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Original Article

The Influence of Education Level, Age and Work Experience on the Productivity of Employee Workforce at the Selaparang District Office, Mataram City

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This article contributes to:

Abstract. The purpose of this study was to analyze the effect of education level, age, and work experience on employee work productivity at the Selaparang District Office, Mataram City. The population in this study were all employees at the Selaparang District Office, Mataram City, totaling 31 people, consisting of 20 PNS, 1 PPPK, and 10 Non ASN. This study used the census method as a data collection method, with data collection techniques in the form of questionnaires and literature studies. The analysis techniques used were the Likert scale and Eviews 12 software, with multiple linear regression analysis methods, determination coefficient test (R^2), t test (partial), and F test (simultaneous). The results showed that the variables of education level, age, and work experience simultaneously had a significant effect on employee work productivity at the Selaparang District Office, Mataram City. The coefficient of determination (R^2) value was 0.62, which means that the three independent variables in the model can explain the variation in work productivity by 62%, while the remaining 38% was influenced by other variables outside this research model.

Keywords: Education Level, Age, Work Experience, Employee Productivity.

1. Introduction

Every agency activity can run because of human resources. Human resources are the main driver in managing or running an agency activity, both in running technological tools and in managing organizational/agency activities [1]. No matter how sophisticated the technology owned by an organization/agency is, it will not be able to run organizational/agency activities without human resources, because most of the human resources are what make the organization/agency successful, both in managing, controlling and utilizing technology. Every organization/agency always needs all its members who have the ability to contribute to good work results in accordance with the goals or expectations of the agency. With that, the success of an organization/agency can be determined by the existence of good human resource management [2].

Organization is a process of identifying and grouping the work to be done and responsible and building relationships for a purpose that makes members of the organization work together effectively in achieving goals. One of the most important elements in an organization is human resources [3]. The goals of the organization will not be achieved optimally if the human resources in it are not able to work together with each other and are based on competence in carrying out the tasks that are their responsibility [4]. In addition, the organization will certainly need human resources that

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are able to create balance in the dynamics of the organization, namely human resources that have character, are flexible and can adapt to every change.

Human resources are also the most important thing in an organization/agency because of their role as the subject of implementing policies and operational activities of an organization/agency. Quality human resources will produce high productivity, therefore every individual or group is required to improve their competence in order to have good performance. According to Salvadorinho and Teixeira [5] human resources are the science and art that regulates the relationship and role of the workforce to effectively and efficiently help realize the goals of the company, employees, and society. Research conducted by Ahmed et al. [6] found that without professional human resources, technological progress becomes meaningless. Based on this, human resources with high productivity are needed in an agency. Anwar and Abdullah [7] states that productivity is interpreted as the result of measuring performance by taking into account the resources used, including human resources. From the definition above, productivity has a very important role and greatly influences a person's performance in an organization or agency.

Productivity is important for an organization or individual to become more efficient, effective, and qualified which must be fulfilled by employees. An employee can be said to be productive if within a certain time he can complete the work that has been set and assigned to him. Basically, an employee must have an optimistic attitude rooted in the belief that tomorrow must be better than today and must be based on abilities and skills according to competence, and must be supported by high work discipline [8]. According to Hernita et al. [9], employee work productivity is the ability to produce goods or services from various resources and abilities possessed by each employee or employee. In general, work productivity can be interpreted as the ability to increase employee work results as reviewed from the resources owned by each individual. Regarding employee work productivity, it can be concluded that productivity is an increase in work results that are influenced by the abilities of employees (input) and produce goods or services (output).

Mataram City is the capital of West Nusa Tenggara Province, functioning as the center of government, education, and regional economy. With a continuously increasing population, the need for quality workers is one of the main priorities in supporting regional development [10]. Based on the latest employment data, the distribution of workers in Mataram City shows that education and work experience factors are important indicators in increasing productivity [11].

Table 1. Population data (percentage) aged 15 years and over who work according to highest level of education completed and main job status in Mataram City in 2023.

higher education Which is Completed	Primary Employment Status				
	Try	Worker/Employee Employee	Freelance Worker	Worker Family	Total
≤ Elementary School	52.63	35.50	5.52	6.53	100.00
Junior High School	40.58	41.45	6.13	11.84	100.00
Senior High School	35.23	52.71	3.76	8.29	100.00
Vocational School	24.66	66.82	1.52	7.00	100.00
Diploma	32.32	59.74	0.00	7.94	100.00
University	17.09	78.91	0.00	4.00	100.00
Total	35.28	54.10	3.32	7.31	100.00

Based on the 2023 Mataram City National Labor Force Survey data, the main employment status of the population shows a pattern related to the last level of education. Individuals with low education (elementary school or less) mostly work as entrepreneurs (52.63%), individuals with first education (junior high school) mostly work

as laborers/employees/staff (41.45%), while individuals with secondary education (high school/vocational school) and higher (diploma/university) tend to work as laborers/employees/staff, with the highest proportion of university graduates (78.91%). Casual workers and family workers have a smaller proportion at all levels of education. Overall, the majority of the population works as laborers/employees/staff (54.10). These data show that higher education is associated with employment in the formal sector.

Formal education in Mataram City shows a positive trend with the increasing number of secondary and higher education graduates. This has a direct impact on improving workforce competency. However, challenges remain, especially in matching educational qualifications with job market needs [12]. In addition, the productive age factor that dominates the workforce shows great potential to be optimized if supported by adequate training and work experience. The public sector, including government offices in Mataram City, continues to strive to improve efficiency and productivity through training and development of human resources [13]. The influence of age, education level, and work experience are important variables that affect individual and team performance in the government work environment [14]. This study used one of the government institutions in Mataram City, namely the Selaparang District Office.

Selaparang District, which is one of the districts in Mataram City, functions as an administrative and public service center for the local community [15]. With the increasing complexity of community needs, the role of competent government employees is becoming increasingly crucial. The Selaparang District Office plays a key role in ensuring the implementation of effective government administration. With an organizational structure designed to support various public services, this district office aims to increase productivity and efficiency of the workforce in various fields, such as population data management, development supervision, and cross-sectoral coordination [16]. Selaparang District itself has challenges in increasing the efficiency of public services, one of which is related to the optimization of human resources. The work experience of employees who play a role in building expertise and efficiency is another important factor that influences productivity [17].

Table 2. Data on the Number of Employees in Mataram City in Sub-districts Data as of December 2024

No	Subdistrict Name	ASN		Non Asn	Total
		PNS	PPPK		
1	Ampenan District	13	0	10	23
2	Sekarbela District	11	0	26	37
3	Selaparang District	20	1	10	31
4	Mataram District	17	0	38	55
5	Cakranegara District	14	1	13	28
6	Sandubaya District	15	0	11	26

Based on data from the Mataram City BKPSDM in 2024, the distribution of employees in six sub-districts indicates that most of the workforce consists of PNS and Non ASN, while PPPK is only found in Selaparang Sub-district with a total of 1 person. Mataram Sub-district has the largest number of employees, namely 55 people, consisting of 17 PNS and 38 Non ASN, making it the sub-district with the highest number of Non ASN. Sekarbela Sub-district is in second place with a total of 37 employees, dominated by Non ASN as many as 26 people. Furthermore, Selaparang Sub-district is in third place with a total of 31 employees, the majority of whom are PNS as many as 20 people. On the other hand, Cakranegara Sub-district has 28 employees, consisting of 14 PNS and 13 Non ASN. Sandubaya Sub-district recorded 26 employees, with 15 of them being PNS and 11 Non ASN. Meanwhile, Ampenan District is the district with the lowest number of employees, namely 23 people, consisting of 13 civil servants and 10 non-ASN. Overall,

these data show that the workforce in Mataram City is dominated by civil servants and non-ASN, with varying numbers in each district.

Based on previous research, it shows that the level of education has a significant influence on employee performance, where higher education increases analytical and technical skills [9]. This study shows that productive age (20–40 years) is often associated with high efficiency, while old age provides more experience to overcome work challenges. Worker productivity increases with work experience that allows for quick and effective detection of problems. This source highlights the importance of a balance between young age efficiency and old age experience in employee productivity [18].

This research is important to conduct for several main reasons. First, with the increasing demands of public services, sub-districts as the smallest administrative units must be able to meet community expectations quickly and efficiently [19]. Second, understanding the relationship between education, age, and work experience on employee productivity can provide an empirical picture for data-based policy making, such as increasing job training or adjusting workloads based on age and experience. Another urgency is the relevance of this research in supporting the vision of regional development of Mataram City, which emphasizes improving the quality of government services. This research is expected to provide practical recommendations for human resource management in the public sector, especially in Selaparang Sub-district [20].

2. Method

This study uses a quantitative approach with a survey method to test the effect of education level, age, and work experience on employee productivity at the Selaparang District Office, Mataram City. The study was conducted in 2025 with the location selected purposively because of the relevance of the object to increasing work productivity in sub-district-level government agencies. The study population was all active operational employees, totaling 31 people, with data collection techniques carried out by census using a closed questionnaire based on a five-point Likert scale. The instrument was compiled based on indicators from each variable and given directly to respondents. Data analysis used multiple linear regression to determine the simultaneous and partial effects of independent variables (education level, age, and work experience) on the dependent variable (work productivity). The classical assumption tests carried out included normality tests (using histograms and Jarque-Bera tests), multicollinearity (through VIF values), and heteroscedasticity (using scatterplots and White tests). Data processing was carried out using statistical software to obtain objective and accurate results. Hypothesis testing was carried out using the t-test to see the partial effect of each independent variable, and the F-test to test the simultaneous effect. The coefficient of determination (R^2) value is used to determine how much the independent variable contributes to explaining the dependent variable.

3. Results and Discussion

3.1 Respondent Characteristics

In this study, the respondents were employees of the Selaparang sub-district office in Mataram City, totaling 31 people. Based on the recapitulation results from 31 respondents, it is known that the last level of education that is most often taken is the Bachelor's degree (S1), which is 13 people or 41.94%. Meanwhile, respondents with the last education of elementary school are 1 person (3.23%), D3 are 4 people (12.90%), D4 are 2 people (6.45%), and S2 are 1 person (3.23%). The average level of education of respondents is 14.32 years, which is generally equivalent to the level between Diploma

III (D3) and Strata 1 (S1). This shows that most employees have taken higher education, which can support increased performance and productivity in the work environment. In terms of age, respondents under 35 years old are 7 people (22.58%), aged 35–45 years are 9 people (29.03%), and over 45 years old are 15 people (48.39%).

Table 3. Percentage of Data on the Number of Respondents Based on Education Level, Age and Work Experience Groups

Group	Category	Number of people)	Percentage
Level of education	Elementary School	1	3.23%
	Senior High School	10	32.26%
	Vocational High School	10	32.26%
	Islamic Senior High School	10	32.26%
	Diploma 3	4	12.90%
	Diploma 4	2	6.45%
	Bachelor's Degree	13	41.94%
	Master's Degree	1	3.23%
Age Group	< 35 years	7	22.58%
	35 – 45 years	9	29.03%
	> 45 years	15	48.39%
Work experience	< 10 years	7	22.58%
	10 – 20 years	21	67.74%
	> 20 years	3	9.68%

The average age of respondents in this study was around 35 years. This indicates that most employees are in the productive and mature age range, which is generally considered the optimal phase in the world of work. Meanwhile, based on work experience, there were 7 respondents (22.58%) with less than 10 years of work experience, 21 people (67.74%) with work experience between 10 and 20 years, and 3 people (9.68%) with more than 20 years of work experience. The average work experience of respondents was 14 years, which reflects the level of maturity and stability in carrying out duties and responsibilities in the sub-district government environment.

3.2 Classical Assumption Test

The results of the classical assumption test are seen from several parameters, the results of which can be seen as follows:

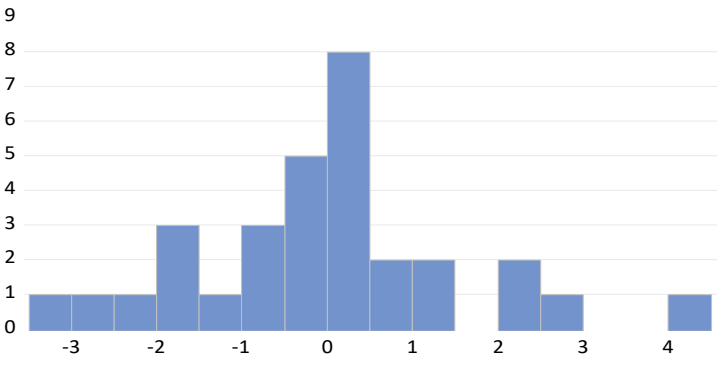

Figure 1. Normality Test Results

Based on the test result table, it can be seen that the probability value of Jarque-Bera is 0.304920. This value is greater than the significance level used in this study, which is 0.05, so it can be concluded that all data from the research variables are normally distributed.

Table 4. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	10.82919	116.0908	NA
Level Of Education	0.033943	212.0306	2.441450
Age	0.039485	195.9129	2.882393
Work Experience	0.038350	212.3092	2.086819

Based on the multicollinearity test above, all variables have a VIF number of less than 10, therefore, the independent variables in this study are free from multicollinearity and there is no correlation between each variable. Based on the table above, the probability chi-square value of obs. R squared is 0.9639, where the value is greater than 0.05, so it can be concluded that the data is free from heteroscedasticity.

3.3 Multiple Linear Regression Analysis

Multiple linear regression analysis is a linear relationship between two or more independent variables with a dependent variable. This analysis is to determine the direction of the relationship between the independent variable and the dependent variable is positively or negatively related, and to predict the value of the dependent variable if the independent variable increases or decreases. Multiple linear regression analysis is done by determining the equation

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + e \quad (1)$$

The results of the calculation of the values are as follows:

Table 5. Multiple Linear Regression Test Results

Variable	Coefficient	Std Error	t-Statistic	Prob.
C	6.809494	3.290773	2.069269	0.0482
Level Of Education	0.400657	0.184235	2.174707	0.0386
Age	0.108382	0.198708	0.545433	0.5899
Work Experience	0.439469	0.195831	2.244120	0.0332
R-squared	0.629570	Mean dependent var		28.67742
Adjusted R-squared	0.588411	S.D. dependent var		2.650624
S.E. of regression	1.700513	Akaike Info criterion		4.019651
Sum squared resid	78.07706	Schwarz criterion		4.204681
Log likelihood	-58.30458	Hanna-Quinn criter		4.079966
F-statistic	15.29610	Durbin-Watson stat		2.095142
Prob (F-statistic)	0.000005			

Based on the results of the multiple linear regression test above, the regression model used in this study is as follows:

$$Y = 6.809 + 0.41x0.0386 + 0.108x0.5899 + 0.439x0.0332$$

In this study, the level of significance that will be used is at the 5% level (α = 0.05). If the level of significance of the variable is below the specified level of significance, then the variable has a significant effect on the dependent variable. The explanation of the regression coefficient is explained as follows: (a) constant (c) means that if all independent variables, namely Education Level, Age and Work Experience have a value of (0), then the value of the dependent variable (beta) is 6.809. Based on the results of the regression above, the education level variable has a coefficient of 0.400657 with a significance level of 0.0386, it can be interpreted that the level of education has a positive and significant effect on work productivity. Based on the results of the multiple linear regression test above, the regression model used in this study is as follows: the age variable has a coefficient of 0.108382 with a significance level of 0.5899, it can be interpreted that age has a positive but not significant effect on work productivity. Based on the regression results above, the work experience variable has a coefficient of 0.439469 with a significance level of 0.0332, which means that work experience has a positive and significant effect on work productivity.

3.4 Hypothesis Testing

From the results of data processing in Table 4, it is stated that the significance value of the Education Level variable is 0.0386 where the result is smaller than the standard

error value of 0.05 and has a positive effect, meaning that the Education Level variable has a positive and significant effect on Work Productivity. The significance value of the Age variable is 0.5899 where the result is greater than the standard error value of 0.05 and has a positive effect, meaning that the Age variable has a positive and insignificant effect on Work Productivity. The significance value of the Work Experience variable is 0.0332 where the result is smaller than the standard error value of 0.05 and has a positive effect, meaning that the Work Experience variable has a positive and significant effect on Work Productivity.

The results of the F test can be seen in Table 5. Based on table 5 shows the p-value of f-statistic of 0.000005 where the value is smaller than the significance level of 0.05 used in this study, so it can be concluded that the variables of education level, age, and work experience together (simultaneously) have a significant effect on the variable of labor productivity. Based on table 5 above, the R2 Determination value is 0.629570, which means that the three independent variables used in the model are able to explain the dependent variable by 62%. while the other 38% is influenced by other variables not examined in this study, namely skills, motivation, gender, compensation and work discipline.

3.5 Discussion

3.5.1 The Influence of Education Level Variables on Work Productivity

Based on the regression results, the results of the significance test show that the education level variable has a probability of 0.0386 <0.05. This shows that the education level variable has a positive and significant effect on the work productivity of office employees in Selaparang District, Mataram City. So it can be said that H1 is accepted and H0 is rejected. The results of this study are in accordance with the Human Capital Theory put forward by Ben Youssef et al. [21], which states that education is a form of investment in improving individual skills and knowledge. The higher a person's level of education, the higher the human capital they have, which ultimately has a positive impact on work productivity. The results of this study are supported by previous research conducted by Inayat and Jahanzeb Khan [22] showing that education level has a positive and significant effect on work productivity. So it can be said that H1 is accepted and H0 is rejected. These results prove that Education Level is very important in playing a role in increasing employee work productivity in a company / agency.

3.5.2 The Influence of Age Variables on Work Productivity

Based on the regression results, the results of the significance test show that the age variable has a probability of 0.5899> 0.05. This shows that the age variable has a positive but insignificant effect on the work productivity of office employees in Selaparang District, Mataram City. So it can be said that H0 is accepted and H2 is rejected. One of the main reasons why the age variable does not have a significant effect on work productivity in this study is because most of the employees who were respondents were in the elderly/elderly category, namely those aged> 45 years who were still working. The results of this study are in accordance with the Life Cycle Theory by Mason et al. [23], which states that productivity tends to increase with age until it reaches its peak, but will decrease after entering old age due to physical and health factors. The results of this study are not in line with previous research conducted by Sabil et al. [24] which stated that age has a positive and significant effect on employee work productivity, so it can be said that H1 is accepted and H0 is rejected.

3.5.3 The Influence of Work Experience Variables on Work Productivity

Based on the regression results, the results of the significance test show that the work experience variable has a probability of 0.0332 <0.05. This shows that the work experience variable has a positive and significant effect on the work productivity of employees at the Selaparang District Office, Mataram City. So it can be said that H3 is accepted and H0 is rejected. The results of this study are in accordance with the Job Experience Theory put forward by Novitasari et al. [25], which states that more work experience can improve the ability to complete work tasks more effectively and efficiently. Employees with long work experience tend to be more skilled, understand work procedures better, and have the ability to overcome work problems. The results of this study are supported by previous research conducted by Anakpo et al. [26] showing that work experience has a positive and significant effect on workforce productivity. So it can be said that H1 is accepted and H0 is rejected. If a worker with a fairly long work period, it will help the achievements of the company/agency.

4. Conclusion

The conclusion of this study is that the level of education has a significant positive effect on the work productivity of employees at the Selaparang District Office in Mataram City. Age has a positive but insignificant effect on the work productivity of employees at the Selaparang District Office in Mataram City. Work experience also has a significant positive effect on the work productivity of employees at the Selaparang District Office in Mataram City. Meanwhile, the level of education, age and work experience simultaneously affect the work productivity of employees at the Selaparang District Office in Mataram City. Furthermore, it is hoped that the Regional Government will review policies related to work ability criteria, such as level of education, age, and work experience. In addition, the Regional Government is expected to provide training before giving tasks to employees. Based on the problems found and the research results obtained, for further researchers who will study employee work productivity, it is recommended to add other variables outside those used in this study. This aims to enrich research insights so that the results obtained are more diverse and comprehensive.

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6. Declaration

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