

DOES LECTURER MOTIVATION AND SUPPORT OF INFORMATION TECHNOLOGY SYSTEM RELATED TO LECTURER PERFORMANCE?

Agus Suryanto^{1*}, Totok Sumaryanto Florentinus¹, Fakhruddin¹, Titi Prihatin¹

¹Graduate School Program, Universitas Negeri Semarang, Indonesia,
Email: agusku2@mail.unnes.ac.id

Abstract--This research aims to know the influence of work motivation variable and the support of information technology system variable on lecturer performance of LPTK (UNNES) in the effort to build the profile of community needs in the 21st century. This research was included into ex post facto research with survey method and used descriptive-quantitative research design. To analyze the strength of the correlation based on the exogenous variables and endogenous variables, then some regression stages were conducted. This research employed quantitative approach with Confirmatory Factor Analysis (CFA) analysis through LISREL. The research object used in this research was Semarang State University (UNNES) with research samples were 950 lecturers distributed in 8 faculties. The results of this research show that work motivation has significant influence on the performance of LPTK lecturers with t-value 2.867 bigger than 1.96 with standardized factor loading obtained was in the amount of 0.282. This shows that work motivation gives positive contribution on lecturer work performance. The support of information technology system has significant influence on the performance of LPTK lecturer with t-Value 2.510 bigger than 1.96. The value of standardized factor loading obtained was 0.131. This shows that the support of information technology gives positive support.

Keywords—Motivation, information technology system, lecturer performance

I. INTRODUCTION

The era of globalization has a wide impact in various aspects of life, including in terms of providing education. One of the real challenges of the entry of globalization in education is that education should be able to produce human resources that have complete competence known as 21st century competencies. 21st Century competence is the main competency that graduates must have, so they are able to take part in real life in the 21st century. The 21st century challenges educational managers to be able to create education that produces thinkers who are able to participate in building knowledge-conscious social and economic settings, as befits the world's citizens in the 21st century. The 21st century is marked as a century of openness or a century of globalization, meaning that human life in the 21st century underwent fundamental changes which are different from the order of life in the previous century. It is said that the 21st century is a century that demands quality in all efforts and results of human labor. The 21st century demands quality human resources that can be produced by professionally managed institutions so as to create superior results. Related to these demands, higher education in Indonesia should be included in the current globalization.

The entry of higher education into globalization is at the same time entering the era of the industrial revolution 4.0. Until the end it must be ready to face the transformation of the 21st century as a result of labor traffic between countries to compete for employment will be free. Indonesia must be able to be equal to other nations so that Indonesian college graduates must be able to compete with graduates from foreign college. The hope of the nation in college through the vision and mission of the college is to form a cultured, capable, professional human being, and be able to develop both through effective research. In this case, lecturers are faced with the necessity and performance demands regarding their professional abilities. Improving the quality of education is pursued among others through the development of the quality of its educators, in this case lecturers. Many experts and leaders and observers of the quality of higher education such as (Miller, 1980; Sallis, 1993; Higino, 1996; Sutisna, O., 1983; Makmun, 1996; Hendrajaya, 1999), Soedjana Safii which suggest that lecturers are one of the vital components and the main driving factors of success of the education and teaching system which will ultimately affect the productivity of higher education.

Highlighting the effort to develop qualified teaching staff, it is necessary to strive to prepare and develop it in a planned and continuous manner, bearing in mind the demands of quality standards and educational needs as well as continually changing and developing. Therefore, in this case a standard is needed that can be used as a measure or criteria for lecturer performance, especially in teaching and research in an effort to improve lecturer performance. (Makmun, 1996) stated that because of that, as a professional lecturer, a lecturer is required to have competence where the impact on the quality of professional abilities and performance will contribute to the

quality of graduates produced which can further make the services of these graduates, or "outcomes", can be beneficial for development, which in turn will then show its influence on the quality of civilization and the dignity of people's lives, their people and humans in general. Improving the performance of lecturers in tertiary institutions needs to be better developed so that it can increase its contribution to tertiary performance which in turn will have an impact on the quality of tertiary education graduates who indirectly also for the success of national development.

Lecturers are one of the determining components of the quality of a college. College lecturers have diverse insights, perceptions, and motivations, so factors that are directly or indirectly related to lecturers are very complex. Every human being must have a goal to be achieved where he needs a boost in self that can cause stimulation to behave, which is called motivation. Motivation is a psychological condition that drives a person to meet his needs. High motivation to work will also affect a person's ability to complete their tasks. People who have high work motivation will try to achieve satisfactory results in their work. Thus it can be said that the level of motivation of a lecturer in teaching greatly influences his ability to achieve work performance. According to the observations of researchers, it seems that the motivation of lecturers in Indonesia is still low. This is evidenced, among others, from lecturers who teach but are less professional, lecturers rarely visit the library to update their knowledge and the lack of research and scientific work produced by lecturers. The hope is that lecturers can teach more professionally. Lecturers must be passionate about lifelong learning so they can keep up with the rapid development of science and technology.

According to observations in the field, many lecturers still rarely serve the community. Information and communication technology is a fast growing sector in the 21st century. 21st Century is an era where information and communication are more easily obtained by the use of information technology. Not only that, the use of information technology in people's lives is also growing very rapidly. Utilization of Information Technology is not only used in business sector organizations, but also in the public sector. One of the public sector agencies that utilize information system technology is a tertiary institution. For higher education institutions, information system technology has become a basic need to support the education process. Utilization of information technology is needed to improve efficiency and productivity for education management in tertiary institutions. Information Technology can be defined as a combination of computer and telecommunications technology with other technologies, such as hardware, software, databases, network technology, and other telecommunications equipment. (Maharsi, 2000).

The use of information technology applied in college is very useful, one of which is the organizing system which is paperless based (reducing paper usage). The development of information technology also caused the manual accounting system to be abandoned and replaced with an accounting information system (SIA). Performance or work performance is a record of the results achieved in completing work during a certain period (Berk, 1986: 237). Based on this definition, the performance is a record of the results achieved by lecturers in completing the tridarma of higher education and its supporting elements during the last three years, namely the January 2007 to 31 December 2009 school year. In line with Berk's opinion, Byars & Rue (1991: 250), they define performance as an effort that pleases the degree of accomplishment of the tasks achieved by an individual within a certain time. The main task of a lecturer is to carry out teaching, research, and community service to produce intelligent and competitive human resources. Furthermore, graduates are able to become intellectually, emotionally and spiritually intelligent human resources and able to compete at the local, regional, national and international levels. Lecturers in tertiary institutions are expected to consciously take an active role in every activity that includes the three Dharma of the tertiary institutions.

Based on opinion of Byars & Rue (1991: 250) above, the lecturer performance can be interpreted as the level of accomplishment of the tasks that have been achieved by the lecturer within a certain time. The performance of lecturers is influenced by several factors, both from outside and from within the lecturer. As revealed by Rivai & Basri (2005) who say that performance is the result or output of a process, which is influenced by several factors such as reward, encouragement, ability, needs, nature, perception of tasks, and satisfaction. This study aims to determine how much the influence of work motivation variables on the performance of LPTK lecturers (UNNES or Semarang State University) in an effort to build a 21st century profile of community needs and to determine how much the influence of information technology system support variables on the performance of LPTK lecturers (UNNES) in an effort to build a profile of community needs 21st century.

II. METHOD

This study includes ex post facto research categories with survey methods. This research used a quantitative descriptive research design. To analyze the strength of the relationship, it is based on exogenous and endogenous variables. In this study also performed several stages of regression. This research used a quantitative approach with Confirmatory Factor Analysis through LISREL analysis. The data used in this study is systematic empirical data. Researchers in this case cannot directly control the independent variables, because events have occurred in the past and by their nature, these variables can be manipulated. This research places the effect of work motivation and information system technology support on the performance of LPTK or Educational Institutions

for Education Personnel which in this case is lecturer (UNNES). The object of research used in this study was Semarang State University (UNNES) with the research sample being lecturers in 8 Faculties at UNNES totaling 950 lecturers. Meanwhile, in eight Faculties, they have lecturers is different number. Therefore the determination of the sample in this study was carried out by disproportionate stratified random sampling technique. Data collection in this study was carried out using survey instruments that had been tested for validity and reliability.

Table 1. Latent Variables, Measurement Variables and Questionnaire Items

No.	Latent Variable	Reliability Value	Measurement Variable
1	Motivation	0.850	1. Self development 2. Comfortability 3. Reward
2	System of Information Technology	0.917	1. Facilities 2. System of Information Technology 3. Skill and Expertise
3	Lecturer Performance	0.950	1. Teaching 2. Research 3. Devotion to the community

Data were analyzed descriptively with the help of SPSS software version 16.00 for Windows. For the analysis of the coefficient of determination is done with the help of LISREL software version 8.51 Windows application through computer media with the AMOS program (Ghozali, 2005).

III. RESULTS

The description of lecturer motivation as a variable in this study is seen from the aspects of self-development, comfort, and appreciation. Data on motivation of lecturers in developing profiles of 21st century community needs were obtained from questionnaires filled out by related lecturers. Overall description of the research data related to lecturer motivation is presented in Table 2 below.

Table 2. Description of Lecturer Motivation

Interval	Criteria	Total	Percentage
$X > 39.99$	Excellent	141	54.65%
$33.33 < X \leq 39.99$	Good	44	17.05%
$26.67 < X \leq 33.33$	Fair	39	15.12%
$20.01 < X \leq 26.67$	Poor	19	7.36%
$X \leq 20.01$	Bad	15	5.81%
Total		258	100.00%

The overall overall score for lecturer motivation is 37.13 with an overall standard deviation value of 8.47. In the table above, it can also be seen that the percentage of lecturer motivation is included in very good criteria, with a percentage of 54.65%. Meanwhile the motivation of the lecturers included in the good criteria was 17.05% and which is included in the criteria of quite good, not good, and bad respectively are 15.12%, 7.36%, and 5.81%. The description of the lecturer motivation description in the form of diagrams can be seen in the following figure.

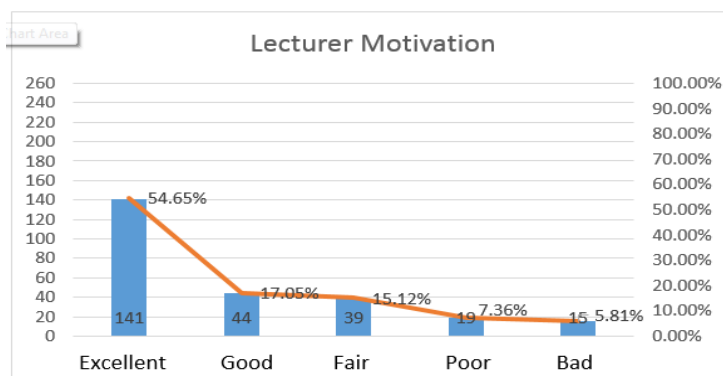


Figure 1. Lecturer Motivation

The diagram above is a description of the overall motivation of the lecturer. Furthermore, for the motivation of lecturers, if described based on the indicators, namely based on self-development, comfort, and appreciation, can be seen in Table 3 below.

Table 3. Description of Lecturer Motivation Based on Indicators

Criteria	Percentage		
	Self development	Comfortability	Reward
Excellent	55.81%	55.04%	54.26%
Good	14.73%	16.67%	17.05%
Fair	16.28%	12.79%	17.44%
Poor	6.20%	6.20%	5.81%
Bad	6.98%	9.30%	5.43%
Total	100%	100%	100%

The percentage of self-improvement indicators included in the excellent criteria is 55.81% and in the good criteria is 14.73%. The percentage of self-improvement indicators included in the criteria of very good and good is 70.54%. These results indicate that the level of motivation of lecturers when viewed from indicators of self-development has been classified as very high. The self-improvement indicators included in the criteria of quite good, not good, and bad are 16.28%, 6.20%, and 6.98%, respectively. On indicators related to comfort, the number of percentages included in the excellent criteria (55.04%) and good criteria (16.67%) amounted to 71.71%. These findings indicate that the level of comfort of lecturers is already relatively high.

On the other hand, the convenience of lecturers included in the criteria is quite good, not good, and bad have the percentage of 12.79%, 6.20%, and 9.30%, respectively. Next to the award indicator, the number of percentages included in the criteria is very good (54.26%) and good criteria (17.05%) is 71.31%. It means that the motivation of lecturers in terms of indicators of appreciation is quite good. Based on the percentage of motivational variable data tendency on indicators of self-development, comfort, and appreciation, it can be seen that the motivation of lecturers in developing a profile of the needs of the 21st century society in general tends to be included in the very good category. Data variable support for information technology systems in this study were obtained from the questionnaire results. The results of descriptive analysis related to the support of information technology systems in an effort to build a profile of the needs of the 21st century society can be seen in Table 4 below.

Table 4. Description of Information Technology System Support

Interval	Criteria	Total	Percentage
$X > 115.99$	Excellent	112	43.41%
$96.66 < X \leq 115.99$	Good	73	28.29%
$77.33 < X \leq 96.66$	Fair	73	28.29%
$58.00 < X \leq 77.33$	Poor	0	0.00%
$X \leq 58.00$	Bad	0	0.00%
Total		258	100.00%

The overall average value for information technology system support is 105.88 with an overall standard deviation value of 22.28. In the table above, it can be seen that the percentage of information technology system support included in the excellent criteria is 43.41%; good and quite good criteria at 28.29%; then the criteria which are not good and bad is 0.00%. The description of information technology system support in diagram form can be seen in the following figure.

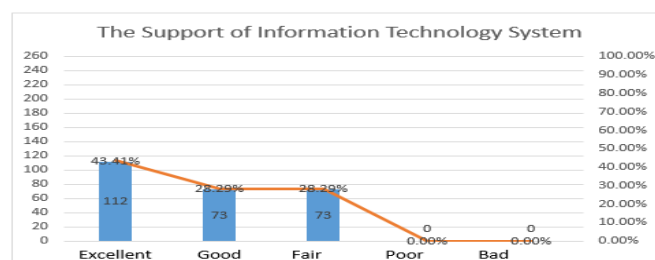


Figure 2. Information Technology System Support

There are 5 indicators in viewing the condition of information technology system support, namely the ease of using information technology systems, system benefits, attitudes in using information technology systems, willingness in using information technology systems, and appropriateness of the use of information technology systems. Descriptions of the five indicators can be seen in the following Table 5.

Table 5. Description of Information Technology System Support Based on Indicators

Criteria	Percentage				
	Ease	Benefit	Attitude	Willingness	Suitability
Excellent	45.74%	52.33%	27.52%	54.65%	38.37%
Good	24.42%	20.16%	39.92%	16.28%	29.07%
Fair	17.44%	16.28%	17.83%	18.22%	20.93%
Poor	6.98%	6.98%	9.69%	6.59%	7.36%
Bad	5.43%	4.26%	5.04%	4.26%	4.26%
Total	100%	100%	100%	100%	100%

The percentage of indicators of ease of use of communication technology systems included in the excellent criteria is 45.74% and the good criteria is 24.42%. The percentage of the convenience indicators included in the criteria of very good and good is 70.16%. This means that the level of ease of use of information technology systems is already relatively high. Conversely, the indicators of convenience included in the criteria of quite good, not good, and bad are 17.44%, 6.98%, and 5.43%, respectively. On indicators related to benefits, the percentage included in the criteria is very good (52.33%) and good criteria (20.16%) is 72.49%. This shows that the level of benefits of information technology systems is already relatively high.

Meanwhile the benefits of information technology systems that are included in the criteria of quite good, not good, and bad are 16.28%, 6.98%, and 4.26% respectively. In attitude indicator, the number of percentages included in the very good criteria (27.52%) and good criteria (39.92%) is 67.44%. This means that information technology systems seen from the attitude of their use are classified as high. The number of percentages included in the criteria of quite good, not good, and bad respectively are 17.83%, 9.69% and 5.04%. On indicators related to willingness, the percentage of numbers included in the very good criteria (54.65%) and good criteria (16.28%) amounted to 70.93%. This shows that the level of willingness of lecturers to use information technology systems is already relatively high. Next, the indicators included in the criteria of quite good, not good, and bad are 18.22%, 6.59%, and 4.26%, respectively. Furthermore, for the suitability indicator, the number of percentages included in the very good criteria (38.37%) and good criteria (29.07%) was 67.44%. These results indicate that information technology systems viewed from the suitability of their use, are classified as high. Based on the percentage of data trends, information technology system variables on indicators of convenience, benefits, attitudes, willingness, and suitability in an effort to build a profile of the needs of the 21st century society in general tend to be included in the high category. In this variable, research data on the performance of lecturers are obtained from the results of a questionnaire. A description of the overall performance level is presented in Table 6 below.

Table 6. Analysis of Lecturer Performance Description

Interval	Criteria	Total	Percentage
$X > 99.99$	Excellent	135	52.33%
$83.33 < X \leq 99.99$	Good	51	19.77%
$66.67 < X \leq 83.33$	Fair	43	16.67%
$50.01 < X \leq 66.67$	Poor	19	7.36%
$X \leq 50.01$	Bad	10	3.88%
Total		258	100.00%

The average overall value for organizational culture is 93.25 with an overall standard deviation value of 20.86. In the table above, it can be seen the percentage of lecturer performance included in the excellent criteria is 52.33%. Meanwhile, the lecturers' performance which was included in the good criteria has a percentage of 19.77%. Then those included in the criteria of quite enough has a percentage of 16.67%, the less good criteria is

7.36%, and bad criteria is 3.88%. The description of lecturer performance in diagram form can be seen in Figure 3 below.

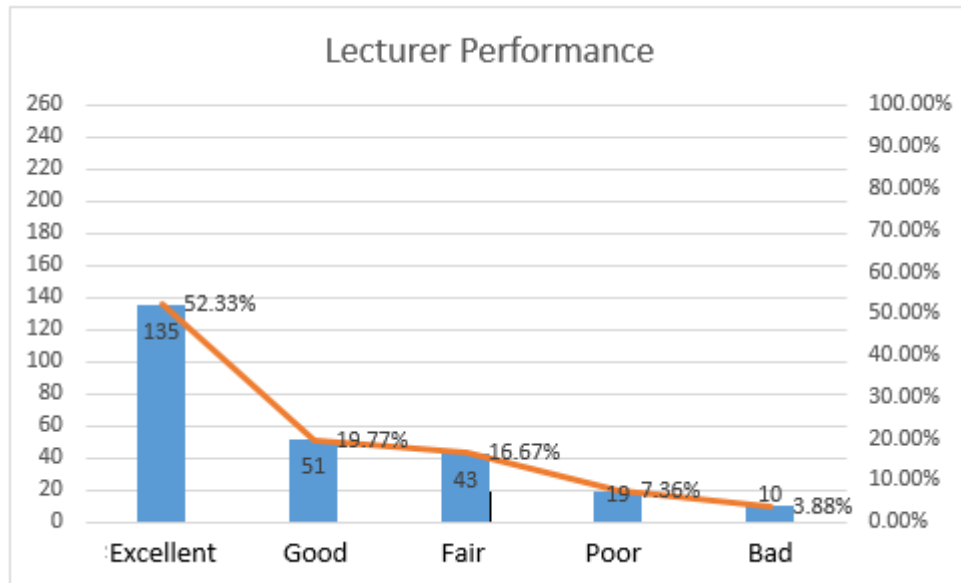


Figure 3. Lecturer Performance

The diagram above illustrates the overall lecturer performance. The performance of lecturers when described based on the indicators, such as teaching, research, and service, can be seen in Table 7 below.

Table 7. Description of Lecturer Performance Based on Indicators

Criteria	Percentage		
	Teaching	Research	Devotion
Excellent	53.10%	32.17%	47.29%
Good	18.99%	34.11%	22.87%
Fair	16.67%	18.22%	15.89%
Poor	7.36%	10.47%	8.91%
Bad	3.88%	5.04%	5.04%
Total	100%	100%	100%

The percentage of the teaching process indicators of lecturers included in the excellent criteria is 53.10% and good criteria is 18.99%. The percentage of indicators of teaching performance of lecturers included in the criteria of very good and good is 72.09%. These results indicate that the level of lecturer performance when viewed from teaching indicators is already high. Conversely, the indicators of performance or teaching, which are included in the criteria of quite good, less good, and not good respectively are 16.67%, 7.36%, and 3.88%. In the indicators related to the study, the number of percentages included in the very good criteria (32.17%) and good criteria (34.11%) amounted to 66.28%. This shows that the level of research performance of lecturers is already relatively high. While those included in the criteria of being good enough, less good, and not good were 18.22%, 10.47%, and 5.04% respectively. Furthermore, in the indicator of the performance of lecturers' devotion, the percentage included in the very good criteria (47.29%) and good criteria (22.87%) is 70.16%. which means that the level of performance of lecturer devotion is also relatively high.

The modeling used in this study is the structural equation model (SEM). SEM is a combination of psychometrics and statistics into one analysis process. Through SEM can be obtained information about the psychometric properties of measuring instruments (such as validity and reliability) as well as the relationship between the variables studied (regression). In other words, the identification of psychometric testing of measuring instruments is called the measurement model, while the testing of hypotheses is called the structural model. Furthermore, in SEM analysis techniques, the method used to estimate parameters is to use the Maximum Likelihood (ML) estimation method. The use of the maximum likelihood estimation method is based on fulfilling the univariate normality assumption. After the parameter estimation method is identified, the next step to take is

testing the measurement model. The measurement model testing results in this study are based on the path diagram results (see appendix) for the equation model. From these tests it was found that all indicators measuring each variable measured were valid. The valid results are based on criteria for factor loadings that are more than 0.3 and t-values of more than 1.96 (Yuniarti & Soenarto, 2016).

In the figure above, it can be seen that there are six variables in this study, namely motivation, information technology systems, organizational culture, social competence, job satisfaction, and lecturer performance. The results of testing the measurement model can be seen in Table 8.

Table 8. Measurement Model Test Results

Variable	Indicator	Factor Loadings	t-Value
Motivation	X1.1	0.94	20.14
	X1.2	0.88	18.05
	X1.3	0.96	20.29
The Support of Information Technology System	X2.1	0.92	19.42
	X2.2	0.95	20.56
	X2.3	0.87	17.66
	X2.4	0.92	19.43
	X2.5	0.87	17.73
Lecturer Performance	Y1	0.95	0.00*
	Y2	0.95	32.18
	Y3	0.92	28.74

*Reference variable

Based on the table, it can be seen that all indicators are valid for measuring each variable. In addition, the discriminant validity test obtained from the extracted variance value also shows a value greater than 0.5. Thus it can be concluded that the indicators in this study are valid in measuring the variables in the structural equation model. Then the reliability test for each research variable is based on the Cronbach's Alpha value and the reliability of the construct with the criterion value obtained must be greater than 0.7. The reliability test results and the variance extracted (VE) values can be seen in the following fit model measurement table.

Table 9. Measurement Value of Fit Model

Variable	Cronbach's Alpha	Construct Reliability	Variance Extracted
Motivation	0.906	0.972	0.948
The Support of Information Technology System	0.948	0.978	0.891
Lecturer Performance	0.833	0.978	0.958

Based on the reliability test results in the above table, the Cronbach's Alpha value and the construct reliability for all variables in this study have a reliability value which is greater than 0.7 which means that the instruments used in this study are reliable.

IV. DISCUSSION

The effect of work motivation variables on the performance of LPTK lecturers

Hypothesis testing in this study is intended to see the extent of the influence of work motivation on the performance of LPTK lecturers. Based on the results of data analysis that has been done using path analysis to see the effect of work motivation variables (X1) on the performance variables of LPTK lecturers (Y), the t-value of 2.867 is obtained. These results indicate that the t-value is more than 1.96 so it can be said that there is a significant influence on the variable work motivation (X₁) on the performance variables of LPTK lecturers (Y) or in other words H₀ is rejected. Furthermore, to find out how much the contribution of the influence of work motivation on LPTK lecturers' performance, is based on the value of the standardized factor loading. The standardized factor loading value obtained in the hypotheses test was 0.282. This value indicates that work motivation has a positive contribution to the performance of LPTK lecturers with a percentage of 26.99% (R² =

0.2699). The work motivation of lecturers is reflected in carrying out the duties of the Tri Dharma or Three Pillars of higher education, which includes: (1) perseverance in guiding, educating, and training, (2) actively conducting research with an interest in education, and (3) actively participating in community service activities.

This is in line with the results of research Juliningrum, E., & Sudiro, A. (2014) which states that there is a positive effect of motivation directly on employee performance where this can be proven by the values obtained in statistical calculations. In addition, it can also be seen from the existing field conditions, where employees have a high work ethic at work. In this case, motivational factors are so strong and arise in every employee. This is proven and can be seen directly in the field, where employees complete their work in between office breaks as the responsibility of completing each job properly and in accordance with predetermined targets.

A person's motivation starts from the needs, desires, and encouragement to act for the achievement of needs or goals. Motivation is an important variable where motivation is needed to get the most attention from the organization in order to improve the performance of its employees. Robbins & Judge (2007) define "motivation as the process that accounts for an individual's intensity, direction, and persistence of effort towards attaining a goal". Work motivation is the driving force that comes from a person to meet needs. A need is a gap experienced between a reality and an impulse that is in a person. Work motivation as a drive that encourages organisms to take action. The word drive in this case is described as a motivational aspect of an unbalanced body. Motivation is as an encouragement that awakens a person to get out of an imbalance or pressure. Work motivation is a condition that generates, drives, directs, and maintains employee behavior to work in the work environment in order to achieve personal and organizational goals. Thus, people who have high motivation tend to have high performance in completing tasks in work.

The effect of information technology system support variables on lecturer performance

Hypothesis testing on this variable is intended to see the extent of the influence of information technology system support on the performance of LPTK lecturers. Based on the results of data analysis that has been done using path analysis to see the effect of information technology system support variables (X_2) on the performance variables of LPTK lecturers (Y), a t-value of 2.867 is obtained. This shows that the t-value is more than 1.96. From this value it can be said that there is a significant influence on the information technology system support variable (X_2) on the performance variables of LPTK lecturers (Y) or in other words H_0 is rejected. Furthermore, to find out how much the influence of the information given by the information technology system support variables to the performance of LPTK lecturers, is based on the value of the standardized factor loading. The standardized factor loading value obtained is 0.131. This shows that the support of information technology systems made a positive contribution to the performance of LPTK lecturers by 12.34% ($R^2 = 0.1234$).

Conceptually, information technology system support is a collection of sub-systems that are interconnected with each other and work together in harmony to achieve the goal, namely processing data into information needed by information users in connection with academic and administrative activities. Information technology system support is demonstrated by the use of information systems in completing work tasks or activities. Measurement of user behavior can be shown based on: (1) intensity of use of *Sikadu* or Integrated Academic Information System, (2) frequency of the *Sikadu* used (3) number of *Sikadu* menus used. Kumaladewi, N., & Sugiarti, Y. (2016) strengthen the results of this study by stating that information technology has become a mainstay in Indonesia in developing a strong information system. In addition, information technology has also become one of the aspects needed in an educational institution in order to have a competitive advantage.

Throughout the development of technology, the need for reliable, fast, and accurate information is needed. Information systems have become assets that are very influential for the survival of an organization. Utilization of information technology is used as a decision maker. It is also needed so that from the decision making can be obtained results that match the quality of data or information (precise, accurate, and relevant). By using the right information technology, it can produce high quality information which in this case, the use of information systems can facilitate lecturers in doing their work.

V. CONCLUSION

Based on the results of research related to the effect of work motivation and information technology system support on the performance of LPTK lecturers (UNNES) in an effort to build a profile of 21st century community needs, it can be concluded that work motivation has a significant effect on the performance of LPTK lecturers which is signed with t- Value 2.867 where this value is greater than 1.96. Meanwhile, the support of information technology systems also had a significant effect on the performance of LPTK lecturers with a t-Value of 2,510, greater than 1.96.

REFERENCES

- [1]. Berk, R. A. (1986). *Performance Assessment Methods & Applications*. Baltimore & London: The Johns Hopkins University Press.
- [2]. Byars, L. L., & Rue, L. W. (1991). *Human Resources Management* (3rd ed). Boston: Irwin Inc.
- [3]. Byrne, B. M. (1998). *Structural equation modeling with lisrel, prelis, and simplis: Basic concepts*,

- applications, and programming. Structural equation modeling with lisrel, prelis, and simplis: Basic concepts, applications, and programming.* Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- [4]. Ghozali, I. (2005). *Analisis Multivariate dengan program SPSS (Edisi Ketu)*. Semarang: Badan Penerbit Universitas Diponegoro.
- [5]. Ghozali, I., & Fuad. (2005). *Structural Equation Modeling: Teori, Konsep, dan Aplikasi*. Semarang: Badan Penerbit Universitas Diponegoro.
- [6]. Hendrajaya, L. (1999). Proses Pertumbuhan Institut Teknologi Bandung. Dalam Rumusan, Pengertian, dan Gambar ITB.
- [7]. Higino, A. A. (1996). *The Academic Executive, Handbook on Higher Education Administration* (2nd ed). SEAMEO Regional Center for Graduate Study and Research in Agriculture.
- [8]. Husein, Ismail H Mawengkang, S Suwilo "Modeling the Transmission of Infectious Disease in a Dynamic Network" *Journal of Physics: Conference Series* 1255 (1), 012052, 2019.
- [9]. Husein, Ismail, Herman Mawengkang, Saib Suwilo, and Mardiningsih. "Modelling Infectious Disease in Dynamic Networks Considering Vaccine." *Systematic Reviews in Pharmacy* 11.2, pp. 261-266, 2020.
- [10]. Muqdad Irhaeem Kadhim, Ismail Husein. "Pharmaceutical and Biological Application of New Synthetic Compounds of Pyranone, Pyridine, Pyrimidine, Pyrazole and Isoxazole Incorporating on 2-Flouroquinoline Moieties." *Systematic Reviews in Pharmacy* 11 (2020), 679-684. doi:10.5530/srp.2020.2.98.
- [11]. Hamidah Nasution, Herlina Jusuf, Evi Ramadhani, Ismail Husein. "Model of Spread of Infectious Diseases." *Systematic Reviews in Pharmacy* 11 (2020), 685-689. doi:10.5530/srp.2020.2.99.
- [12]. Husein, Ismail, Dwi Noerjoedianto, Muhammad Sakti, Abeer Hamoodi Jabbar. "Modeling of Epidemic Transmission and Predicting the Spread of Infectious Disease." *Systematic Reviews in Pharmacy* 11.6 (2020), 188-195. Print. doi:10.31838/srp.2020.6.30
- [13]. Husein, Ismail, YD Prasetyo, S Suwilo "Upper generalized exponents of two-colored primitive extremal ministrong digraphs" *AIP Conference Proceedings* 1635 (1), 430-439, 2014
- [14]. Husein Ismail, Rahmad Syah, "Model of Increasing Experiences Mathematics Learning with Group Method Project", *International Journal of Advanced Science and Technology*, pp. 1133-1138, 2020.
- [15]. S Sitepu, H Mawengkang, I Husein "Optimization model for capacity management and bed scheduling for hospital" *IOP Conference Series: Materials Science and Engineering* 300 (1), 01,2016.
- [16]. Miller, R. I. (1980). *The Assessment of College Performance, A Handbook of Techniques and Measures for Institutional Self Evaluation*. Jossey-Bass Publishes.
- [17]. Rivai, V., & Basri, A. F. M. (2005). *Peformance Appraisal: Sistem yang tepat untuk Menilai Kinerja Karyawan dan Meningkatkan Daya Saing Perusahaan*. Jakarta: RajaGrafindo Persada.
- [18]. Sallis, E. (1993). *Total Quality Management in Education Third Edition*. Taylor & Francis e-Library.
- [19]. Sallis. (2004). *Total Quality Management*. London: Kogen Limited.
- [20]. Sutisna, O. (1983). *Administrasi Pendidikan Dasar Teoritis Untuk Praktek Profesional*. Bandung: Angkasa.
- [21]. Yuniarti, N., & Soenarto. (2016). validitas konstrak instrumen evaluasi outcome lembaga pendidikan guru vokasional. *Jurnal Penelitian dan Evaluasi Pendidikan*, 20(2), 221–233. <https://doi.org/http://dx.doi.org/10.21831/pep.v20i2.8448>