



The Human-Tech Equation: Optimizing Performance in The Digital Workplace

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Abstract: The purpose of this study is to find out and analyze: (1) Application of Information Technology (2) Competence; (3) Employee Performance and (3) Effect of Application of Information Technology and Competence on employee performance in the West Java Provincial Education Office, both simultaneously and partially. The research method used in this study was descriptive survey and explanatory survey, the unit of analysis in this study were employees in the Education Office of West Java Province with a sample of 50 people. The type of investigation is causality, and the time horizon in this study is cross-sectional. Based on the results of the study, it was found that the Application of Information Technology received by employees at the West Java Provincial Education Office was relatively adequate, the Competencies of Employees of the West Java Provincial Education Office were appropriate and sufficient to meet the needs, Employee Performance at the West Java Provincial Education Office was high, and The application of Information and Competence Technology simultaneously affects the Performance of Employees in the West Java Provincial Education Office. But Partially the Application of More Dominant Information Technology Affects Employee Performance rather than Competence. Because the Application of Information Technology is dominantly affecting performance, it is the first priority in improving employee performance. then the West Java Provincial Education Office is recommended to be given the appropriate Information Technology Application by increasing the ease of use of other information technology, so that they are able to work more professionally.

Keywords: Application of Information Technology, Competence, Employee Performance

INTRODUCTION

HR as the main tool in the organization has a very potential role, so it needs to get effective management and can be developed to support future organizations. Whereas on the other hand, the competent human resources currently available in the organization actually tend to be limited and decreasing, because naturally employees will experience retirement, quit, move, die, go on sabbatical or there may also be termination of employment (PHK). This is a natural process and its implications need to be anticipated by the organization. Therefore, in order for the performance of the organization to be maintained, every time there is a vacancy in a

position, those who are competent with HR issues need to prepare replacement employees who have competencies in accordance with the competencies required by the position. For this reason, HR planning starting from the recruitment process, selection, employee placement, education and training and career development will greatly affect the future performance of the organization.

The problem that occurs at the West Java Provincial Education Office is that employees are not fully aware of the objectives of employee development, this can be seen from the fact that there are still employees who have low quality education and do not match the type of work with the expertise possessed by employees as well as misplacement and distribution of employees in each work unit that is less balanced and there are employees who do not participate in employee development programs, namely through education and training provided by the West Java Provincial Education Office. This can lead to a decrease in the number of employees who excel.

In addition, the role of human resources of the West Java Provincial Education Office has not been able to utilize information technology and update spatial information, among others, the West Java Provincial Education Office has not utilized website media as a means of information on improving the quality of education; not yet trained human resources in the field of information technology in utilizing information technology facilities and infrastructure to improve the quality of education; and the unavailability of educational information in accordance with current conditions, so that information on the West Java Provincial Education Office can not be published globally; human resources in the field of education do not have the ability and skills to utilize spatial information technology facilities; and public knowledge about West Java Provincial Education is still low. This is necessary because human resources today are the most valuable asset, especially for agencies/organizations, although on the other hand employee performance is still relatively below the targets and expectations of the organization, which can be seen in Table 1, below.

**Table 1 Employee performance within the provincial education office
West Java January-March Period**

| No. | Variables | Targer % | Current State % | Ket |
|-----|------------------------------|----------|-----------------|--------------|
| 1. | Accuracy in completing work | 90 | 60 | Not achieved |
| 2. | Quantity of work completed | 85 | 65 | Not achieved |
| 3. | Work that refers to the plan | 95 | 65 | Not achieved |

Source: West Java Provincial Education Office, 2019

Benardin and Russel (2003: 397), say that "*officer performance depends on ability, effort job and opportunity of job able to assess from generated output of satisfaction of job officer of itself*". Some HR management experts argue that quality HR is HR that has at least four characteristics, namely (1) having adequate *competency (knowledge, skills, abilities and experience)*; (2) *commitment* to the organization; (3) always acting *cost-effectively* in every activity, and (4) *congruence of goals*, namely acting in harmony between personal goals and organizational goals (Ruky, 2006: 56).

Based on the above statement, it is suspected that employee performance is less than optimal due to employees who lack competence in the field of information technology and lack the spirit of competing / competing honestly and sportively in upholding professional ethics as employees of the state civil apparatus.

The problems mentioned above are still coupled with the ability or competence of

employees who are not entirely able to use information technology applications properly, plus the limited accessibility facilities needed to carry out the data input process - process - to output.

From the entire explanation above, it is very clear that good management skills are needed and are also supported by a good management information system, so that the management of the West Java Provincial Education Office can take the right actions and decisions in achieving organizational goals, especially in facing the Asean Economic Era, where bureaucratic services must be based on e-government.

METHOD

The research conducted was survey research where the research was conducted by taking a sample of one population and using a questionnaire as the main data collection tool. The research was conducted to obtain an overview of information technology, competence and performance and measure the effect of information technology and competence on employee performance through hypothesis testing. In this regard, two types of research are used, namely descriptive and verification research. Where in this study it will be tested whether information technology and competence affect performance. Given the nature of this research is *descriptive* and verification carried out through data collection in the field, the research methods used are *descriptive survey method* and *explanatory survey method*. The type of investigation in this research is causality, which is a type of research that states a causal relationship between the *independent variable*, in this case information technology and work competence on the *dependent variable*, namely performance. The unit of analysis in this study is the individual, because only employees are used as respondents. The *time horizon* in this study is *crosssectional*, namely information from a portion of the population (sample respondents) is collected directly from the location empirically, with the aim of being collected directly from the location empirically, with the aim of knowing the opinion of a portion of the population on the object under study.

Data Source and Data Collection Method

The source of data in this study is secondary data sources from documentation or reports available at the organization (performance evaluation of the West Java Provincial Education Office, 2019). While primary data on communication, competence and employee performance comes from employees at the West Java Provincial Education Office as respondents. The population in this study were all employees in the West Java Provincial Education Office, namely (N) 138 people. In this study, the sample size is determined by the form of statistical tests to be used. The statistical test to be used is *path analysis* where the path coefficient is basically a correlation coefficient.

Analysis Design and Hypothesis Test

Based on the method used in data collection, the variables that have ordinal size are then transformed into interval form using the *Method of Successive Intervals*. Prior to the distribution of the instrument, the validity and reliability of the instrument were tested using the *Corelation Product Moment* formula and the Reliability test using the *Cronbach's Alpha* formula using SPSS 11.5.

RESULTS AND DISCUSSION

Implementation of Information Technology at the West Java Provincial Education Office

Based on the results of the study, it was found that the application of information technology according to employees of the West Java Provincial Education Office is generally relatively quite appropriate, but there are still those who are less concerned, because the application of information technology can support the improvement of the performance of

employees at the West Java Provincial Education Office.

Employee competence at the West Java Provincial Education Office

The competence of employees at the West Java Provincial Education Office is generally in accordance with the needs, but there are still things that must be considered, especially lack of managing and organizing work so that it can be completed on time; lack of directing work partners in carrying out work and not being able to carry out all managerial tasks that are their responsibility. Thus, employee competence is high, but with several indicators that must be considered, the institution should improve the competence of its employees both through education and training, so that in the future it will encourage the achievement of high employee performance.

Employee Performance at the West Java Provincial Education Office

The performance of employees of the West Java Provincial Education Office has a fairly high performance, but there are things to note about employees who do not try hard enough to improve their performance above the set standards, abilities that are still far below the standard and the quantity of work that is still below the average for other employees. Therefore, in order to improve performance, it is necessary to improve quality and quantity by evaluating the amount of work that has been successfully carried out, creativity, innovation in competitive advantage and comparative ability as well as possible to carry out the tasks assigned to him based on experience and sincerity and the time available.

Effect of Information Technology Implementation and competence on employee performance at the West Java Provincial Education Office

To find out whether the independent variables, namely the effect of Information Technology Implementation and competence on employee performance at the West Java Provincial Education Office, are carried out using *path analysis* and the software used is SPSS release 12. The steps taken are to calculate the correlation between variables, so that it is obtained as table 2 below.

Table 2 Correlation matrix between variables
Correlations

| | | Performance | IT Implementation | Competence |
|---------------------|-------------------|-------------|-------------------|------------|
| Pearson Correlation | Performance | 1.000 | .570 | .580 |
| | IT Implementation | .570 | 1.000 | .440 |
| | Competence | .580 | .440 | 1.000 |
| Sig. (1-tailed) | Performance | | .000 | .000 |
| | IT Implementation | .000 | | .000 |
| | Competence | .000 | .000 | |
| N | Performance | 50 | 50 | 50 |
| | IT Implementation | 50 | 50 | 50 |
| | Competence | 50 | 50 | 50 |

Source: SPSS output results

Furthermore, based on the results of the correlation matrix calculation, the path coefficient can be calculated, the overall effect of X₁ to X₂ and the path coefficient of other variables outside the variables X₁ to X₂ as shown in table 3 below.

Table 3 Magnitude of Path Coefficient

| | | |
|---|------------|-------|
| Path coefficient of X ₁ on Y | <i>pyx</i> | 0.570 |
| Path coefficient of X ₂ on Y | <i>pyx</i> | 0.580 |

Source: SPSS output results

The calculation results for the multiple determination coefficient ($R^2_{Y.X1, X2}$), the correlation coefficient ($R_{Y.X1,X2}$), the coefficient of determination of other variables on Y ($P^2_{Y\epsilon}$), and the path coefficient of other variables on Y ($P_{Y\epsilon}$), are shown in table 4 below:

Table 4 Multiple Determination Coefficient, and Path Coefficient of Other Variables

| | | |
|---|-------------------|-------|
| Multiple Determination (R^2) | $R^2_{Y.X1, X2}$ | 0.622 |
| Multiple Correlation Coefficient | $R_{Y.X1, X2}$ | 0.723 |
| Determination of Var. Other to Y | $P^2_{Y\epsilon}$ | 0.378 |
| Path Coefficient X ₂ Var. Other to Y | $P_{Y\epsilon}$ | 0.440 |

Source: SPSS output results

This means that the effect of variables X₁, and X₂ together on variable Y is 0.622 or 62.2% of variables X₁, and X₂ together affect Y, and the remaining 0.378 or 47.8% is influenced by other variables not included in the study.

Based on the theoretical framework that there is an influence between the Application of Information Technology and competence on employee performance at the West Java Provincial Education Office, then we will test the overall hypothesis in the form of table 5 as follows:

Table 5 Simultaneous Test Results of X1 and X2 on ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 609.035 | 2 | 304.518 | 25.704 | .000 ^b |
| | Residuals | 556.824 | 47 | 11.847 | | |
| | Total | 1165.859 | 49 | | | |

a. Dependent Variable: Performance

b. Predictors: (Constant), Competence, IT Implementation

Source: SPSS 12.0 Output

From table 5 above, it can be seen that the F_{count} value is 25,704 with a sig. Level of 0.00 is smaller than 0.05, so it can be concluded that the simultaneous test results are proven or significant, so that it can be continued in further analysis with partial testing.

While the results of the causal relationship or direct influence of X1 and X2 on Y, can be seen in table 6 below.

Table 6 Influence of Variables X1 and X2 to Y and Influence Beyond Variables X1 and X2

| Interpretation of Path Analysis | | |
|---------------------------------|-----------|------------|
| Description | Influence | % |
| Effect of X1, X2 to Y | 0.622 | 62.2 |
| Influence Beyond X1, X2 | 0.378 | 37.8 |
| Total | | 100 |

Source: Statistical Processing Results SPSS Program

From the test results it can be seen that the Application of Information Technology and competence affect employee performance at the West Java Provincial Education Office which is 62.2%, while the remaining 37.8% is influenced by other factors not examined by the author, namely work climate, motivation, commitment, leadership, work culture, work environment. However, when viewed partially, the application of information technology dominantly affects employee performance rather than competence, from the results of hypothesis testing, a diagram of the causal relationship between variables X_1 , X_2 to Y can be drawn as follows:

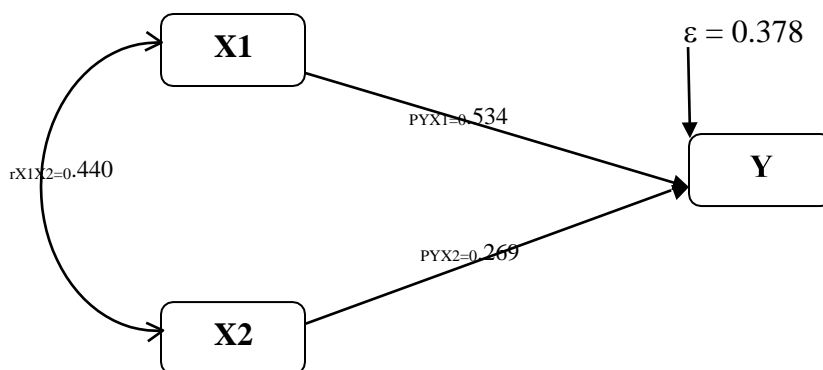


Figure 1: Causal Diagram Between Application of Information Technology (x_1), Competence (x_2) and Employee Performance (Y)

As in Figure 1 above, it can be seen that the Application of Information Technology dominantly affects employee performance with a path coefficient of 0.534 with a tcount of 4.355 with a t value of t_{tabel} at a significance level of $\alpha (0.05) = 1.96$, rather than competence of 0.269 with a tcount of 2.194 with a t value of t_{tabel} at a significance level of $\alpha (0.05) = 1.96$, and both variables are proven to affect employee performance, as shown in Table 7 below.

Table 7 Partial Path Coefficient Testing

| Path Coefficient Symbol | | thitung | ttable | Conclusion |
|-------------------------|-------|---------|--------|--|
| PYX | 0.534 | 4.355 | 1.96 | Ho reject There is an effect of Information Technology Implementation on employee performance |
| PYX | 0.269 | 2.194 | 1.96 | Ho reject There is an influence of competence on employee performance |

Source: calculation result

Based on the results of the above calculations, it can be revealed that the Application of Information Technology to employee performance at the West Java Provincial Education Office both directly and indirectly can be seen in table 8 below:

Table 8 Direct and Indirect Effects of Information Technology Implementation on Employee Performance

| Interpretation of Path Analysis | | | |
|---------------------------------|------------------------------------|----------------|----------------|
| Ket | | Influence | % |
| X1 | Direct effect to Y | 0.28516 | 38.5156 |
| | Indirect effect through X_2 to Y | 0.08188 | 8.18782 |
| Total | | 0.36703 | 46.7034 |

Source: Statistical Processing Results SPSS Program

From the table above, it can be seen that the contribution of the Application of Information Technology to employee performance directly amounted to 38.5156% with a tcount coefficient of 4.355, while for the value of t_{tabel} at the significance level $\alpha (0.05) = 1.96$, because the value of $t_{count} > t_{tabel}$, as well as indirectly through the competency variable of 8.18782%. While the contribution of Information Technology Implementation to employee performance as a whole reaches 46.7034%, it can be concluded that the Application of Information Technology has a significant direct effect on employee performance, this empirical evidence provides an indication that in an effort to improve employee performance, it is necessary to improve the Information Technology Implementation factor, because the Information Technology Implementation factor is closely related to improving employee performance. The path coefficient shows a positive and significant value, meaning that the better the Application of Information Technology provided will result in improved employee performance. This shows that the Application of Information Technology has an influence on employee performance, so that the contribution of the Application of Information Technology is very meaningful.

The results showed that in general, the application of information technology received affects the performance of employees of the West Java Provincial Education Office. In this case, the West Java Provincial Education Office implements the Application of Information Technology based on employee perceptions which are divided into 2 forms, namely direct Information Technology Implementation and indirect Information Technology Implementation. From the description above, it shows that the provision of Information Technology Implementation has an influence on performance. This shows that the Application of Information Technology provided to employees of the West Java Provincial Education Office makes a real contribution to their welfare.

Likewise, the results of the above calculations, it can be revealed that the effect of competence on the performance of employees of the West Java Provincial Education Office both directly and indirectly can be seen in table 9 below:

Table 9 Direct and indirect effects of competence on employee performance ai

| Interpretation of Path Analysis | | | |
|---------------------------------|------------------------------------|-----------|---------|
| Desc | | Influence | % |
| X2 | Direct effect to Y | 0.07236 | 7.2361 |
| | Indirect effect through X_1 to Y | 0.08188 | 8.18782 |
| Total | | 0.15424 | 15.4239 |

Source: Statistical Processing Results SPSS Program

From the table above, it can be seen that the contribution of competence to employee performance directly amounted to 7.2361% with a tcount coefficient of 2.194, while for the value of t_{tabel} at the significance level $\alpha (0.05) = 1.96$, because the value of $t_{count} > t_{tabel}$, as well as indirectly through the Information Technology Implementation variable of 8.18782%. While the contribution of competence to employee performance as a whole reaches 15.4239%, it can be concluded that competence has a significant direct effect on employee performance, this empirical evidence provides an indication that in an effort to improve employee performance, it is necessary to improve competency factors, because competency factors are closely related to improving employee performance. The path coefficient shows a positive and significant value, meaning that the better the competence in the sense that the formation of attitudes depends on the interaction between the circumstances or environmental conditions of the work itself and from oneself will improve employee performance, as stated by Asthon (1996 b: 19) explaining that competence is "The description of the knowledge, skills, attitudes and abilities

of an employee to achieve the most effective performance" While Traves in Murley (1997: 21) explains that the competence of an employee is the most important factor in improving employee performance.

Competence is "The capability of a person to use the skills possessed, in order to produce the best service performance" This is also supported by Zeithaml (1990: 21) which states that Competence is "the level of skills and knowledge possessed by an employee to be able to achieve certain service performance and produce the best service".

From the above statement, it is clear that aspects of capability, knowledge, quality, and ability, which are elements of competence, are the aspects used to measure employee performance. So that the West Java Provincial Education Office allegedly still has other interests in performance assessment, for example orientation to power, closeness to superiors, or employee loyalty to superiors that are more considered.

The overall performance of employees at the West Java Provincial Education Office is considered quite good, especially the responsibility in handling work. The quality of work standards set have been achieved by most employees. Employees always try to improve the quality of their work and work well even without supervision from their superiors. Work performance can also be measured through the enthusiasm and responsibility of employees and in this case it is considered very good.

Employee performance itself can be influenced by the Application of Information Technology and competence factors, and therefore the size of employee performance in individuals and groups depends on the efficient and effective Application of Information Technology and according to these competencies, so that the better the competence, and the adequate Application of Information Technology, the employee performance will increase. This indicates that in an effort to improve performance, it is necessary to improve and increase the factors of Application of Information Technology and competence, because the Application of Information Technology and competence are closely related to improving performance.

Based on the results of the discussion above, it turns out that performance is influenced by these two variables, according to Wahyudi's opinion (2002: 101) which states that performance is an evaluation that is carried out periodically and systematically and needs 5 basic conditions that must be possessed by labor / employees to excel in the work they do, the four conditions referred to are:

- 1) Work ability (competence) in carrying out good work obtained from the results of work in their work;
- 2) Successful participation in training and development programs;
- 3) Job satisfaction in order to improve work discipline and motivate work and improve performance;
- 4) the attitude of employees in dealing with their work
- 5) Compensation both direct and indirect.

From this opinion it turns out that performance is influenced by competence, training programs, development, job satisfaction, motivation, work discipline, employee attitudes and application of information technology. So that performance improvement is influenced by the application of information technology and employee competence.

CONCLUSION

The application of information technology received by employees at the West Java Provincial Education Office is generally relatively inappropriate, but there is still less attention, especially the ease with which information technology is given to employees to use. The competence of employees at the West Java Provincial Education Office is high enough to meet the needs of the sub-district, but there are things that need attention, especially lack of managing and organizing work so that it can be completed on time; lack of directing work partners in

carrying out work and not being able to carry out all managerial tasks that are their responsibility. Employee performance at the West Java Provincial Education Office is relatively low, because there are several things to note, namely employees who do not try hard enough to improve their performance above the set standards, abilities that are still far below the standard and the quantity of work that is still below the average of other employees. Application of Information Technology and competencies simultaneously affect employee performance Competence. However, partially, the application of information technology dominantly affects employee performance rather than competence. And partially, the effect of competence and Application of Information Technology on performance is as follows:

- a. The application of information technology affects employee performance, so that the higher the application of information technology received by employees, the better employee performance will be.
- b. Competence affects employee performance, so that if the competence of employees is correct, employee performance will also increase.

REFERENCES

- Azwar Saifuddin, 2003, Human Attitudes, Theory and Measurement, Pustaka Pelajar, Yogyakarta.
- Dharma, Agus, 2005, Work Performance Management, Ghalia Indonesia, Jakarta.
- Fajar Maya Sari, The Effect of Competence and Work Environment on Job Satisfaction and Teacher Performance in State Elementary Schools in Gondang Mojokerto District. Journal of Economics & Management April 2013, Vol. 9 No.2. pp. 137 - 153.
- Ferdinand. 2006. Management Research Methods: Research Guidelines for Thesis, Thesis and Dissertation in Management Science. Semarang: Diponegoro University.
- Hadi, 2001, The Self of Man Based on Whitehead's Philosophy of Organism, Kanisius, Jakarta.
- Handoko, Hani T., 2003, Personnel and Human Resource Management, BPFE, UGM, Yogyakarta.
- Handoyo, 2000. Various Techniques of Labor Development, Batara Karya Aksara, Jakarta.
- Hasibuan, 2005. Elements that are assessed by leaders against their subordinates. Husnan, Suad and Ranupandjoyo, Heidjrachman, 2000, Personnel Management, BPFE, UGM, Yogyakarta.
- Mangkunegara. 2005. Human Resources of the company. Remaja Rosdakarya Bandung
- Manullang, 2001. Personnel Management, Ghalia Indonesia, Jakarta.
- Mappi, 2002, Adolescent Psychology, National Business, Surabaya.
- Moekijat, 2002. Personnel Administration, Rinneka Cipta, Jakarta.
- Musaneff, 2003. Personnel Management in Indonesia, Gunung Agung, Jakarta. \ Notoadmojo, S. 2003, Research Methodology, Rineka Cipta, Jakarta.
- Poedjawijatna, 2000, Knowing and Knowledge, Rineka Cipta, Jakarta. Poewadarminta, W.J.S., 2006, General Dictionary of Indonesian Language, Balai Pustaka, Jakarta.
- Purwanto, Erwan Agus. 2006. Competence of Structural Position. Paper. Yogyakarta.
- Riduwan, 2002, Scale Measurement of Research Variables, Alfabeta, Bandung.
- Ruky Achmad S., 2002, Performance Management System. PT Gramedia Pustaka Utama. Jakarta.
- Sani, Deep, 1993. Effectivizing Performance, PT. Binawan Presindo Library, Jakarta.
- Sekaran, Uma. 2000. Research Methodology. Publisher of Salemba Four, Yogyakarta.
- Siagian, P. Sondang, 2003, Philosophy of Administration, PT Haji Masagung, Jakarta
- Simamora Henry, 2004, Human Resource Management, STIE, YKPN, Yogyakarta.
- Sinungan, M., 1987. Productivity. Jakarta: Bumi Aksara.
- Sugiyono, 2008. Qualitative and R&D Research Methods. Bandung Alfabeta.
- Sugiyono. 2013. Management Research Methods. Bandung: Alfabeta

- Sunarto, 2004. Regional Autonomy and Public Services, downloaded from : [http// www. pu.go. id.](http://www.pu.go.id)
- Supranto, 2005. Statistics Theory and Applications, Second Printing, Jakarta: E Erlangga Publishers.
- Syahroni, Barkah. 2006. Position Analysis in relation to Position Competency Standards. Paper. Yogyakarta.
- Thoha, Miftah. 2003, Perspectives on Bureaucratic Behavior, Rajawali Pers, Jakarta Law Number 43 of 1999 concerning Amendments to Law Number 8 of 1974.
- Widjaya, 2006, Personnel Administration An Introduction, Jakarta, Rajawali. Winardi, 2006. Office Management and Supervision, Alumni Bandung.
- Winkel, W.S., 2001, Educational Psychology and Learning Evaluation, jakarta, PT. Gramedia
- Yunus, eddy (2009). The Influence of Human Resource Competencies on Employee Performance of Kppbc Type Madya Customs Tanjung Perak Surabaya. Journal of Economics and Finance ISSN 1411-0393 Accreditation No. 110/DIKTI/Kep/2009.