The Influence of Knowledge Management on Employee Performance in MIPA Department

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Abstract: Knowledge management is a concrete form of knowledge management in the Mathematics and Natural Sciences department. The components of knowledge management that want to see the effect are humans, process and technology on employee performance. The aim is to determine the effect of knowledge management (people, process and technology) on employee performance. This type of research is experimental and research instruments questionnaire sheets and interview sheets. The significance value of knowledge management on employee performance is 0.260 > 0.05. This means that there is no effect of knowledge management (X) on employee performance (Y). The correlation value (R) is 0.353, meaning that the correlation between the two variables is weak and the R value is positive, meaning that there is a positive and unidirectional relationship between the knowledge management variable and employee performance. The people indicator on employee performance has a significance value of 0.158 > 0.05. This means that there is no effect of the people indicator on employee performance. Correlation of 0.456 means that the relationship between the two variables is weak. The process indicator obtained a significance value of 0.471 > 0.05. This means that there is no effect of process indicators on employee performance. The correlation value (R) is 0.243, meaning that the correlation between the two variables is weak. The significance value of technology indicators on employee performance is 0.3 > 0.05. This means that there is no effect of technology indicators on employee performance. The correlation value (R) is 0.344, meaning that the correlation between the two variables is weak. Then the R value for the people, process and technology indicators is positive, meaning that there is a positive and unidirectional relationship between the people, process and technology variables and employee performance.

Keywords: Knowledge management; People; Process; Technology; Employee performance

Introduction

The development of information technology today is much faster than in previous years. Technology transformation from the past to technology that is easier, more sophisticated and faster. Data or information that in ancient times took days to be processed before being sent to other parts or parts of the world, can now be done in seconds. the rapid development of information technology. In the current era of environmental accelerator development and change, information and communication technology (ICT) plays an important role in the macro survival of organizational executives (Kalashi, et al, 2020). ICT is conceived as a means to facilitate knowledge management (KM) processes in 21st century organizations (Ocaña et al., 2020). Feedback from an organization's performance can be obtained more quickly if using ICT and can be done in a more integrated and coherent manner (Jafari et al., 2011). The combination of computer technology with telecommunications has resulted in a revolution in the information sector.

The era of rapid development of information technology also certainly influences developments in various sectors such as the economy, education, culture and health. The condition of increasingly stringent competition in the era of globalization has led to the
need for a paradigm shift from resource-based competitiveness to relying on knowledge-based competitiveness (Sari, 2014), namely: 1) relying on the advantages of natural resources in geographical location and conditions; 2) based on science and technology as well as corporate human resource development, where the two are very contradictory. To facilitate the development of tertiary human resources, it is necessary to have the ability to manage and develop the knowledge one has. The knowledge-based economy has placed importance on knowledge management. Effective knowledge management has been described as an essential ingredient for organizations wishing to ensure a sustainable strategic competitive advantage (Omotayo, 2015). Management of knowledge (Knowledge Management) in the end can be a reliable support for companies to increase competitiveness. Knowledge management must be carried out to pursue organizational goals (Easton, 2010).

Knowledge management aims to create value, utilize and perfect the company’s knowledge assets to achieve organizational goals (Hajric, 2018). Knowledge Management (KM) emerged as a scientific discipline whose goal is to process knowledge by acquiring, storing, transforming, distributing and using it, to achieve competitive advantage as well as to utilize individual and organizational knowledge for organizations (Maravilhas & Martins, 2019; Abu-Shanab & Shehabat, 2018), emphasizing content, practice and process (Ishak & Mansor, 2020) and timely accessible knowledge for the best decision-making (Kushniruk et al., 2020).

In knowledge management, managers must create an environment that promotes the sharing of ideas, not only in meeting rooms but also in corridors, employee relations, organizational intranets, social media, celebrating with staff as a form of informal interaction (Turyahikayo, 2021). Bhajaranu (Nurpratama, 2016) states that there are three important components in knowledge management, namely people, process and technology. Desouza (Omotayo, 2015) states that there are four components of knowledge management, namely knowledge, people, process and technology. These knowledge management components will assist the organization in realizing its vision and mission.

Today, knowledge management is considered as one of the most useful tools that can increase the productivity and effectiveness of an organization. The role of leadership in knowledge management practice is very important to motivate employees to share knowledge (Mas-Machuca, 2014). Knowledge sharing is effective in influencing employee performance in an organization (Sönmez akir & Adıgüzel, 2020). A government organization requires the ideas, ideas, knowledge and creativity of its employees from the lowest to the highest levels in order to succeed in the organizational environment in which it works. According to Vahedi & Rahbari (Kalashi, et al, 2020) knowledge management includes the process of creating knowledge, validating knowledge, forming it, distributing knowledge and its knowledge is used in an organization. Knowledge management is a key driver of organizational performance and an important tool for organizational survival, competitiveness and profitability (Omotayo, 2015). Therefore, the knowledge possessed by each employee is not hidden, not stingy in sharing knowledge but creating, managing, storing, sharing, and utilizing knowledge effectively. Knowledge management is very important for organizations to benefit from the value of knowledge.

The rapid transformation of change in information technology requires organizations to be able to survive at the macro level. The skills possessed by employees of the Mathematics and Science department of FKIP University of Mataram are important assets in the organization. Qudah & Melhem (Kalashi, et al, 2020) smart and knowledgeable employees as the most important assets of an organization’s company with creativity and innovation, the creation of new organizational processes and new technologies lead the organization towards sustainable competitive advantage. Creation of innovation and new knowledge is considered as one of the most important functions of government organizations. According to Vanderlinde, (Kalashi, et al, 2020) executives in government organizations need to implement knowledge management so that the management of creativity is more effective. Today, knowledge is one of the important factors in organizations with increasing emphasis on knowledge-based organizations rather than production-oriented organizations and up-to-date knowledge and information is an undeniable necessity for the survival of executive organizational life (Nemamyan, & Emami, 2016).

Employees as one of the categories of users can participate in managing and developing existing knowledge by contributing their knowledge (tacit) through creating knowledge files for the types of general knowledge above with the condition that this knowledge must be approved by the admin before publication (explicit) of that knowledge. Performance is the result of a process (Suryadi, 2010). According to Sari (2014) performance is a real behavior that will produce performance according to the capabilities possessed. Performance according to Sembiring (Nurpratama, 2016) is a description of the level of achievement of an activity, policy, program in realizing the vision, mission and goals of the organization. Fattah (Nurpratama, 2016) stated that performance is an ability based on knowledge, attitudes and skills as well as motivation in producing something. Each organization has its own goals and performance drivers of the employees it has.
Each employee has their respective duties and responsibilities which are implemented in an employee's performance. Identification of knowledge provides the greatest support in the formation of knowledge variables, as is done for PDAM employees whose knowledge is sufficient to carry out tasks and activities (Setyowati et al., 2020)

This study wants to examine how knowledge management affects employee performance in the Mathematics and Natural Sciences Department of FKIP, University of Mataram. Facing the era of globalization and towards leading majors, it is necessary to carry out knowledge management within the Mathematics and Natural Sciences department of FKIP University of Mataram, as a material consideration for policy makers to be able to map, record and have big data for employees or lecturers which are the advantages of each employees or lecturers, with the aim of being able to prepare themselves to compete in the international arena.

Method

This type of research is experimental research. The research subjects were 11 employees in the Mathematics and Natural Sciences Department of FKIP University of Mataram. It consists of four admins and seven laboratory assistants. The collection methods are questionnaires and interviews to record knowledge management of employees and their performance. While the research instruments are questionnaire sheets and interview sheets. Data analysis in this study is the hypothesis Ho, there is no effect of knowledge management on employee performance and Ha, there is an effect of knowledge management on employee performance.

Basis for decision making, if the significance value is <0.05 then Ho is rejected and Ha is accepted, meaning that there is an influence of knowledge management (X) on employee performance (Y) and if the significance value is > 0.05 then Ho is accepted and Ha is rejected, meaning there is no influence of knowledge management (X) on employee performance (Y).

Result and Discussion

Result

Employees in the Mathematics and Natural Sciences department of FKIP University of Mataram were the subjects of this study, consisting of eleven admins and laboratory assistants. The following is the process of filling out a questionnaire carried out by the admin and laboratory assistants in the biology laboratory.

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>16.831</td>
<td>1</td>
<td>16.831</td>
<td>1.425</td>
</tr>
<tr>
<td>Residual</td>
<td>118.086</td>
<td>10</td>
<td>11.809</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>134.917</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of the ANOVA table above, a significance value of 0.260 > 0.05 is obtained. This means that there is no effect of knowledge management (X) on employee performance (Y). Meanwhile, to see the magnitude of the correlation can be seen in Table 2.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.353</td>
<td>.125</td>
<td>.037</td>
<td>3.436</td>
</tr>
</tbody>
</table>

Based on the table above, it is obtained that the value of the correlation/relationship (R) is equal to 0.353, meaning that the correlation/relationship of the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between knowledge management variables and employee performance. Furthermore, from the output, the coefficient of determination (R square) is 0.125, meaning that the effect of the knowledge management variable on employee performance is 12.5%. Furthermore, if viewed based on knowledge management indicators on employee performance, it can be described as follows.

The effect of the people indicator on employee performance

The results of the analysis can be seen in the following table 3. Based on table 3, a significance value
of 0.158 > 0.05 is obtained. This means that there is no effect of the people indicator on employee performance.

**Table 3. Results of Analysis of Indicator People with Employee Performance.**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Eror of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.456</td>
<td>.208</td>
<td>.120</td>
<td>3.278</td>
</tr>
</tbody>
</table>

Based on table 4, it is obtained that the correlation value (R) is equal to 0.456, meaning that the correlation/relationship between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between the people variable and employee performance. Furthermore, from the output, the coefficient of determination (R square) is 0.208, meaning that the influence of the people variable on employee performance is 20.8%.

**Effect of process indicators on employee performance**

**Table 5. Results of Indicator Process Analysis with Employee Performance.**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.243</td>
<td>.059</td>
<td>-.045</td>
<td>3.574</td>
</tr>
</tbody>
</table>

Based on table 6, it is obtained that the correlation value (R) is equal to 0.243, meaning that the correlation/relationship between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between the process variable and employee performance. Furthermore, from the output, the coefficient of determination (R square) is 0.059, meaning that the effect of the process variable on employee performance is 5.9%.

**The Effect of Technology Indicators on Employee Performance**

**Table 7. Results of Indicator Technology Analysis with Employee Performance.**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.324</td>
<td>.118</td>
<td>0.20</td>
<td>3.460</td>
</tr>
</tbody>
</table>

Based on table 7, a significance value of 0.3 > 0.05 is obtained. This means that there is no effect of technology indicators on employee performance.

**Table 8. SPSS Results of Correlation Indicator Technology Correlation Values with Employee Performance**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Eror of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.243</td>
<td>.059</td>
<td>-.045</td>
<td>3.574</td>
</tr>
</tbody>
</table>

Based on the table above, it is obtained that the correlation value (R) is equal to 0.344, meaning that the relationship between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between technology variables and employee performance. Furthermore, from the output, the coefficient of determination (R square) is 0.118, meaning that the influence of technology variables on employee performance is 11.8%.

**Discussion**

The people indicator on employee performance has a significance value of 0.158 > 0.05. This means that there is no effect of the people indicator on employee performance. Correlation of 0.456 means that the relationship between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between the people variable and employee performance. The coefficient of determination (R square) is 0.208 meaning that the influence of the people variable on employee performance is 20.8%.

The process indicator obtained a significance value of 0.471 > 0.05. This means that there is no effect of process indicators on employee performance. The correlation value (R) is 0.243, meaning that the correlation between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between the process variable and employee performance. The coefficient of determination (R square) is 0.059 meaning that the effect
of the process variable on employee performance is 5.9%.

The significance value of technology indicators on employee performance is 0.3 > 0.05. This means that there is no effect of technology indicators on employee performance. The correlation value (R) is 0.344, meaning that the correlation between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between technology variables and employee performance. From the output, the coefficient of determination (R square) is 0.118, which means that the influence of technology variables on employee performance is 11.8%. Of the three indicators that have a dominant influence is people, followed by technology and process. In contrast to the results shown by Nurpratama (2016), the most dominant indicators are technology, then process, and finally people.

Then the significance value of knowledge management on employee performance is 0.260 > 0.05. This means that there is no effect of knowledge management (X) on employee performance (Y). The correlation value (R) is 0.353, meaning that the correlation between the two variables is weak. Then a positive R value means that there is a positive and unidirectional relationship between knowledge management variables and employee performance. The coefficient of determination (R square) of 0.125 means that the effect of the knowledge management variable on employee performance is 12.5%.

The relationship between the three indicators of knowledge management is weak, although positive. This can be done by monitoring workflow more intensively in the knowledge management process, integration of knowledge management sharing strategy techniques must be built in the employee environment. Habit of sharing in teamwork, cultivating attitude and motivation as well as instilling the vision and mission of the organization and forming an employee learning community. In the field of technology, of course there are facilities at every level.

In addition, the skills/skills possessed by admin and laboratory assistants are abilities in administration and academic services, processing data, managing laboratories and journals, turnitin, able to repository, calibrate and develop laboratory work methods, skilled in public speaking, IT, graphic design, proficient in microbial isolation, and microbiology.

Explicit tacit storage owned by each employee must of course be designed and stored in big data. Ideas or ideas stored in a folder by planning work and completing it on time. The ability of employees in professional laboratory management, development of isolation methods, computing in seeing inhibition of active compounds. Skills in designing, creating Portfolio Websites, being able to test pure compounds for antibacterial activity, Integration of online-based assignments. Utilization of centralized information, laboratory quality documents really need proper IT management.

Training that has been attended is of course a tacit resource that can be stored explicitly and shared with other employees who have not received training. Sakarya states that sharing information with employees and service consumers increases efficiency and contributes to the production of new information and solutions (Kazak, 2021). In other words, the data, information and knowledge sharing generated within or between organizations makes it meaningful and effective. Such as training in filling out SISTER and BKD lecturers, lecturers’ PAK, sample preparation. Making reagents and standard solutions, testing the antibacterial activity of certain compounds with a chemical laboratory, physical evidence of laboratory management activities. The framework for employee knowledge management must be carried out formally and bureaucratically so that performance can be improved either through observation or measurement of the analyzed knowledge products (Mingers & Standing, 2017).

For leaders or policy makers, it is necessary to provide training needed by employees in order to improve performance such as the ability to manage web and study program journals, computer training, data processing, calibration, computational laboratory training. Teamwork and IT training, work techniques in micro laboratories, technical guidance and management in the field of microbiology. Leadership policies to develop tacit to be explicit are urgently needed, leadership as one that can improve employee performance (Fatmawati et al., 2020). Besides that, rewards are to motivate employees to perform better by providing salary increases, awards, adequate work facilities, and professional development. Employee job satisfaction needs to be taken into account in order to increase employee motivation and performance, as was done at the XYZ Shipping company. Job satisfaction and motivation improve employee performance, and become a positive thing in the world of work (Octaviannand et al., 2017).

Employee performance must be improved, but must pay attention to job satisfaction and improve work discipline by providing stimuli to employees (Sari & Hadijah, 2016). Implementation of knowledge management at the institutional and individual levels needs to be done. Mapping, accelerating, and equitable development programs in the departments can be implemented successfully. While the application of individual knowledge management is discussed with the expertise and technology that supports it. Internet-based and desktop-based software can be used to help organize and present data (Praharsi, 2016). Knowledge
Management is an organizational activity in managing knowledge as an asset, it is necessary to channel the right knowledge to the right people and in a short time, so that they can interact, share knowledge and apply it in their daily work to improve organizational performance. In higher education studies, besides being an element of forming sustainable competitive advantage, knowledge is also a value created by universities to be conveyed to their consumers (Prabowo, 2010).

Conclusion

The three indicators of knowledge management namely people, process and technology have a weak relationship to employee performance but have a positive R value and are in line with employee performance. Likewise, the relationship between knowledge management and employee performance is weak and there is no effect of knowledge management on employee performance so it is necessary to map and collect employee tacit data by facilitating employees with adequate IT, developing abilities or skills needed by employees to improve their performance and providing rewards for employees who achievement, besides that the tacit owned by each individual is stored in big data so that it becomes explicit which is useful for Mathematics and Natural Sciences majors, especially faculties and universities in general.

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