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Educational Personnel and Information Technology in Higher Education Governance

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ABSTRACT

This study aims to measure the perception of educational personnel in the management of Higher Education (HE) based on information technology, and to formulate a work culture for education personnel in implementing information technology. This study is an evaluative study, which measures research variables based on respondents' perceptions and their experience in running information systems in the research object. The respondents of this study consisted of 160 education personnel who working at *Universitas Islam Negeri* (UIN)/ Islamic State University of Sunan Gunung Djati Bandung. The study tested the Technology Acceptance Model (TAM) paradigm, with the variables observed were perceived ease of use, usefulness, behavior intention to use, and actual system use. TAM test results are used as a basis for discussing the role of education personnel in the governance of HE. Descriptive research results indicate that education personnel have good adaptability in implementing information systems owned by HE. The results of the structural diagram show that simultaneous perceived ease of use, usefulness, behavior intention to use, have a positive and significant effect on actual system use. This study recommends strengthening the work culture as a moral and ethical foundation for education staff in implementing information technology in governance at HE.

Key words: educational personnel, structural equation models, technology acceptance

1. INTRODUCTION

Higher education (HE) governance faces challenges and faces increasingly complex problems in the era of globalization. The problems faced by universities are increasingly dynamic, starting from the model and process of admission of new students, the adequacy of facilities and infrastructure of lectures and laboratories, the ratio of lecturers and students, curriculum of study programs, opening of new study programs in accordance with the demands of the world of work and industry, results research that has not been applied, the lack of continuity of research results that are followed up through community service, writing and publishing of scientific papers that are still limited [1]. To deal with this problem, HEs need to implement good governance.

HE governance is the behavior or method used by a university to utilize all its potentials and elements optimally, in an effort to achieve the stated vision and mission. Technically, governance is expressed as a systematic effort in a process to achieve HE goals, through structuring the functions of planning, implementing, controlling, and following up on improvements [2]. Information technology plays an important role to support the success of HE governance, even making one of the dimensions that has implications for the excellence of HE [3]–[5]. To implement the information technology properly, it needs the support of all parties, starting from leaders, lecturers, students, educational personnel, and HE service users.

Educational personnel have a central role in building Good University Governance (GUG). Educational personnel are the community that runs the management and administration of HE. The education personnel referred to in this study are administrative staff at HEs who do not work as lecturers. Educational personnel included administrative leaders (bureau chiefs, section heads, and subdivision heads), library staff, laboratory staff, learning resource technicians, administrative staff, cleaning technicians, and other names for similar officers who work at educational institutions [6]. Without the role of good education staff, it will be difficult to realize a superior HE. The adaptability and acceptance of educational staff technology is an essential factor in realizing

modern governance, and always follows the dynamics of the changing times. Based on this background, a study was conducted aimed at analyzing the acceptance of information technology in educational personnel in HE, analyzing the role and contribution of education personnel in HE governance, and the work culture foundation for education personnel in carrying out information technology.

The previous related researches that in accordance with this research, among others: (1) HEs need to carry out reforms in institutions [7]; (2) administration and management of education, promoting the principles of transparency, effectiveness and efficiency to improve competitiveness [8], [9]; (3) the need for IT-based systems, IT-based services and recruitment for IT teams at higher education [10]; (4) competence has a real influence on organizational culture [11] but job satisfaction has a positive but not significant effect on performance [12]. The original aspect of this research lies in the choice of professions analyzed, namely educational personnel working at HE.

2. METHODS

This study is an evaluative study, which measures research variables based on respondents' perceptions based on their experience in running information systems in the research object. The object of this study is UIN Sunan Gunung Djati Bandung, with educational personnel as respondents who working at UIN Sunan Gunung Djati Bandung. The total population of the study was 160 people. Respondents were voluntarily asked to fill out a questionnaire distributed via Google Form.

Measurement of technology acceptance used in this study uses the TAM model developed by Davis (1989) [13]–[15]. The variables studied were perceived ease of use (x1), perceived usefulness (x2), behavior intention to use (y), and actual system use (z), with the research paradigm as presented in Figure 1. Data processing is done with the help Microsoft Excel and AMOS 18 software.

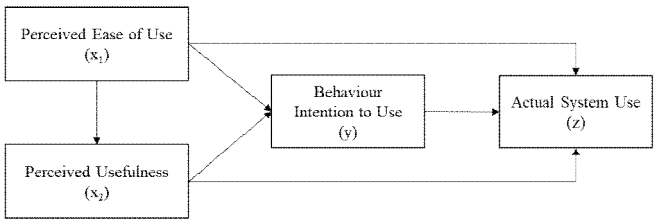

Figure 1: Research Paradigm

3. RESULT AND DISCUSSION

3.1 Result

This study uses the distribution of questionnaires using the Google form application. Based on the recapitulation of data collection, data has been collected that is filled by 160 respondents. Based on the results of testing the completeness and consistency of the data using Mahalanobis distance, the amount of data that can be further processed is data sourced from 151 respondents.

3.1.1 Descriptive analysis

Descriptive data calculations based on survey data for each of the research variables are presented in Table 1. Data calculations were performed with the help of Microsoft Excel.

Table 1: Description of research variables

Parameter	Variable			
	Ease of Use (x_1)	Usefulness (x_2)	Intention to Use (y)	Actual System Use (z)
Mean	3.05	3.79	3.38	3.25
Standard Error	0.05	0.05	0.03	0.04
Median	3.00	3.88	3.36	3.33
Mode	2.91	3.88	3.27	2.92
Standard Deviation	0.61	0.60	0.38	0.51
Sample Variance	0.37	0.36	0.15	0.26
Kurtosis	-0.36	0.43	0.30	0.28
Skewness	0.22	-0.61	0.10	-0.31
Range	3.18	3.25	1.91	2.92
Minimum	1.64	1.75	2.45	1.58
Maximum	4.82	5.00	4.36	4.50
Sum	460.55	571.88	510.27	491.25
Count	151	151	151	151
Confidence Level (95,0%)	0.098	0.097	0.062	0.081

Referring to the mean value, compared with the ideal conditions set by researchers at value 3. Determination of the ideal value is based on researchers' understanding of the Master Plan for the Development of UIN Sunan Gunung Djati Bandung and interviews conducted with the leadership of HE. Based on the contents of the respondents showed that the scores on all study variables were above the ideal value (Figure 2).

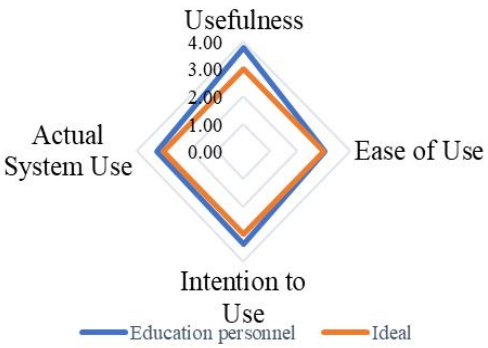

Figure 2: Average measurement results of research variables

3.1.2 Path analysis

Based on testing the proposed research paradigm (Figure 2) using AMOS software, the estimated value of the relationship between variables (at the level of confidence $\alpha = 0.05$) is presented in Table 2.

Table 2: Testing the relationship between variables based on the research paradigm

Variable	Estimate	S.E.	C.R.	P	Conclusion
$x_1 \rightarrow x_2$	0.463	0.045	10.210	***	Significant
$x_1 \rightarrow y$	0.215	0.059	3.678	***	Significant
$x_2 \rightarrow y$	0.177	0.081	2.193	0.028	Significant
$x_1 \rightarrow z$	0.516	0.061	8.496	***	Significant
$y \rightarrow z$	0.538	0.081	6.634	***	Significant
$x_2 \rightarrow z$	-0.029	0.082	-0.359	0.720	Non-significant

The calculation results show that the insignificant influence of the ease of use (x_2) variable on the actual system use (z). Trimming from the results of this analysis changes the structural relationship diagram between variables into a diagram as shown in Figure 2.

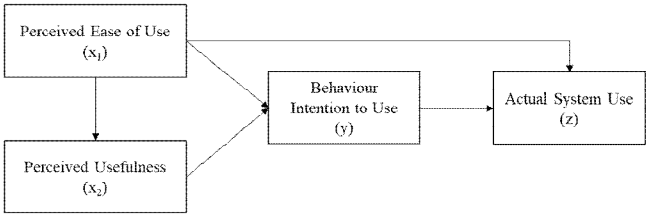

Figure 3. Structural relationships between variables

Based on the structural relationship diagram between variables (Figure 3), a recalculation of the estimated relationship between variables is performed, with the results of the calculations presented in Table 3.

Table 3: Testing the relationship between variables based on the research paradigm

Variable	Estimate	S.E.	C.R.	P	Conclusion
$x_1 \rightarrow x_2$	0.463	0.045	10.210	***	Significant
$x_1 \rightarrow y$	0.215	0.059	3.678	***	Significant
$x_2 \rightarrow y$	0.177	0.081	2.193	0.028	Significant
$x_1 \rightarrow z$	0.504	0.051	9.954	***	Significant
$y \rightarrow z$	0.533	0.080	6.672	***	Significant
$x_1 \rightarrow x_2$	0.463	0.045	10.210	***	Significant

3.2 Discussion

HE in carrying out its business processes need to make various process improvements in line with the needs of HE. HE should read the dynamics of the requirements to improve education services [16]–[19]. Improving education services can be done by revamping HE governance with the support of information technology. Information technology is a technology used to process data, including processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information that is relevant, accurate, and timely information [20]–[22]. The presence of information technology will make HE governance can run well. Policy makers can make appropriate decisions, using databases provided in information technology [23].

Every change made by an organization always faces challenges in its implementation phase. Implementation of technology at HE has created many challenges for users and implementers of the system [24]. One problem that occurs with the implementation of information technology is the problem of human resources. The problem of human resources in the implementation of information technology include human resources for information technology is still limited, some have not been able to use information technology, the lack of support and commitment, and unpreparedness in using information technology [25]. Other research states that the challenges of successful implementation of information technology are based on a conceptual understanding of technology selection, and the role played by administrators to understand and utilize information technology properly [26].

To ensure the successful implementation of technology, synergy and harmony are needed from all technology components. Information technology components consist of techno-ware, info-ware, orga-ware, and human-ware/ brain-ware [27]. In addition to the reliability of technology components, technology, info-ware, and software, brain-ware/ human-ware is also needed that is reliable and skilled in using information technology. Human-ware includes the manager/ user of information technology applications at HE. One of the main users of applications in HE governance is education personnel.

The effectiveness of the use of information systems can be measured based on the degree of acceptance of education personnel towards the implementation of information technology. For this study, the measurement of the degree of acceptance of information technology in education personnel uses an evaluation of perceptions of easy to use (x_1) and usefulness (x_2). The mean value for easy to use (x1) is 3.05, and the usefulness variable (x_2) is 3.79, both of which have scores above the ideal. Even based on the answers to one item on the easy to use variable (x_1), from 151 respondents, 82% stated that using these applications was easy to learn/ use. This information shows that education personnel have good ability to run the information system. Other information regarding commitments to the sustainability of using information technology, data obtained showed that 93% of respondents intend to continue using these applications. This information illustrates the readiness of education personnel to carry out information technology-based university governance. The acceptance of educational personnel to run this information technology is supported by the measurement results of the intention to use variable (y) of 3.38, and the actual system use (z) of 3.25.

Referring to the results of research that examines the structural relationship between variables, an agenda can be set for increasing the use of information technology by increasing the ease of use of information technology. Efforts that can be carried out by HEs to improve ease of use are better socialization, and training involving user experience, provision of manual books. From the software developer side, information system design needs to be designed with features and procedures that make it easy for users to run the information system. On the variable usefulness, strengthened by increasing understanding that the implementation of information systems can help the work of educational personnel in the governance of HE. Individually increasing the ability to run an information system will increase the added value of the recognition of competence in the personnel concerned.

Although organizational culture is not included as a variable in the research model/ paradigm, it is necessary to discuss organizational culture that is manifested as a work culture in the object of research. It is believed that organizational culture will improve personnel performance in implementing information technology. Some studies say that organizational culture positively and significantly influences information technology-based work performance [28]–[30].

This research was conducted at a university whose management is under the authority of the Republic of Indonesia's Ministry of Religion (MORA). The work culture adopted at MORA includes: integrity, professionalism, innovation, responsibility, and example [31]. This work culture has a strong relevance to be used as a moral and ethical foundation in implementing information technology by educational personnel, among others:

1. Integrity

Integrity is a quality, character, or condition that shows a unified whole, possessing the nature of honesty, hard work, and adequate competence [32]. Education personnel who have high integrity always work in accordance with the main tasks and functions given. In the implementation of information technology, integrity is manifested in the correctness of data filling and timeliness in carrying out tasks. So that information technology will produce information that is fast and accurate.

2. Professionalism

Professionalism is the attitude and behavior shown by a person towards his profession that can motivate working together and interacting professionally with his colleagues. The attitude of professionalism can be demonstrated by knowledge, expertise, and characteristics [33]. Professionalism of education personnel in implementing information technology can be realized by providing good services, without seeing irrelevant interests, such as gender discrimination, ethnicity, religion, and others. Work is not carried out on the basis of likes or dislikes but is interpreted as an obligation that is carried out as a manifestation of its duties and functions as educational personnel.

3. Innovation

Innovation is a process of renewal that occurs systematically and structured to change a situation towards a better direction [34]. The support capacity of the teaching staff towards innovation in HE governance is realized by providing recommendations for improving information technology, both in terms of design and procedures.

4. Responsibility

Responsibility is human awareness of the consequences of behavior or actions both intentional and unintentional. Responsibility is the realization of an awareness of obligations [35]. Educational personnel must view that the implementation of technology is a shared responsibility that requires administrative skills and technical knowledge [36]. Working thoroughly is accompanied by a high commitment of the responsibility of the teaching staff as a consequence of receiving the reward received. To measure the responsibilities of education personnel, performance evaluation is an important instrument for staff motivation, communicating and aligning individual and organizational goals, and fostering positive relationships between management and staff [37]

5. Exemplary

Exemplary means something that is worthy of imitation or good to emulate about the nature, actions, behavior and so on [38]. The exemplary dimension that can be done by education staff in implementing information systems is realized by showing good behavior in carrying out information systems. This example is not superior to subordinates but can be done by anyone to set an example for the work environment. Appreciation for the exemplary educational personnel can be done socially or formally. For formal appreciation, the exemplary educational personnel can be determined within a certain period (months/ years).

These five work cultures, if properly internalized in education personnel, will have a positive and significant impact on the achievement of information technology-based GUGs, which can be measured institutionally based on the achievements of HE accreditation, or opinions of evaluation results from supervisory institutions.

4. CONCLUSION

Educational personnel have an important role in the management of HE with information technology-based to achieve Good University Governance. Educational personnel in the research object has a good degree of acceptance of the

implementation of information technology. To increase the use of information systems in HE governance, it can be done by increasing the ease and usefulness of the implementation of information technology. The implementation of information technology so that it runs well and must not be separated from the values and work culture, namely integrity, professionalism, innovation, responsibility, and exemplary.

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