bangsa Surakarta. This research is a descriptive study used technology acceptance model (TAM) with modified End User Computing Satisfaction (EUCS) approach method.

The result of this study was to determine the relationship between content (content), the level of accuracy of the system (accuracy), format, ease (easy of use), timeliness, organizational support, user attitudes towards the information system and perceived attitude of top management on the level of satisfaction of using the academic information system in faculty of Computer Science, University of Duta Bangsa Surakarta.

Key words : Academic information systems, user satisfaction, information technology, end user computing satisfaction.

INTRODUCTION

The development of information technology and computers is very fast and penetrates all fields. These developments include software, hardware and hybrid (Hastuti et al, 2018), (Purnomo et al, 2016), (Sumarlinda & Lestari, 2020). The developments in the field of software application do not necessarily have a positive effect on software satisfaction at the consumer level (Standish, 2014). The end-user satisfaction in many studies is a variable that has received a lot of attention, including in the field of technology and information systems. Satisfaction can be simply understood as a condition that describes that a person's needs, wants, and expectations are fulfilled after using certain products and or services (Adeyemi et al, 2020), (Liao, et al, 2018). The increasing use of software with its various advantages as a computer-based information system is expected to increase the satisfaction of users of information on companies or agencies that implement it (Arifani et al, 2016), (Mardianan et al, 2018).

Previous research on the factors that influence users of computer technology uses two models as the basis of theory, namely: (1) Theory of Reasoned Action (TRA); and the Technology Acceptance Model (TAM). Both of these models are used to predict the goals and satisfaction of users of information systems. TAM adapts the general model of TRA, using two variables, namely: perceived ease of use and perceived usefulness. On the basis of satisfaction measures of users of accounting information systems, an empirical study of the satisfaction measures of users of accounting information systems is needed so that the information system that is developed can provide all the desired benefits in accordance with the objectives of information system development. One of the missions of information systems research is to be able to study the design, delivery, use and impact of effective information technology in organizations and society (Pedrosa et al, 2020), (Putra, 2016). With regard to the effectiveness of information systems that are difficult to measure directly, many studies have turned to indirect measurement methods such as the User Information Satisfaction method. The measurement methods used include the short form UIS, Doll & Torkzadeh UIS and five-factor UIS (Rahayu et al, 2017), (Rahmawati et al, 2019).

The academic information system in the Faculty of Computer Science, University of Duta Bangsa Surakarta allows students to view and process their college data. These data include student biodata, course lists, lecture schedule lists, lecturer lists, value transcript information, KHS information (Study Result Cards), information and filling out KRS (Study Plan Cards). All of this data can be seen by students and access through the online academic system site of the Faculty of Computer Science, University of Duta Bangsa. The application of information technology to meet the needs of users in processing data is actually interesting to study because technology is not only related to technology itself, but also related with users (users and end-users), organizations that use and the behavior of users. Like what users can use technology? How do users respond to the technology used? Are users satisfied in using the technology.

THEORETICAL FRAMEWORK

Theory of Planned Behavior

The theory of planned behavior (Theory of Planned Behavior / TPB) is a further development of Theory of Reasoned Action (TRA) (Pedrosa et al, 2020). Ajzen who developed this theory added a construct that did not exist in TRA. This construct is called perceived behavior control. This construct is added to the TPB to control individual behavior which is limited by its various deficiencies in the resources to determine a behavior. There are several goals and benefits of this theory (Pedrosa, et al, 2020), among others, is to predict and understand motivational influences on behavior that are not under the control or will of the individual himself. To identify how and where to direct strategies for behavior change and also to explain in each important aspect some human behavior such as why someone is taking courses in a particular subject or why choosing a candidate in elections.

This theory provides a framework for studying attitudes toward behavior. Based on this theory, the most important determinant of a person's behavior is the intention / desire to behave. The individual's intention to display a behavior is a combination of the attitude to display that behavior and subjective norms. Individual attitudes towards behavior include

beliefs about a behavior, evaluation of behavior results, subjective norms, normative beliefs and motivation to obey (Syaifullah & Ferawati, 2019).

Technology Acceptance Model

The Technology Acceptance Model (TAM) is a model that is built to analyze and understand the factors that influence the acceptance of the use of information technology which was first introduced by Fred Davis in 1986 (Adeyemi et al, 2020), (Liao, et al, 2018)). TAM is the result of the development of Theory of Reasoned Action (TRA), which was first developed by Ajzen and Fishbein (1980). TAM aims to explain and estimate user acceptance of an information system. TAM provides a theoretical basis for knowing the factors that influence the acceptance of technology in an organization (Liao, et al, 2018). TAM explains the causal relationship between belief (in the benefits of an information system and its ease of use) and the behavior, goals / needs, and actual use of users of an information system (Rahmawati et al, 2019). (Helia et al, 2018).

The TAM model is adopted from the TRA model. TAM adds two main constructs to the TRA model, namely perceived usefulness and perceived ease of use. These two constructs have a direct influence on behavior intention (Adeyemi et al, 2020). The TAM model can be seen in Figure 1.

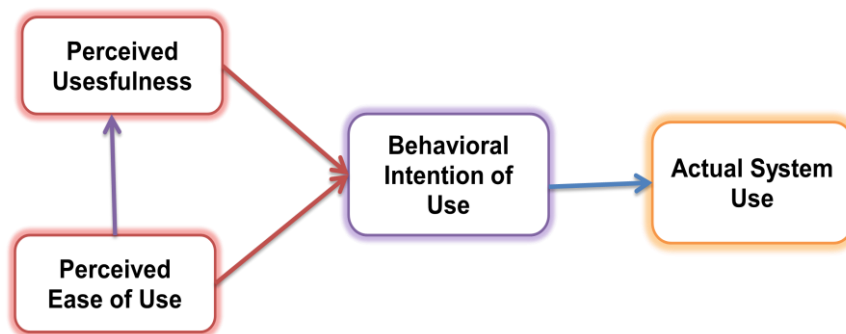


Figure 1. Model of TAM

One of the factors that can influence it is the user's perception of the usefulness and ease of use of information technology (IT) as a reasonable action in the context of technology users, so that someone's reason for seeing the benefits and ease of use of IT makes the person's actions / behavior a benchmark in acceptance. a technology.]

End-User Computing Satisfaction (EUCS)

Measurement of satisfaction has had a long history in the discipline of information systems. In the scope of end-user computing, a number of studies have been conducted to capture the overall evaluation in which the end user has considered the user of an information system (eg satisfaction) and also the factors that shape this satisfaction (Pedrosa, et al, 2020).

End User Computing Satisfaction (EUCS) is a method for measuring the satisfaction level of users of an application system by comparing the expectations and reality of an information system. Definition of End User Computing Satisfaction of an information system is the overall evaluation of users of information systems based on their experience in using

the system. The EUCS evaluation model was developed by Doll and Torkzadeh. Evaluation using this model emphasizes end user satisfaction with technological aspects, by assessing the content, accuracy, format, time and ease of use of the system. This model has been tested by other researchers to test its reliability and the results show no significant difference even though this instrument is translated in different languages (Rahayu et al, 2017), (Rahmawati et al, 2019).

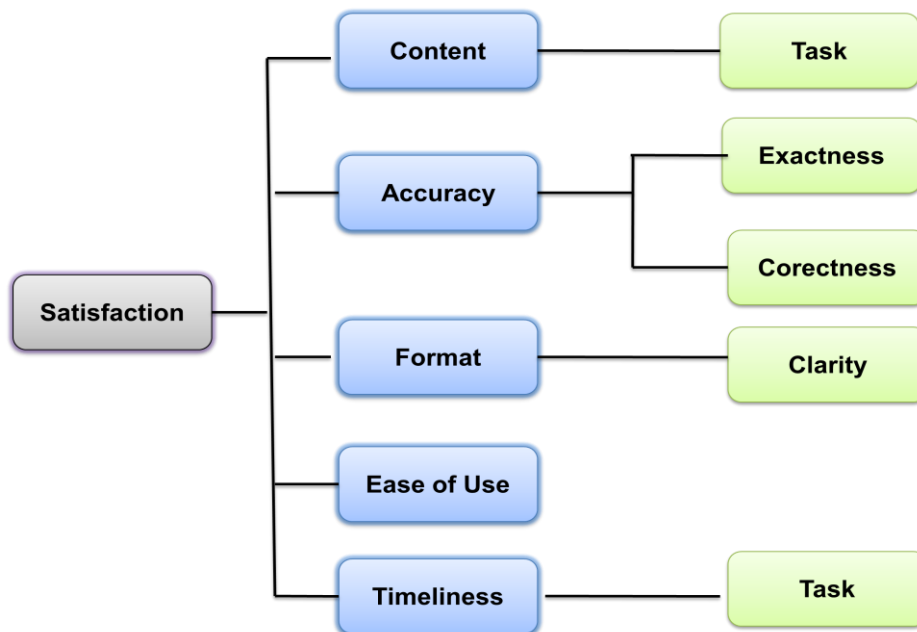


Figure 2. Model of EUCS

Academic Information System

Information systems are computer applications to support the operations of an organization: operation, installation and maintenance of computers, software, and data and other definitions are information systems which are a collection of hardware, software, brainware, procedures or rules that are organized integrally to process data into useful information to solve problems and make decisions. In the context of the information system sentence consists of two words, namely system and information, where each word has its own meaning.

A system is a set of objects consisting of people, resources, concepts, and procedures that perform a specific function to achieve a goal (Sumarlinda & Lestari, 2020). The system is a group of elements integrated with the same intention to achieve a goal. Thus it can be concluded that the system is an integration or unity of several elements that work together to achieve the goals that have been set together, where these elements can be people, concepts or procedures.

Academic information system refers to the specialization of information systems related to campus academic activities. The academic system is supposed to manage information management not only related to learning but all activities within the academic scope of the campus (Lestari & Sumarlinda, 2020), (Hastuti et al, 2018).

METHODS

Research Flow

This research involves several steps in the unit of the research framework. The flow of this research can be seen in figure 3. This research flow shows the step by step that is passed during the research process.

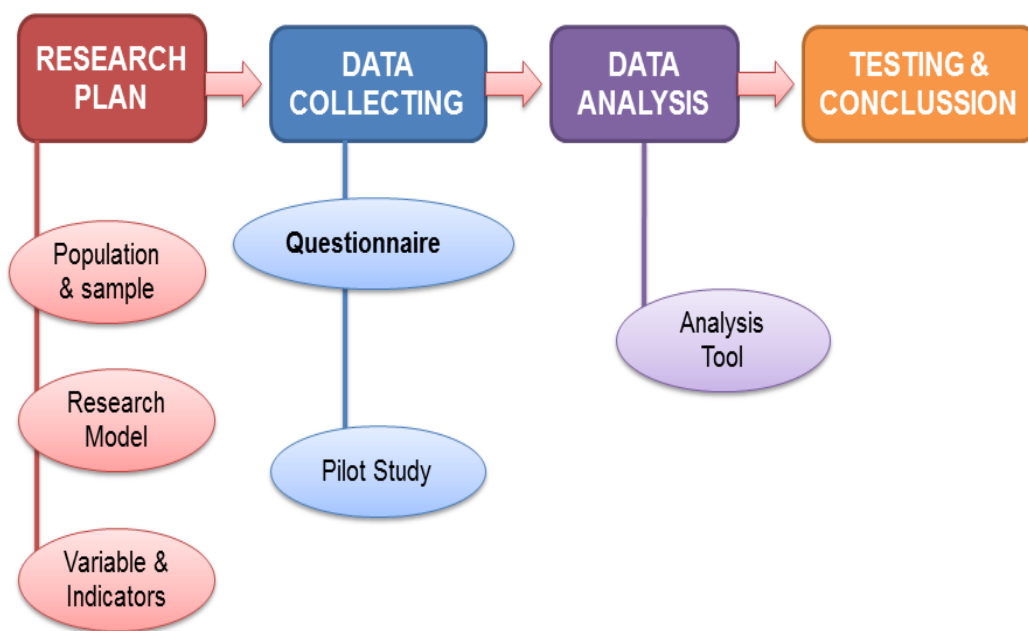


Figure 3. Research Flow

Judging from the types of problems faced, the type of research used in this thesis is descriptive research. The population of this study were students of the Faculty of Computer Science, Universitas Duta Bangsa Surakarta as users of academic information system. In selecting the sample, this study used a combination of convenient sampling and random sampling techniques. The source of the data in this study consisted of two parts, namely primary data and secondary data.

Research Questionnaire

To making the research questionnaire, first determined the variables and dimensions of the research variables that will be used. In this study the variables / constructs used in the questionnaire were based on the variables contained in the EUCS (End User Computing Satisfaction) method. The variables and variable dimensions to be studied are as follows table 1 :

Table1. Research Questionnaire

Research Variable	Variable Dimension	Questionnaire Items
Content	1. Sistem provides appropriate academic information.	1
	2. Sistem contains the information I need.	2
	3. Sistem provides sufficient information.	3
	4. The System provides useful modules	4
	5. I am satisfied with the content from System	5
Accuracy	1. System displays information academically accurate.	6
	2. I am satisfied with the accuracy of the System.	7
	3. Systemmm is error free.	8
	4. System provides information in accordance with user access rights.	9
	5. WSIA provides information according to user wishes.	10
Format	1. System has a interface that is easy to understand.	11
	2. System has an attractive appearance.	12
	3. ystemhas a matching color appearance.	13
	4. I am satisfied with the look of the System	14
	5. Do you think the System information is presented in a useful format?	15
Ease of use	1. System has an easy-to-use menu.	16
	2. With the System allacademic activities to be easier.	17
	3. System is easy to use.	18
	4. Instructions for use or flow of activities can be found in the System.	19
	5. Each navigation button is	

Research Variable	Variable Dimension	Questionnaire Items
	equipped with tool tips / information buttons to be pressed.	20
<i>Timeliness</i>	1. Academic information needed faster via the system.	21
	2. The system provides up to date information.	22
	3. System provides a sitemap to speed up navigation.	23
	4. System can be accessed by users quickly.	24
	5. I am satisfied with the timeliness of the System.	25
<i>Organizational Support</i>	1. Online complaints about System issues are easy to make.	26
	2. I am satisfied with the speed at which the organization responds to complaints	27
	3. The organization was effective in dealing with problems that occurred at the System.	28
<i>User Attitude Towards Information System</i>	1. 1. I am satisfied with the changes in the information system that have occurred.	29
	2. 2. I use system every day.	30
	3. 3. I remind other users to use system.	31
	4. 4. I provide input for the progress of the system	32
<i>Perceived Attitude of Top Management)</i>	1. 1. The management of University of Duta Bangsa provided training using system.	33
	2. 2. The management of University of Duta Bangsa conducted socialization on the use of System.	34
	3. 3. I am satisfied with the support from the top management of University of Duta Bangsa in using system..	35

DISCUSSION

Based on the results of questionnaires distributed directly to respondents, 200 respondents were collected. After tracing the data, it was found that 30 questionnaires had invalid data so that the remaining 170 respondents were left for data processing. The general description of the respondents who participated was mostly male, namely as many as 120 people (60%) of the remaining n 80 female respondents (40%).

The results showed that the mean yield for each instrument varies between 2.73 to 3.85. The highest average value was obtained by the indicators Q1 (3.85), Q11 (3.77) and Q16 (3.72). These results also indicated the use behavior of the respondents. Where most respondents gave their opinion WSIA provides proper academic information, academic information system is easy to use and system is easy to understand. After the model is declared fit, there is no significant difference between the model tested and the sample matrix, the next step is to test the hypothesis.

Table 1 2. Hypothesis Testing

			Estimate	S.E.	C.R.	P	Label
OS	<---	UATIS	.284	.219	1.298	.194	par_33
OS	<---	PAoTM	.204	.119	1.706	.088	par_34
content1	<---	Content	1.000				
content2	<---	Content	.834	.222	3.751	***	par_1
content3	<---	Content	.927	.237	3.903	***	par_2
content4	<---	Content	.865	.256	3.381	***	par_3
content5	<---	Content	1.644	.352	4.670	***	par_4
Format5	<---	Format	1.000				
Format4	<---	Format	1.037	.206	5.024	***	par_5
Format3	<---	Format	.684	.256	2.673	.008	par_6
Format2	<---	Format	1.284	.264	4.890	***	par_7
Format1	<---	Format	1.368	.285	4.777	***	par_8

			Estimate	S.E.	C.R.	P	Label
Accuracy5	<---	Accuracy	1.000				
Accuracy4	<---	Accuracy	1.983	.529	3.899	***	par_9
Accuracy3	<---	Accuracy	1.434	.469	3.060	.002	par_10
Accuracy2	<---	Accuracy	1.594	.495	3.222	.001	par_11
Accuracy1	<---	Accuracy	1.592	.426	3.739	***	par_12
Eou5	<---	EOU	1.000				
Eou4	<---	EOU	.546	.129	4.236	***	par_13
Eou3	<---	EOU	.574	.134	4.295	***	par_14
Eou2	<---	EOU	.460	.125	3.688	***	par_15
Eou1	<---	EOU	.565	.120	4.702	***	par_16
Timeliness5	<---	Timeliness	1.000				
Timeliness4	<---	Timeliness	.968	.219	4.366	***	par_17
Timeliness3	<---	Timeliness	1.100	.238	4.627	***	par_18
Timeliness2	<---	Timeliness	1.034	.194	5.336	***	par_19
Timeliness1	<---	Timeliness	1.456	.256	5.679	***	par_20
OS3	<---	OS	1.000				
OS2	<---	OS	1.991	.755	2.635	.008	par_21
OS1	<---	OS	2.396	.871	2.705	.009	par_22
UATIS4	<---	UATIS	1.000				
UATIS3	<---	UATIS	1.701	.628	2.706	.007	par_23
UATIS2	<---	UATIS	1.442	.497	2.900	.004	par_24
UATIS1	<---	UATIS	1.850	.708	2.614	.009	par_25
PAoTM3	<---	PAoTM	1.000				

			Estimate	S.E.	C.R.	P	Label
PAoTM2	<---	PAoTM	1.637	.319	5.130	***	par_26
PAoTM1	<---	PAoTM	1.239	.255	4.867	***	par_27
UserSatisfaction	<---	Content	.154				par_28
UserSatisfaction	<---	Format	.128				par_29
UserSatisfaction	<---	Accuracy	1				par_30
UserSatisfaction	<---	EOU	.119				par_31
UserSatisfaction	<---	Timeliness	.126				par_32
UserSatisfaction	<---	OS	.137				par_35

From table 2, we get the results that all variables have a significant influence on the dependent variable. This is evidenced by the value of $CR \geq 1.96$ and the value of $P \leq 0.05$, only the UATIS and PAoTM variables have an effect but are not significant because the CR value is ≤ 1.96 and the P value ≥ 0.05 . The results of the effect of the content variable on user satisfaction can be seen in table 4.9 of the CR value on each content variable having a CR value ≥ 1.96 so that the content variable has a significant effect. Regarding the effect on user satisfaction, it can be seen that the estimated value in table 4.9 ≥ 0 , then the content variable has a significant effect on user satisfaction.

This research showed that the academic information system (siakad), which was developed by the Faculty of Computer Science, Universitas Duta Bangsa Surakarta in terms of content, the level of system accuracy, display format, ease of use of the system, level of timeliness and organizational support have met the expectations of users, namely stakeholder of the Faculty of Computer Science, Duta Bangsa University Surakarta. To determine the level of satisfaction of users of academic information systems, an evaluation was carried out using a modified end user computing satisfaction model, in order to obtain five variables that significantly influence the satisfaction of users of academic information systems. Among others, content, format, accuracy, easy of use, and timeliness. Organizational support variables have a significant effect on user satisfaction but the variable user attitudes toward information system and perceived attitude of top management have an effect on organizational support but not significant.

CONCLUSION

Based on the discussion of the results of the analysis, this study can show that the academic information system (Siakad), which was developed by the Faculty of Computer Science, University of Duta Bangsa Surakarta in terms of content, system accuracy, display

format, ease of use of the system, level of timeliness and organizational support have meet the expectations of users, namely stakeholders of the Faculty of Computer Science, Universitas Duta Bangsa Surakarta. To determine the level of satisfaction of users of academic information systems, an evaluation was carried out using a modified end user computing satisfaction model, in order to obtain five variables that significantly influence the satisfaction of users of academic information systems. Among others, content, format, accuracy, easy of use, and timeliness. Organizational support variables have a significant effect on user satisfaction but the variable user attitudes toward information system and perceived attitude of top management have an effect on organizational support but not significant.

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