

THE EFFECT OF MOTIVATION AND COMPETENCE ON EMPLOYEE PERFORMANCE IN SATELLITE TECHNOLOGY CENTER - NATIONAL INSTITUTE AERONAUTICS AND SPACE

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Abstract: This study aims to analyze the effect of motivation and competency factor on employee performance in Satellite Technology Center – National Institute of Aeronautics and Space. This study uses a quantitative approach using descriptive analytic survey with cross-sectional study. Respondents in this study of 79 people who are employees of part dissemination, program and facility, administration. The data analysis used in this research were descriptive analysis and Structural Equation Modeling (SEM) PLS. The results show that motivation has significant effect either directly or indirectly through the competency on employee performance in Satellite Technology Center – National Institute of Aeronautics and Space.

Keywords: motivation, competency, employee performance

Human resources (SDM) are very important asset in an organization. Human resources focus on the strength coming from human potential within the scope of organization and become the basic capital for an organization in doing activities in achieving goals (Sunyoto 2015).

Human resources who have motivation are the determinant of success in the achievement of organizational goals. The success of an organization depends on how to draw the motivation

of employees and keep it in the good performance (Muindi and K'obonyo 2015).

The study which was conducted by Hendriani, et al. (2014) entitled "Contribution Motivation and Competence to the Change of Organizational Effectiveness" shows that in reality, motivation and competence are two things that contribute to the effectiveness of an organization. Organizational effectiveness, either directly or indirectly, affects the achievement of organizational goals.

National Institute of Aeronautics and Space (LAPAN) is one of Non-Ministerial Government Agencies conducting the task of government in research and development of aeronautics and space technology, utilization and implementation of space activities, which is in accordance with Law of the Republic of Indonesia number 21 of 2013 on Space Activities. Satellite Technology Center is one of



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work units in LAPAN. Satellite Technology Center has main tasks to carry out research, development, engineering, and utilization and the implementation of space activities in the field of satellite technology.

As a research and development institute, employees in Satellite Technology Center – LAPAN, most of which are functional researchers, engineers, and litkayasa technicians should have good performance to be able to produce a research result which is useful for society, by the publication of scientific journals. Here is the recapitulation of the number of publication of National KTI Journal from 2013 to 2015, which can be seen in Table 1.

Table 1 Recapitulation of the Publication of National KTI

Year	Target	Realization	Achievement
2013	35	31	88,5 %
2014	40	14	35 %
2015	40	19	47,5 %

Source: LAKIP Satellite Technology Center - LAPAN

Based on Table 1, the number of performance achievement for scientific publication of National KTI of 2013 showed good results, it can be seen from the achievements of performance, amounted to 88.5%. However, in 2014, the achievement performance of scientific publications of National KTI decreased very drastically, and then in 2015 it increased, but the amount was not too significant. The realization was still below 50%.

In addition to these conditions, based on the interview with the Civil Service Division in Satellite Technology Center - LAPAN, nowadays there are many employees who often late in presenting log book report and technical report in each month. Those reports should have been submitted not later than the fifth day in each month, but the reality that occurs is in contrast to the existing regulations. Many employees submit those reports later than the

schedule which has been set. Since 2014, those reports are submitted and the indication from the year to year remains the same; there are always employees who submit those reports late.

If those various problems related to human resources are not investigated further, it will affect either directly or indirectly to the achievement of the organizational objectives. By studying the employee performance, then we will be able to know the things that are most influential in performance, so it will be found the right strategy to be able to improve the performance of employees in Satellite Technology Center - LAPAN.

This research of the influence of motivation and competence on employee performance is based on the study which was conducted by Rakhma, et al. (2015), which is based on the thought that in order to maximize the organizational performance, qualified elements to maximize the performance of the organization is required. Human resources owned by the organization have various characteristics, including motivation, competence, and performance. Riyanti and Sudibya (2013) stated that motivation and competence partially affect the performance of employees. The objectives of this research are 1). To analyze the influence of motivation on the performance of employees in Satellite Technology Center - LAPAN, 2). To analyze the influence of competence on the performance of employees in Satellite Technology Center - LAPAN, 3). To analyze the influence of motivation on the competence of employees in Satellite Technology Center - LAPAN.

RESEARCH FRAMEWORK

The hypotheses proposed in this research are:

- H1 = Motivation significantly affects employee performance in Satellite Technology Center - LAPAN.
- H2 = Competence significantly affects employee performance in Satellite Technology Center - LAPAN.
- H3 = Motivation significantly affects employee competence in Satellite Technology Center - LAPAN.

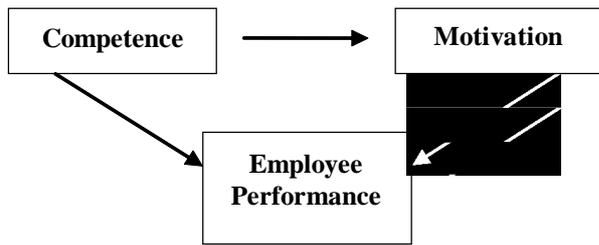


Figure 1 Research Framework

METHOD

This research examines the relationship between motivation, competence, and employee performance in Satellite Technology Center - LAPAN. This research was conducted in Satellite Technology Center - LAPAN Rancabungur - Bogor. The data were collected in October 2016. This study was designed by using quantitative approach. The research method used is descriptive analysis with cross sectional approach. This study used 79 respondents. The samples were chosen by using proportional random sampling.

Variables in this study consist of motivation (X1), which is exogenous variable, variable of competence (X2), and variable of employee performance (Y), which is endogenous variable. Variable X1 has a direct relationship with variable Y, but variable X1 also has an indirect relationship with variable Y through variable X2.

In this research, the data were collected by using closed questionnaire with Likert scale. In the measurement, it used the Likert scale with 5 categories (very agree, agree, less agree, disagree, disagree). The data obtained were then processed by using descriptive statistic, while analysis and hypothesis testing in this study used Structural Equation Modeling or SEM PLS. In SEM PLS, there are two criteria of analysis which are conducted gradually, namely 1) Outer model, which is the model that connects all manifest variables or indicator with latent variables. Outer model is assessed by using reliability and validity (Sarwono and Narimawati 2015); 2) Inner Model is the model that connects latent variables with others. Inner model is evaluated by looking at the value of R-square for the

construct of dependent latent, t-test, as well as the significance of parameter coefficient in the structural path. Change of the value of R-square can be used to assess the effect of independent latent variables on dependent latent variables.

Development of instruments in this study is based on the concept of motivation which was delivered by George and Jones (2012), the concept of competence developed from the opinion of Rivai and Sagala (2009), and employee performance which is taken based on the opinion of Nawawi (2006).

RESULTS

Respondent Characteristics

This research was trying to study the respondents based on several characteristics, namely gender, status, age, education and length of working time.

If reviewed based on gender, the respondent characteristics indicated that the most of the respondents are male, amounted to 63 respondents, while female respondents, amounted to 16 respondents. Based on observation in the field, it appears that technical tasks are dominated by male employees. Most of the respondents have married, with the percentage of 87.34%, while the rest are unmarried, with 12.66%. Most of the respondents were in productive age between 30-40 years old, with the percentage of 58.23%. Only a small fraction of respondents are in productive age, who are more than 30 years old, with 12.66%. The education level of most respondents is S1, amounted to 46.84%, while a small fraction of respondents are S0, amounted to 5.06%. This shows that most employees of Satellite Technology Center are highly educated. The higher education level, then the tendency to have competence is high as well. It also shows that the employees in Satellite Technology Center require higher education to be able to develop the required technology better. The scope of work by using high technology in certain parts demands the understanding and knowledge of employees. Frequency distribution of respondent characteristics is presented in Table 2.

Table 2 Frequency Distribution of Respondent Characteristics

No	Characteristic	(n)	(%)
1	Sex		
	a. Male	63	79.75
	b. Female	16	20.25
2	Status		
	a. Married	69	87.34
	b. Unmarried	10	12.66
3	Age		
	a. <30 years old	10	12.66
	b. 30-40 years old	46	58.23
	c. 41-50 years old	11	13.92
	d. ≥ 51 years old	12	15.19
4	Education		
	a. SMA	20	25.32
	b. S0	4	5.06
	c. S1	37	46.84
	d. S2	18	22.78
5	Length of Working time		
	a. < 5 years	9	11.39
	b. 5-10 years	32	40.51
	c. 11-15 years	18	22.78
	d. 16-20 years	5	6.33
	e. 21-25 years	2	2.53
	f. 26-30 years	6	7.59
	g. ≥ 31 years	7	8.86

Data source: Processed data in 2016

The Influence of Motivation and Competence on Performance

SEM PLS is an analysis tool used to see the influence of motivation and competence on performance. Latent variables in this study are motivation, competence, and performance. Each of those variables has the manifest variable (indicators) reflective of the latent variables. SEM PLS uses criteria including two parts, namely outer model and inner model.

Model of Motivation and Competence on Performance

SEM PLS model which was used to analyze three latent variables, namely motivation, competence, and performance was SMART PLS version 2.0. Based on the results of an initial analysis in the reflective outer model, there is the evaluation of

model improvement conducted by looking at each coefficient of latent variable and the indicator. A coefficient value below 0.7 should be removed from this model. The reflective outer model assessment was done by comparing factor loading with its standard value. An indicator that has factor loading value below the standard should be removed from this model. An indicator that does not meet the standard value in this model is removed gradually; starting from removing indicator that has the smallest factor loading and does not meet the standard value, until obtaining the best model in accordance with the standard. Model improvement is done by looking at the coefficient of each indicator and the relationship between latent variables and the outer model. Evaluation of the coefficient value in the reflective model was conducted by removing indicator that has a coefficient value below the standard. After that, re-process was done without indicator that has been removed to obtain the best model. The final model obtained is presented in figure 1. Motivation is only reflected by 7 indicators, competence is reflected by 7 indicators, and performance is reflected by 9 indicators.

Evaluation of Outer Model Assessment

Outer model is a model that connects all manifest variables or indicator with latent variables (Sarwono and Narimawati 2015). The outer model analysis was conducted done on the latent variable of motivation (X1), competence (X2), and performance (Y). Composite reliability of this model for the latent variable of motivation is 0.908, for competence is 0.896, and for performance is 0.916. Cronbach's Alpha for the latent variable of motivation is 0.882, for competence is 0.896, and for performance is 0.916. This value is far above 0.7, which shows good stability and consistency of internal indicator, both in the latent variable of motivation, competence, and performance.

Indicator reliability is shown by loading factor value, which reflects the interrelation between the latent variable of motivation, competence, and performance with each indicator.

The initial model shows that the indicator of competence, which is knowledge, is shown by giv-

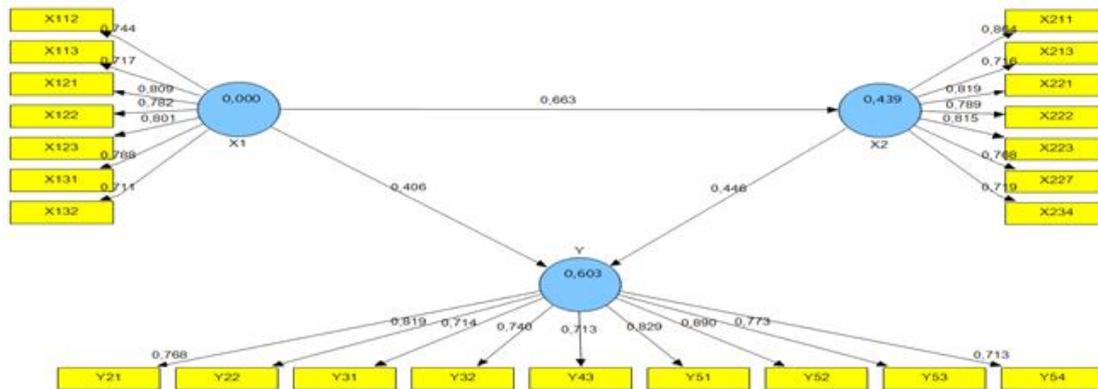


Figure 2 Analysis results of final model

ing an opportunity to improve knowledge through training (X215) has the small loading factor value, below 0.7, so it should be removed from the model and the model should be reprocessed to obtain the best model. In the final model, the loading factor value of indicator remaining in those three latent variables is above 0.7 and has very good indicator reliability.

Based on figure 2, motivation (X1) in the final model is reflected by seven indicators, namely conveying ideas owned which carry positive impact for agency (X112), working seriously though the leader is not monitoring (X113), doing the task given by the leader the best they can (X121), willing to work hard to reach the target of agency (X122), working hard to give excellent results (X123), will not give up although there are many problems faced (X131), and will be looking for another alternative when the attempt did not produce maximum results (X132). Those seven indicators have loading factor value above 0.7, so they really reflect the motivation of employees in Satellite Technology Center - LAPAN.

Those indicators show that basically, employees in Satellite Technology Center - LAPAN have strong motivation in working, so all kinds of the idea they have will be realized to achieve the target of an agency. Employees often work overtime if there are very important jobs.

The final model of latent variable of competence (X2) shows that there are seven indicators that reflect the competence itself, namely: knowl-

edge supporting the professionalism at work (X211), master the field of work undertaken currently (X213), skill owned supports the completion of daily work (X221), being able to solve the problems that occur at work (X222), the skill owned makes employees more confident in finishing their work (X223), have enough experience in the current field/ job position (X227), and happy if given the task which requires high skill (X234).

Meanwhile, in latent variable of performance (Y) and its indicator, indicators that have the greatest reliability reflecting performance are the tendency of employees to build a good cooperation with the leader (Y52 = 0.890), fostering good cooperation with colleagues (Y51 = 0.829), keeping the quality of work in finishing the task given (Y22 = 0.819), willing to help coworkers who find difficulty (Y53 = 0.773), working accurately (Y21 = 0.768), in doing the task given, employees try make the schedule plan of work, so it can be completed in time (Y32 = 0.740), being able to finish the work on time (Y31 = 0.714), working seriously (Y43 = 0.713), and willing to help the co-workers who are absent (Y54 = 0.713).

In Figure 2, it also can be seen in the final model that there is direct influence of motivation on performance, amounted to 0.406, while the influence of indirect motivation on performance if through competence (0.663 X 0.446), then the result is 0.295. So, in this case, it can be seen that the direct influence of motivation on performance is higher.

Table 3 Assessment Results Criteria

No	Criteria	Explanation	Standard	Assessment results
1	Composite reliability (rc)	Internal Consistency	> 0.7	X1 = 0.908 X2 = 0.918 Y = 0.931
2	Cronbach's alpha	Consistency test reinforcement	> 0.7	X1 = 0.882 X2 = 0.896 Y = 0.916
3	Average Variance Extracted (AVE)	Construct Validity	> 0.5	X1 = 0.586 X2 = 0.618 Y = 0.601

Source: Primary Data, processed (2016)

Assessment results in a reflective outer model and the value of standard fulfilled are presented in Table 3.

Evaluation of Assessment of Inner Model

Inner model can be tested by looking at the value of R2 in dependent construct. This test is used to test the feasibility of model or goodness of fit. The construct of performance in Satellite Technology Center - LAPAN obtained R2 value of 0.603,

which means that variants of performance in Satellite Technology Center - LAPAN can be explained by the variability of motivation and competence amounted to 60.3% (0.603 X 100%), while the rest is described by other variables outside which are not studied. The value of R-square, which is 0.603, is categorized among moderate and substantial, but it is closer to substantial.

The next step was looking at the significance of the influence of independent construct (exog-

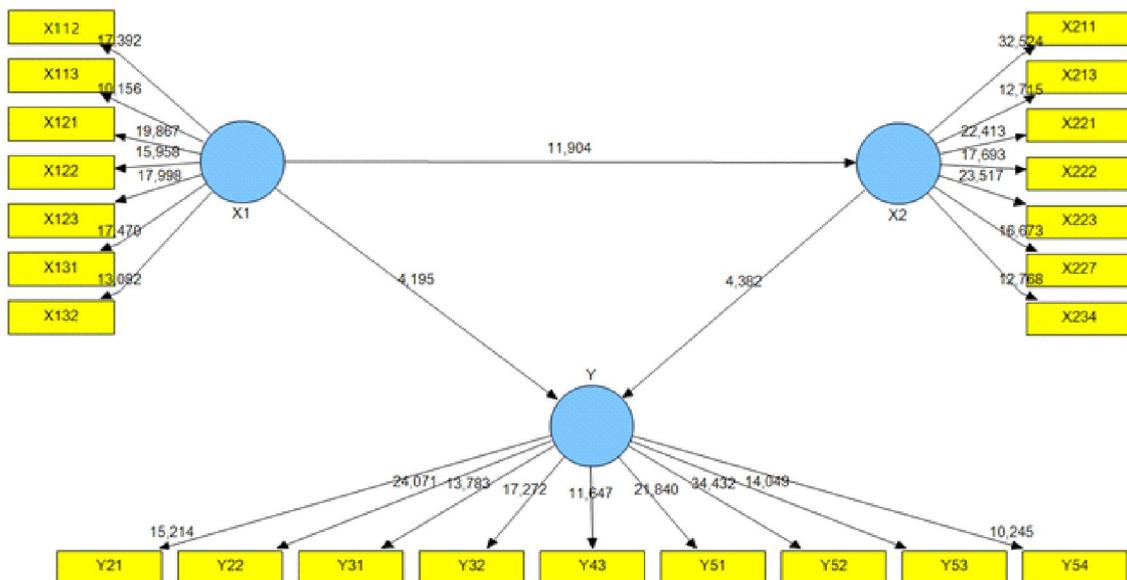


Figure 3 PLS Bootstrapping Model

enous) on dependent construct (endogenous) and answered what has been hypothesized. The test was conducted with a significance level of 5%, if the value of T-statistics > 1.96, then the null hypothesis (H0) is rejected. The value of T-statistics coefficient of the influence of latent construct was obtained from PLS bootstrapping. The results of the PLS bootstrapping model of Satellite Technology Center – LAPAN are presented in figure 3 below.

Parameter coefficient value can be seen in path coefficient value and t-statistics value presented in table 4 below.

Based on the results of data analysis in table 4, it is known that the value of T-statistic > 1.96,

then H0 is rejected. It proves that all hypotheses that are proposed in this research are true, namely: motivation significantly influences employee performance (H1), competence significantly influences employee performance (H2), and motivation significantly gives positive influence on competence (H3).

DISCUSSIONS

The results obtained in this study are in accordance with the results of the study conducted by Pramono (2007), which shows that performance is significantly influenced by motivation. The find-

Table 4 Value of Coefficient (Original Sample), Standard Error and T-Statistics

Test of Influence	Original Sample (O)	Standard Deviation (STDEV)	Standard Error (STERR)	T-Statistics (O/STER)
Motivation -> Competence	0.663	0.056	0.056	11.904
Motivation -> Performance	0.406	0.097	0.097	4.195
Competence -> Performance	0.446	0.102	0.102	4.382

ings obtained in this research are also in accordance with the results of the study conducted by Achim et al. (2013) that employee motivation affects the performance of organization and performance obtained in the organizational level depends on the quality in motivating human resources. It is in line with the study conducted by Fomenky (2015) with the dimension of intrinsic and extrinsic motivation, that motivation provided by the organization has a significant influence on employee performance. It is in line with the theory that effort which is appreciated will result in greater value than effort which is appreciated. Employees expect every effort they have made to be appreciated and recognized, that will eventually lead to improvement in their performance. The research which was conducted by Aly and Shanawany (2016) showed that intrinsic motivation has a positive and significant relationship with performance and employee productivity.

Based on the results of this study, there is a positive and significant relationship between competence and employee performance. Related to it, then good competence will increase employee performance. It is in line with the study which was conducted by Rahmat (2015), which tested the relationship between competence and work environment with employee performance in Department of Youth and Sports in Gorontalo city. The results showed that there is a positive and very significant relationship between competence and employee performance, and there is also a significant relationship between work environment and employee performance. It is supported by the research conducted by NGO et al. (2014), which shows that there is significant and positive influence between the competence of human resources on the performance of the company. The results of this study are also in line with the results of research conducted by

Prasetio et al (2014), that competence affects the performance of employees.

This study also shows that motivation significantly influences the competence of employees. It is in accordance with the opinion of Sutrisno (2009), that a person acts on his/ her own accord to develop his/ her skill optimally. This shows that one's motivation will drive his/ her to develop his/ her competence.

CONCLUSIONS AND SUGGESTIONS

The results of this study show that motivation significantly influences employee performance in Satellite Technology Center - LAPAN, competence significantly influences employee performance in Satellite Technology Center - LAPAN, and motivation significantly influences the competence of employees in Satellite Technology Center - LAPAN.

Motivation has the effect on the performance of the employee. Related to it, the management of Satellite Technology Center should maintain and improve the motivation of employees in carrying out their daily work and in fulfilling organizational goals. Management should further improve the motivation of employees, one of the ways is by providing the facilities to make the employees comfortable, giving more reward to employees who have good performance and giving punishment to employees who have bad performance. Satellite Technology Center - LAPAN should create comfortable working atmosphere, which will drive employees to be able to maximize the potential they have.

Competence has significant effect on performance; therefore the management of Satellite Technology Center – LAPAN should pay more attention to the improvement of employee competence, generally for all employees, especially for the researchers, engineers, and litkayasa, which are the major source in the development of satellite technology, with a variety of activities which support it.

There are 58.23% of 79 employees who are in a productive age in Satellite Technology Center who become respondents in this research. It can be considered as the potential of Satellite Technology Center - LAPAN to be able to develop more com-

petence owned by employees, especially with most of the employees (46.84%) who have a bachelor degree, so employees already have sufficient educational background to improve the competence owned maximally. Further research should extend the scope of research, not only in one unit, but the research can be done in one agency with all units it has.

REFERENCES

- Achim, I.M., Dragolea L., and Balan G. 2013. *The Importance of Employee Motivation to Increase Organizational Performance. Annales Universitatis Apulensis Series Oeconomica* Volume 15, No. 2, pp. 685 – 691.
- Aly, N. A. E. F. M. and Shanawany, S. M. E. 2016. *The Influence of Performance Appraisal Satisfaction On Nurses's Motivation and Their Work Outcomes Critical Care and Toxicology Units. European Scientific Journal*, Volume 12, No. 20, pp. 119 – 135.
- Fomenky, N. F. 2015. The Impact of Motivation on Employee Performance. *Global Conference on Business and Finance Proceedings* Volume 10, No. 1, pp. 332-336.
- George, J. M., & Jones, G. 2012. *Understanding and Managing Organizational Behavior*. New Jersey: Upper Saddle River.
- Hendriani, S, Efni Y, and Siswanto N. 2014. *Contribution of Motivation and Competence to the Change of Organization Effectiveness. Journal of Applied Sciences* Vol. 14 No. 22, pp. 2994 – 3000.
- Muindi, F. and K'Obonyo, P. 2015. *Quality of Work Life, Personality, Job Satisfaction, Competence, and Job Performance: A Critival Review of Literature. European Scientific Journal*, Volume 11, No. 26, pp. 223-240.
- Nawawi, H. 2006. *Evaluasi dan Manajemen Kinerja di Lingkungan Perusahaan dan Industri*. Yogyakarta: Gadjah Mada University Press.
- Ngo, H. Y. and Jiang, C. Y., and Loi R. 2014. Linking HRM Competency to Firm Performance: An Empirical Investigation of Chinese Firms. *Personnel Review* Volume 43, No. 6, pp. 898-914.
- Rakhma, N. A., Sulandari, S., and Maesaroh. 2015. *Hubungan Kompetensi dan Motivasi dengan Kinerja Dinas Sosial Kabupaten Wonosobo. Journal of Public Policy and Management Review* Volume 4, No. 2, pp. 383 – 392.
- Rahmat, A. 2015. *Hubungan Kompetensi dan Lingkungan Kerja dengan Kinerja Pegawai Dinas Pemuda*

- dan Olahraga di Kota Gorontalo*. Jurnal Manajemen Volume XIX, No. 01, pp. 122-135.
- Rivai, V. and Sagala E. J. 2009. *Manajemen Sumber Daya Manusia untuk Perusahaan Dari Teori ke Praktik*. Jakarta (ID): PT. RajaGrafindo Persada.
- Riyanti, G. A. R. and Sudibya I. G. A. 2013. *Pengaruh Motivasi dan Kompetensi terhadap Kinerja Karyawan pada RSU Dharma Usadha*. Jurnal Universitas Udayana, Volume 2, No. 6, pp. 610 – 624.
- Sarwono J. and Narimawati U. 2015. *Membuat Skripsi, Tesis dan Disertasi dengan Partial Least Square SEM (PLS-SEM)*. Yogyakarta (ID): CV. Andi Offset.
- Sunyoto, D. 2015. *Manajemen dan Pengembangan Sumber Daya Manusia*. Yogyakarta: CAPS.
- Sutrisno, E. 2009. *Manajemen Sumber Daya Manusia*. Jakarta (ID): Kencana.