

THE EFFECTS OF JOB ROTATION PRACTICES ON EMPLOYEE PERFORMANCE: A RESEARCH ON JUNIOR MANAGERS, SENIOR OPERATION AND OPERATION STAFF AT THE DEFENSE MANUFACTURING INDUSTRY IN INDONESIA

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Abstract

The importance of the defense manufacturing industry for national integrity necessitates is inextricably inseparable from the critical role of employees in maintaining the output produced by the system, depicted through employee performance, particularly in the Operations Division. Job rotation is widely included to maintain a high level of employee performance to deliver their utmost. This study aims to identify and analyse the effect of job rotation on employee performance; non-recursive influence between job rotation and employee performance of the operational division at a defense manufacturing industry in Indonesia, characterized by a downturn in employee performance. The method used in this study are Simple Linear Regression and Structural Equation Modelling (SEM) method to describe the relationship between the observed variables (indicators) and latent variables. The research technique used through library research and field research, including non-participant observation, interviews, and questionnaires using a stratified random sampling technique distributed to 133 respondents as Junior Manager, Senior Operation, and Operation Staff across seven divisions. The results showed that the job rotation variable had a positive and significant effect on employee performance. Besides, each variables impacting other variable differently. This study reveals that by increasing of productivity can caused the downturn in quality of work. Job rotation is proposed to be improved, emphasizing skills development to increase employee performance, especially regarding the quality of work indicator.

Keywords: *Job Rotation, Employee Performance*

1. Introduction

The defense manufacturing industry holds an essential key to national integrity. It can depict the availability of conclusive national security systems and equipment in the related state to overcome disturbance, internally or externally. It refers to the strength of the manufacturing industry, which lies in the output of its operating divisions; quality to accessing its performance to ensure that the company can provide components that meet the requirements set by the safety standard.

The manufacturing industry has a significant amount of machines in the manufacturing process. However, as a human invention, the

machine is inseparable from human responsibility to calibrate, handle orders, and schedule the machine; therefore, HRD should address all the issues relating to employee performance because employees have constraints as individuals, whether incapacity, ability, expertise, motivating skills, or other factors. Otherwise, adverse outcomes may occur, such as work-related accidents and poor quality of goods manufactured, which are extremely dangerous, considering that the defense industry's products include weaponry.

The company has to provide the right place to get employees to stay on track to keep them

motivated to get work done. One of the development programs based on the placement is job rotation. According to (Jorgensen, M. et al.: 2003), cited in (Saravani & Abbasi: 2013), job rotation is a type of job design in which employees acquire job abilities from a variety of different areas and alleviate tiredness caused by repetitive tasks by switching them.

Prior observations conducted reveals that there were several problems in employee

performance which included quality, quantity, and work commitment—marked by a variety of factors, including the occurrence of explosions in the area, and inconsistent quality of production. A preliminary questionnaire was distributed to 30 respondents at the operating division to determine the causality of the employee performance. The following image is a pie chart of the responses.

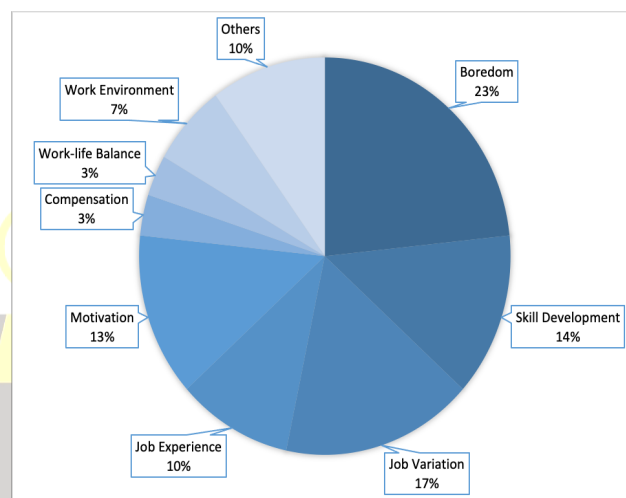


Figure 1. Respondents' Responses to Factors which Affect Performance
(Source: Processed data, 2021)

Based on Figure 1., factors that can affect employee performance are boredom, job variation, job experience, skill, and motivation—some of which are the indicators of job rotation. It indicates that there are problems in the implementation of job rotation. (Hasibuan: 2018) stated that the principle of job rotation is to reassign individuals to the suitable position and job in order to boost their passion and productivity at work.

The purpose of this study is to ascertain the influence of job rotation policies on employee performance at the operating division in the defense manufacturing industry in Indonesia based on junior managers, senior operations staff, and operations staff. In addition, it can compile a Job rotation program based on the level of an employee position.

The Effect of Job Rotation to Employee Performance

Job rotation is the transfer of an employee's field of work to another without changing the level of his position. (Mangkunegara: 2011) Job rotation, an employee development that focuses on employee placement, should be carried out using job rotation principles to ensure that the intended overall results are met. Job rotation is based on the notion of reassigning employees to the appropriate position and job in order to boost their excitement and productivity at work. (Hasibuan: 2018)

The principle is in line with the factors that affect employee performance; ability factor and motivational factor (Mangkunegara: 2011), which also reveals a relationship between job rotation and performance as to what stated by (Hasibuan: 2018) that by implementing the job rotationIt is intended to yield job descriptions, the nature of the work,

a work environment, and work tools that are appropriate for the employee in question in order for them to do their duties efficiently and successfully. According to academics, job rotation has an effect on employee performance since it allows employers to assess workers' talents and skills when they are put in other occupations and/or work scopes, as well as enhance employee capabilities in new domains once they have been rotated. Job rotation can be measured by

indicators that can improve employee performance, specifically the implementation of good transfers to place employees in the right place so that the employees concerned additional gain knowledge, skills and reduce boredom to improve higher performance. Referring to this, the researchers measured job rotation using dimensions and indicators according to (Ortega: 2001) and (Mangiapane: 1998).

Table 1: Indicators of Variable X (Job Rotation)

Dimension	Indicator
Additional Ability Perception	Ability
	Experience
Additional Knowledge Perception	Knowledge
	Skill
Work Saturation Level Perception	Boredom Reduction
	Activity

(Source: (Ortega: 2001) and (Mangiapane : 1998))

Research that aims to determine whether job rotation has a positive and significant effect on employee performance needs to be done to find out how and to what extent the independent variable affects the dependent variable so that it can be used as a basis for further decision making.

Ability

Ability is the capability to do or accomplish a task. Employee ability is usually associated with the cognitive abilities needed to carry out a work function. (Adi, Astuti, & Susilo, 2014). Job rotation can aid employees in developing numerous skills, broadening their view, and reducing the risk of tiredness. (Hsieh and Su: 2007) cited in (Khan et al.: 2021). Mandating work that strains employees' capacities, a reasonable and realistic work tempo, enough complexity in the job to make it interesting and stretch employees' capabilities, and allocating the proper level of responsibility are all ways to incorporate positive challenging pressures. (Hargrove et al.: 2013) cited in (McDonald & Hite: 2016)

Experience

Work experience can be seen as the experience where employee gains at work. Therefore, through job rotation, employees

could gain some experience that is beneficial for their career development. Additionally, (McCall: 2004) addressed the issue of access, arguing that organizations frequently approach difficult assignments with a "short-term performance" mindset, assigning them to people who are already performing that type of work, rather than with a "long-term development" mindset, assigning these tasks to talented but untested individuals who might benefit the most from the experience, cited in (McDonald and Hite: 2016)

Knowledge

Knowledge may be defined as a collection of facts that can be used to help duties. Employee knowledge refers to the procedural or factual information that an employee possesses in order to perform his or her duties and obligations in the field in which they work. Furthermore, employee knowledge impacts the success or failure of assigned activities. (Adi, Astuti, & Susilo, 2014)

Skill

Skill is the capacity to apply information to a task. Employee skill is the level of expertise of each individual in carrying out the assigned tasks properly, choosing work

methods that are considered more effective and efficient. (Adi, Astuti, & Susilo: 2014)

Boredom Reduction

Boredom is the primary mechanism by which humans seek meaning, a valuable incentive for intellectual endeavor, and at the same time a curse, resulting in inhibition of conclusive intellectual processes, a sign of barrenness, and a state of well-being dysfunction associated with extreme exhaustion, demotivation, hopelessness, and dejection. (Finkielstein: 2021). In connection with this, Boredom can result in errors, adverse patient events, and reduced productivity—all of which are costly and unnecessary for consumers, employees, and businesses. (Cleary et al.: 2016)

Activity

Job rotation contributes to the functional diversity of individuals' professional growth inside the organization. According to job design theories, workers must be more activated through work variety. (Kaymaz, 2010) in (Saravani & Abbasi: 2013). Job rotation must be implemented based on employee performance assessments because, according to (Hasibuan: 2018), it helps to see employees' capabilities in performing the job description allocated to them.

On the other hand, implementing job rotation may be costly and time consuming. Additionally, individual recruitment from the transferring department was a big issue, as was the likelihood that the employee might be hesitant to return to their previous role after being exposed to new ideas or responsibilities. It's possible that the original role no longer exists, or that management has learned to function without the individual rotating. Managers may be hesitant to commit employees whom they have trained. (Evans: 2021).

Employee performance is determined by the quality and amount of work accomplished by an employee in carrying out their assigned obligations. (Mangkunegara: 2011). Therefore, some dimensions become benchmarks to achieve or assess performance. According to (Robbins: 2006) cited in (Bandari: 2016), employee performance has six indicators ; (1) Quality, (2) Quantity, (3) Punctuality, (4) Effectiveness, (5) Independence, and (6) Work commitment.

Based on the statements above, as well as observations and data findings at the location, the researcher formulates the dimensions of employee performance that will be used for research as follows:

Table 2: Indicators of Variable Y (Employee Performance)

Dimension	Indicator
Quality of Work	Perceived Quality
	Quality of Work
Quantity of Work	Workload
	Productivity
Work Commitment	Commitment to Co-Workers
	Commitment to Organization

(Source: (Robbins :2006), adjusted, 2021))

Perceived Quality

Perceived quality of employee about the workplace, generally, can be interpreted as an employee's ideas and perceptions of his or her organization's working environment.

Quality of Work

In general, quality of work is the output as the value of work delivered by the employee.

Workload

In this research, employee workload can be seen as the capability of employee to get an amount of job done, which notated in the unit measurements.

Productivity

As a rule, employee productivity contrasts the quantity of products and services produced by employee (output) with the number of inputs needed to produce those goods and services. Job rotation can improve employee performance by learning new skill and experiences through horizontal transfer—which costs less than other training methods; it can increase both employee and company productivity in the end. However, To establish a job rotation strategy in a company, management should prioritize the quality of workers' work experience over the quantity of work. (Jorgensen: 2005) cited in (Haq: 2017) because there is a learning process employee should pass.

Commitment to Co-Workers

Commitment to coworkers is an interpersonal competence that alludes to an employee's capacity to collaborate well with others.

Commitment to Organization

The term "commitment to organization" refers to an intrapersonal competence that describes an individual's feeling of belongingness to a company. (Mowday, Porter & Steer: 1982) considered commitment to be synonymous with

attachment and faithfulness. They presented a three-part organizational commitment model consisting of identification with the organization's goals and values, a desire to be a part of the organization, and a readiness to exert effort on behalf of the organization. (Acheampong, Muhammed and Agyapong: 2016)

Employer Learning Theory

Based on Employer Learning Theory, as a learning mechanism, employers provide employees with the opportunity to acquire critical skills that will aid in their advancement within the organization. This career opportunity also helps to build optimism and identity. By staffing critical jobs inside a firm, the organization may profit from adopting job rotation. This method may enable an organization to function more effectively, resulting in increased productivity and profitability.

2. Method

Theoretical Based Model

The model consists of one independent variable and one dependent variable. The independent variable is job rotation, while the dependent variable is employee performance.

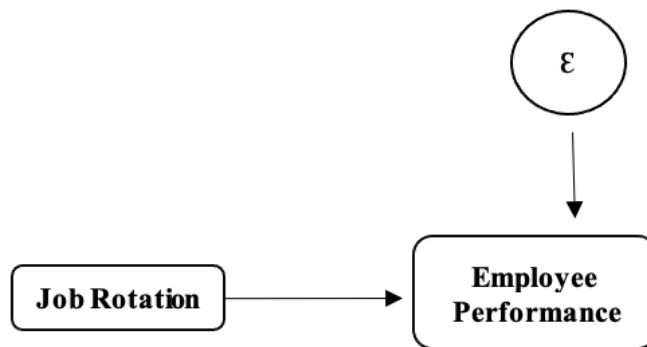


Figure 2. Conceptual Model

(Source: Processed data, 2021)

Research Object

This research conducted on one of the defense manufacturing industries in Indonesia. The demographic studied in this study consisted of employees of defense manufacturing industry in the operations division who underwent job rotation, which consist of Junior Manager (Strata III), Senior Operator (Strata IV), and Operator Staff (Strata V) across seven divisions. The

researchers drew samples from the population using the Probability Sampling approach, a sampling technique that ensures that each member of the population has an equal opportunity. Additionally, this sampling technique employs Proportionate Stratified Random Sampling, which is used when a population's members/elements are not homogeneous and are proportionately stratified. (Sugiyono: 2019)

Type of Data and Research

Data collection techniques carried out in this study used the following techniques:

1. Primary Data

Primary data comes directly from the object of research to data collectors. In this study, the primary data obtained were sample data on employee rotation and employee performance from the company, interviews with the stakeholder in the research site. (Sugiyono: 2019)

a) Non-Participant Observation

Non-participant Observation is a technique for collecting data that involves directly observing and examining the object of research. Researchers are not involved in business activities but only observe the implementation process. (Sugiyono: 2019)

b) Interview (Interview)

Interview is a data collecting approach that involves questioning and responding to authorities about the subject of the inquiry. (Sugiyono: 2019). In this study, researchers conducted interviews with the manager in human capital division who were considered to provide information according to research needs.

c) Questionnaire

A questionnaire is a data collection technique in which interviewer asks questions to respond to the following of questions or written statements. Questionnaires are an efficient data collection strategy when the researcher is familiar with the variables to be assessed and with the responses expected from the respondents. Moreover, the questionnaire is appropriate for usage when the number of respondents is sufficiently vast and dispersed throughout a large geographic area. (Sugiyono: 2019)

Technical Data Analysis

1. Test Research Instrument

a. Validity

Valid research findings are those that demonstrate a correlation between the data collected and the real data contained in the object under examination. Validity is a term that refers to the degree to which a measuring instrument demonstrates precision and applicability. Valid research is the outcome of comparisons between the two sets of data

obtained and the data found in the object of research. (Sugiyono: 2019)

b. Reliability

The reliability test determines the dependability of the research questionnaire used to collect data on study variables. According (Sugiyono: 2019), dependability refers to the degree to which measurement results obtained using the same object yield the same data. The Cronbach Alpha formula is used in this study.

2. Simple Linear Regression

The regression equation can be used to predict how high the dependent variable is if the value of the independent variable is manipulated. This study uses a simple linear regression formula based on the operational relationship between variables that depend on the variable. (Sugiyono: 2019). Simple regression is based on a functional or causal relationship between one independent variable and one dependent variable. The general equation for simple linear regression is: $Y = a + bX + \epsilon$

Where: = Job Rotation (dependent variable).

a = constant.

b = Regression coefficient of the Employee Performance

X = Employee Performance (independent variable)

ϵ (epsilon) = Other factors that affect the variable

3. Structural Equation Modelling

SEM is a multivariate analysis technique that was created to address the constraints of previously employed analytical models in statistical research.

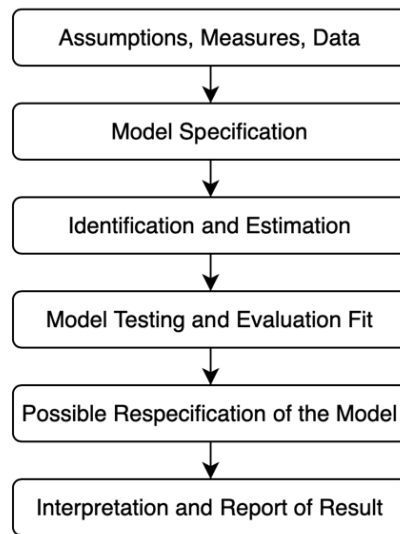


Figure 3. Flowchart of SEM Steps
(Dragan and Topolšek: 2014)

Data Processing and Analysis Techniques

The data processing carried out in this research is by computer using the IBM SPSS Statistics version 26.0 and IBM SPSS AMOS version 26 to get accurate calculation results and make it easier to process data, making it faster and more precise.

3. Result and Discussion

Validity Test Result

A pilot study was conducted to ascertain the validity and reliability of the measurement instruments employed in the investigation. If the correlation coefficient (r_{xy}) is equal to or more than 0.361, then the item of the instrument has met the minimum requirements to be considered valid; on the contrary, if the correlation value (r_{xy}) < 0.361 then it is invalid and must be corrected or thrown away.

Table 3: Validity Test Result of Variable X (Job Rotation)

Indicator	Item	R_{xy}	R-Table	Result
Ability	1	0,361	0,872	Valid
Experience	2	0,361	0,825	Valid
Knowledge	3	0,361	0,646	Valid
Skill	4	0,361	0,618	Valid
Boredom Reduction	5	0,361	0,544	Valid
Activity	6	0,361	0,611	Valid

(Source: Processed data, 2021)

Table 4: Validity Test Result of Variable Y (Employee Performance)

Indicator	Item	R _{xy}	R-Table	Result
Perceived Quality	1	0,361	0,872	Valid
Quality of Work	2	0,361	0,825	Valid
Workload	3	0,361	0,646	Valid
Productivity	4	0,361	0,618	Valid
Commitment to Co-workers	5	0,361	0,544	Valid
Commitment to Organization	6	0,361	0,611	Valid

(Source: Processed data, 2021)

Based on these data, it can be concluded that the decision to test the validity of the 12 statement items is valid because the questionnaire statement has a total item correlation coefficient $r_{xy} > r_{table}$.

Reliability Test Result

Cronbach's alpha coefficients were analyzed to determine the data's internal consistency using SPSS version 26. Cronbach's alpha (α) > 0.60 indicates that the research instrument is dependable. The following figures depict the results for all indicators and attest to the data's internal consistency across all constructions.

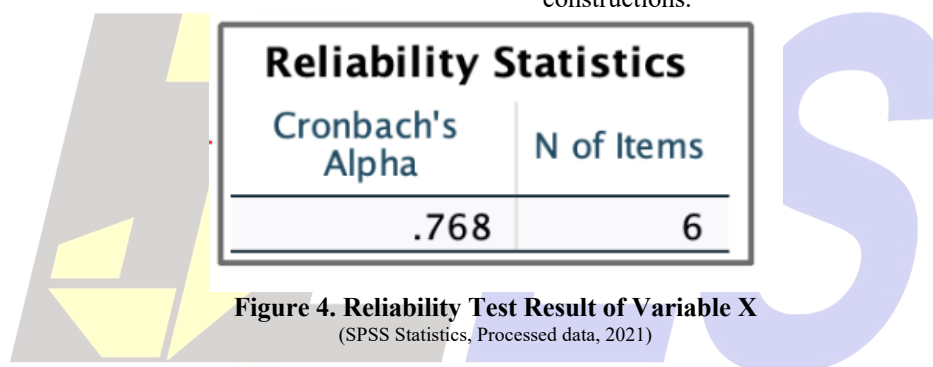


Figure 4. Reliability Test Result of Variable X
(SPSS Statistics, Processed data, 2021)

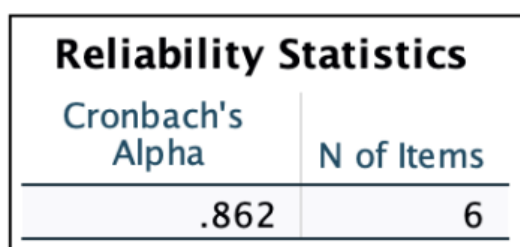


Figure 5. Reliability Test Result of Variable Y
(SPSS Statistics, Processed data, 2021)

Based on these data, it can be concluded that the reliability test decision is a reliable or consistent questionnaire because each variable X and Y has a value of (α) > 0.60 .

the answer and answer score index analysis on the job rotation variable are summarized in the table below

Analysis of Respondents' Answer Index to Variable X (Job Rotation)

Job rotation variables in this study were measured by 6 statement/items. The results of

Table 5: Score Index to Variable X (Job Rotation)

Job Rotation	Measurement Scale					Total	Index (%)
	1	2	3	4	5		
Statement Items	1		27	60	46	551	83%
	2		14	84	35	553	83%
	3		31	69	33	534	80%
	4		26	83	24	530	80%
	5		25	47	61	568	85%
	6		27	81	25	530	80%
Average						544	82%

(Source: Processed data, 2021)

The average index score of the answers to the job rotation variable was obtained at 82. Based on the score index category based on the three-box method, the average score was

at the high score level. This condition provides evidence that respondents have a high response to job rotation.

Table 6: Score Index of Variable X (Job Rotation) for Each Strata

Rotasi Kerja	Indeks			Rata-rata
	Strata III	Strata IV	Strata V	
1 Ability	85%	79%	84%	83%
2 Experience	80%	85%	82%	82%
3 Knowledge	80%	87%	77%	81%
4 Skill	100%	76%	79%	85%
5 Boredom Reduction	93%	78%	87%	86%
6 Activity	93%	79%	79%	84%
Average	89%	81%	81%	

(Source: Processed data, 2021)

Every stratum has a different score index for each statement presented, which means each stratum has a different perspective on the variable indicator. For instance, Strata III, the middle management level, believes that gaining skill is the most important indicator of job rotation, expressed by an index scale of 100 percent.

Strata III may grow to perfect their skills through job rotation. These job abilities

would benefit from multiple growth opportunities when applied to a new context.

According to stakeholder interviews conducted, job rotation aims to develop employees' skills as a prerequisite for future promotions.

On the Job Rotation variable, Strata IV gives the highest grade to the inclusion of diverse knowledge (87 percent). Studies show that Strata IV has worked on their responsibilities

for years, thus the title "senior operators. As a consequence, Strata IV personnel are exposed to job description they are not accustomed to. Supported by the findings of stakeholder interviews done by the researcher, Strata IV is rotated to learn about new sorts of work since they have different duties than previously.

Strata V believes that the most significant indicator of job rotation is a reduction in boredom, as measured by a score index of 87 percent or above. Employees in Strata V who have little job experience, according to observations, are quickly bored at work. According to stakeholders at the research site, job rotation can alleviate employee ennui by putting them in a new work environment, through team transfers or other events.

Table 7: Score Index to Variable Y (Employee Performance)

Employee Performance	Measurement Scale					Total	Index (%)
	1	2	3	4	5		
1		1	28	54	50	552	83%
2			26	72	35	541	81%
3			57	44	32	507	76%
4		6	54	54	19	485	71%
5			28	59	46	550	83%
6			29	66	38	541	81%
Average						529	79%

(Source: Processed data, 2021)

Table 8: Score Index of Variable Y (Employee Performance) for Each Strata

Rotasi Kerja		Indeks			Rata-rata
		Strata III	Strata IV	Strata V	
1	Perceived Quality	95%	89%	79%	88%
2	Quality of Work	90%	82%	80%	84%
3	Workload	90%	82%	80%	84%
4	Productivity	95%	78%	74%	82%
5	Commitment to Co-Workers	90%	79%	84%	85%
6	Commitment to Organization	98%	81%	80%	86%
Average		89%	81%	81%	

(Source: Processed data, 2021)

The middle management level, Strata III, believes that the most significant indication of employee performance is commitment to

the organization, as measured by a 98 percent index scale. According to researcher observations, job rotation enables Strata III

employees to experience a greater sense of responsibility toward the company because it allows employees to take on new responsibilities and prove to the company that they are ready to take on new responsibilities and challenges in order to earn promotion. In addition, it is consistent with the researcher's interviews with stakeholders. She stated that, on average, rotational Strata III workers had stronger duties to the organization, as indicated by lower absenteeism and compliance with the job description's requirements.

Meanwhile, according to Strata IV employees, the index with the highest rating on the Employee Performance variable is perceived job quality, signified by an index scale of 89 percent. According to researchers' views, Strata IV staff have often worked on their duties for years, which is why their roles are referred to as "senior operators." In this context, job rotation benefits Strata IV workers by increasing their perception of the quality of work, as they gain motivation and perspectives on their new job as a result of their sense of self-actualization. However, based on the narratives of stakeholders questioned by the researcher, it was indicated that rotating Strata IV workers gained a new perspective on the quality of work, as shown

by enhanced work spirit, even though this occurred only at the beginning of the job rotation. This is align with (Kadarisman: 2013) that job rotation as an action to improve work morale.

With an index of 84 percent, Strata V workers believe that the most important indicator of employee performance is commitment toward co-workers. According to the researcher's field findings, since Strata V personnel are novice operators, they prefer to explore their work area. As a result, employees will be better able to develop friendships at work, exchange experiences, and solve workplace obstacles due to job rotation. It is consistent with (Bennett, B: 2013), who asserts that job rotation enables individuals to create new relationships with co-workers across the firm, thereby gaining experience in the workplace. Based on the findings of interviews with stakeholders at the study site, she claimed that rotational Strata V employees have more duties for their present co-workers than they did previously, as indicated by the average rating of co-workers evaluation who are better than before

Rank Spearman Correlation Analysis

Correlations			Rotasi Kerja	Kinerja Karyawan
Spearman's rho	Rotasi Kerja	Correlation Coefficient	1.000	.519**
		Sig. (2-tailed)	.	<.001
		N	133	133
Kinerja Karyawan	Kinerja Karyawan	Correlation Coefficient	.519**	1.000
		Sig. (2-tailed)	<.001	.
		N	133	133

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 6. Rank Spearman Test Result

(SPSS Statistics, Processed data, 2021)

The significance value may be determined from the output in Figure 6. The sig (2-tailed) of <0.01 or less than 0.05 shows that the job rotation variable (X) and the employee performance variable are significantly correlated (Y). The correlation coefficient for the job rotation variable and employee performance is 0.519**, implying that there is a connection (correlation) between the job

rotation variable and employee performance is 0.519, or that the correlation is strong. Correlation coefficients are positive in these data, at 0.519, indicating that the link between the two variables is unidirectional. As a result, increasing work rotation can be argued to boost employee performance.

Simple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.213	1.994		3.115	.002
	Rotasi Kerja	.719	.081	.614	8.912	<.001

a. Dependent Variable: Kinerja Karyawan

Figure 7. Simple Linear Regression Test Result
(SPSS Statistics, Processed data, 2021)

Per the simple linear regression analysis findings calculated using SPSS version 26 in Figure 7., the data in column B shows linear regression, with Constant = 6.213 and Trust value (b) = 0.719. Consequently, the regression equation may be expressed as follows:

$$Y = a + bX + \epsilon$$

$$Y = 6.213 + 0.719X$$

The equation can be translated:

- 1) The constant is 6.213, which means that the variable's consistent value is 6.213.
- 2) The regression coefficient X of 0.719 indicates that every 1% rise in the value of trust increases the value of participation by 0.719. Because the regression coefficient is positive, the direction of the variable X's influence on Y is positive. It means that if job rotation is carried out with indicators of new

work abilities, variations in work experience, knowledge of other types of work, additional work skills, reducing feelings of boredom, and knowing new jobs, employee performance will also increase.

3) Meanwhile, based on the significant value of the Table Coefficients, a significance value of $0.001 < 0.05$ was obtained, so it can be concluded that the Job Rotation (X) variable, Job Rotation, has a significant effect on the Employee Performance variable (Y), Employee Performance.

Determinant Coefficient Analysis

The coefficient of determination test According to (Ghozali: 2018), this is a method for determining the degree of influence between variables. The coefficient of determination test is used in this study to determine the extent to which job rotation influences employee performance.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614 ^a	.377	.373	2.518

a. Predictors: (Constant), Rotasi Kerja

Figure 8. Determinant Coefficient Test Result
(SPSS Statistics, Processed data, 2021)

Figure 8. shows an R-value is 0.614. The coefficient of determination R² is 0.377, indicating that the independent variable (Job Rotation) has a 37.7 percent effect on the

dependent variable (Employee Performance) or weak correlation. In comparison, the remaining 62.3 percent is impacted by unmeasured independent factors.

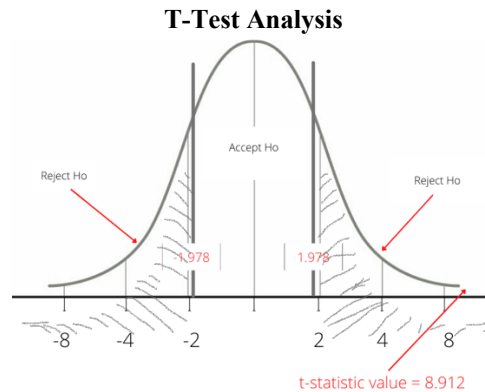


Figure 9. T-Test
(Processed data, 2021)

Given that the t-statistic value in Figure 9. > 1.978, job rotation (X) may be inferred to be statistically significant and to have an influence on employee performance (Y). Thus, empirical evidence rejects Ho and confirms Ha, which argues that job rotation significantly and positively influences employee performance (Y). This connection suggests that the more often job rotation is implemented, the greater the employee's performance. Where the t_{table} may be obtained through:

$$\begin{aligned}
 t_{table} &= (a/2 ; n-k-1) \\
 &= (0.05/2 ; 133 -1-1) \\
 &= (0.025 ; 131) \\
 &= 1.97796 \sim 1.978
 \end{aligned}$$

**Structural Equation Modelling
Path Diagram Development**

A path diagram is a graphical depiction of a model that details all of the variables' relationships. A path diagram describes the theoretical model to make it easier for researchers to identify the causality relationships to test. The following image is the path diagram development.

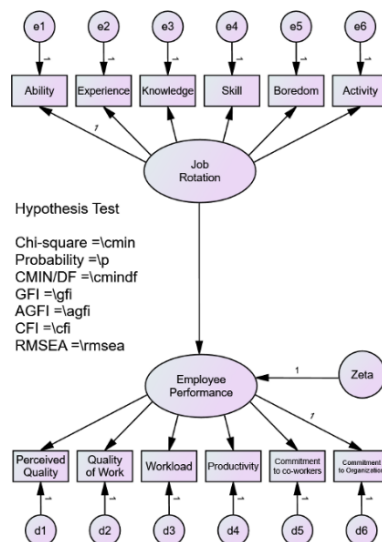


Figure 11. SEM Model
(Source: AMOS, Processed data, 2021)

Conversion of Path Diagrams Into Structural Equations and Measurement Models

1. Structural Equation

The structural equations in this study is:

$$\text{Employee Performance} = \beta_1 \text{ Job Rotation} + \text{Zeta}$$

2. Measurement Models

The measurement models in this study are:

Table 9: The Exogenous Concept Measurement Model (Job Rotation)

$$\begin{aligned} X_1 &= \lambda_1 \text{ Ability} + e_1 \\ X_2 &= \lambda_2 \text{ Experience} + e_2 \\ X_3 &= \lambda_3 \text{ Knowledge} + e_3 \\ X_4 &= \lambda_4 \text{ Skill} + e_4 \\ X_5 &= \lambda_5 \text{ Boredom Reduction} + e_5 \\ X_6 &= \lambda_6 \text{ Activity} + e_6 \end{aligned}$$

(Source: Processed data, 2021)

Table 10: The Endogenous Concept Measurement Model (Job Rotation)

$$\begin{aligned} Y_1 &= \lambda_1 \text{ Perceived Quality} + e_1 \\ Y_2 &= \lambda_2 \text{ Quality of Work} + e_2 \\ Y_3 &= \lambda_3 \text{ Workload} + e_3 \\ Y_4 &= \lambda_4 \text{ Productivity} + e_4 \\ Y_5 &= \lambda_5 \text{ Commitment to Co-Workers} + e_5 \\ Y_6 &= \lambda_6 \text{ Commitment to Organization} + e_6 \end{aligned}$$

(Source: Processed data, 2021)

Structural Model Identification

As a basis for model identification, the value of degrees of freedom (df) is used as a

reference. The df value in the AMOS software output is as follows:

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 78
 Number of distinct parameters to be estimated: 25
 Degrees of freedom (78 - 25): 53

Result (Default model)

Minimum was achieved
 Chi-square = 249,782
 Degrees of freedom = 53
 Probability level = ,000

Figure 12. Value of Initial Degrees of Freedom Model

(Source: AMOS, processed data, 2021)

The value of df is positive, thus the model is overidentified and testing of the model can be carried out.

Model Respecification

The purpose of model modification is to determine whether the alterations made can

result in a decrease in the chi-square value.
 The chi-square value is a measure of how well the model matches the data.

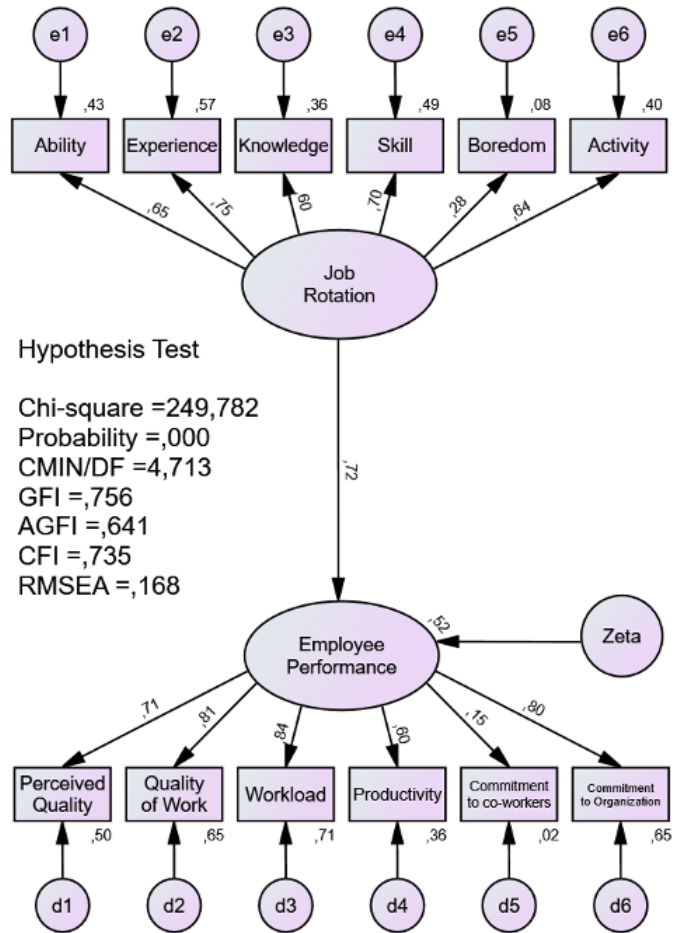


Figure 13. SEM Model Before Modification

(Source: AMOS, processed data, 2021)

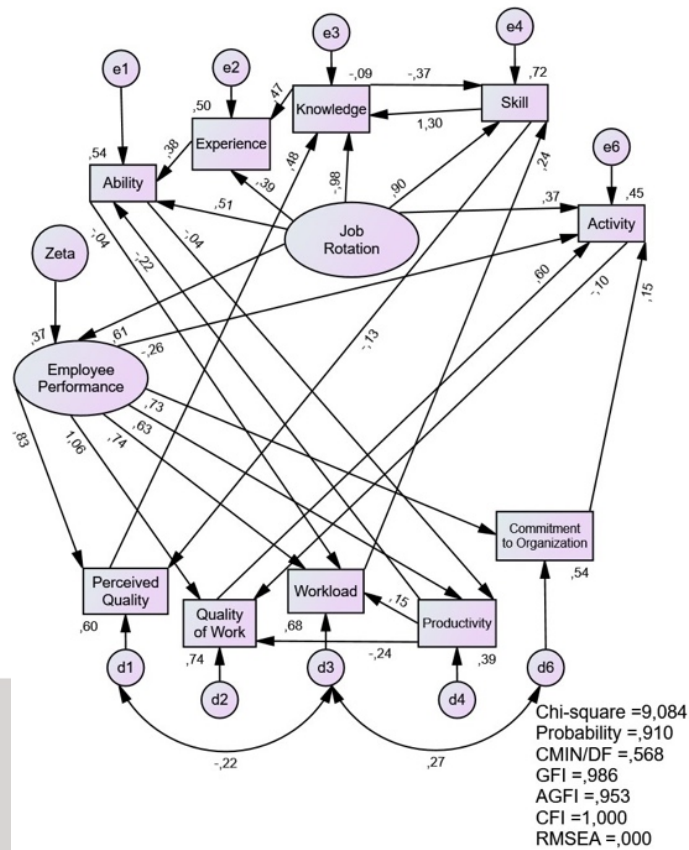


Figure 14. SEM Model After Modification

(Source: AMOS, processed data, 2021)

Based on Figure 14., The chi-square value after modification is 9,084 while the chi-square value before modification is 249,782.

It means that the chi-square value after modification is smaller or less than before.

Evaluating Goodness of Fit

Table 11: Goodness of Fit Evaluation Summary

Index	Cut of Value	Output	Evaluation
Chi- Square	< 26,2962 (table)	9,084	Excellent Fit
P	≥ 0,05	0,910	Excellent Fit
CMIN/DF	≤ 2,00	0,568	Excellent Fit
GFI	≥ 0,90	0,986	Excellent Fit
TLI	≥ 0,90	1,031	Excellent Fit
CFI	≥ 0,90	1,000	Excellent Fit
RMSEA	≤ 0,05	0,000	Excellent Fit
NFI	≥ 0,90	0,987	Excellent Fit

(Source: AMOS, Processed data, 2021)

According to Table 3, the Goodness of Fit Indexes for this research model meet all criteria, indicating that the model was created in line with the observation data.

SEM Test Results

This hypothesis test was used to ascertain whether or not exogenous variables had an effect on endogenous variables. If the probability value is P 0,05 and the Critical Ratio (CR) value is more than 1,96, this hypothesis can be accepted.

Table 12: Regression Weights Estimates

<i>Causal Relationship</i>	<i>C.R</i>	<i>P</i>
Employee Performance ← Job Rotation	3,107	0,002

(Source: AMOS, Processed data, 2021)

Decision Basis:

- If the Probability (P) > 0.05 then H0 is accepted, H1 is rejected.
- If the Probability (P) value is < 0.05, then H0 is rejected, H1 is accepted.

Based on Table 12, P value 0.002 < 0.05. It means H1 is acceptable. As a result, it can be concluded that job rotation has a positive and significant impact on employee performance.

Analysis Based on Theoretical Concepts

The development of a theoretical based model aims to see the relationship between the variables that exist theoretically. In this study obtained 2 variables with 12 indicators, where each variable has 6 indicators. Even though in actual conditions there are many factors that influence these variables and indicators. However, these existing factors are expected to represent real conditions

Analysis Based on Path Diagram Development

After respecification, five indicators measure the job rotation variable; ability, experience, knowledge, and skill. The most significant loading factor is the skill (0,90). It means, according to respondents, the most critical component of job rotation is being able to improve skills. Respondents want to highlight the skills improvement program in the job rotation implementation in their workplace.

Employee performance variables are measured using five indicators; perceived quality, quality of work, workload, productivity, and commitment to the organization. The loading factor with the highest rate on the employee performance variable is work quality. According to interviewees, the most critical factor affecting their success is the quality of job they accomplish.

Job rotation therefore has positive and significant influence on respondents' skill development when implemented, as evidenced by the C.R value, 3.370 > 1.96, and the P value < 0.05. Increasing skills will affect the increase in knowledge positively. The increasing knowledge will have a positive effect on increasing experience, which leads to affecting respondents' ability. Through job rotation, employee performance will be affected. Employee performance indicators influence indicators of job rotation.

Job rotation will affect employee performance, one of which is assessed by perceived quality. The increment in the new activity of responders is influenced by perceived quality. As a result, the quality of work will improve due to new activities, and the workload will grow as a result of increased skills. Productivity will increase workload mildly, but skills and commitment to the organization will rise. It has the potential to improve activity in a minor way.

Based on the path diagram development, there founds some negative correlation between some variable. For instance, productivity has negative impact on quality of work. This means if the productivity targeted more than employee's capabilities, it caused the decreasing in the quality of work.

According to subjects research, there are several obstacle that caused them in improving themselves during job rotation program. Interestingly, each stratum has different major obstacle.

Obstacle

Stressors associated with difficult job demands include large workloads, responsibility, and a broad job scope. (Cavanaugh et al.,: 2000) cited in (McDonald & Hite: 2016). The following are the obstacles in implementing Job Rotation at a defense manufacturing industry in Indonesia. The following are the barriers to implementing job rotation in a defense manufacturing industry in Indonesia based on the stratum at the operation divisions.

a) Strata III

• Acclimation Period

At the beginning of the job rotation, it lowers employee productivity and may disrupt company operations if not managed properly; this requires specific attention in terms of adjustment time to jump right into the project.

• Adaptation to Peer-Led Activities

At the start of the job rotation, Strata III struggled to adjust to the peers they would lead due to differences in leadership style and the sort of peers they had to identify by characters.

b) Strata IV

• Senior Operator Resentment

Because most Strata IV workers are no longer youthful and been work for years, they are hesitant to acquire new skills because they are comfortable with their previous routines. As to what stated by (Sastrohadiwiryono: 2012) that there are three types of employee rejection of employee transfers, namely:

- Logical or Rational Factors,
- Psychological factors, rejection
- Sociological Factors (Group Interests)
- Determination

In this case, Strata IV has sort of rational and psychological factors, for instance

compensation. Job rotation does not provide a solution for employee wellbeing. Strata IV is occupied by professionals who are no longer in their youth. Although it is intended that knowledge transfer would occur through job rotation, it is necessary to analyse the needs of employees.

c) Strata V

• Unsuitable Placement

Not all rotations benefit performance; if the rotation is not related to the team member's abilities, interests, or talents, workers may be less productive due to stress.

• Counselling Issues

Employee empowerment must occur in two ways and cannot be accomplished overnight. First, transparency on the part of every employee is required in this circumstance. The reason for this is that while the purpose of rotation at Strata V is to provide a variety of experiences for employees to become more proficient in an employee demonstrates that they never grasped the fundamentals of the job and fails to communicate this to the leader, it can impair team performance. Another issue is that workers may struggle to grasp their tasks or may have personal issues, necessitating the responsibility of the leader to give direction, guidance, and counselling to ensure that people reach their full potential.

4. Conclusion

According to the findings of the research on The Effects of Job Rotation Practices on Employee Performance at The Defense Manufacturing Industry In Indonesia, which were discussed previously, the researcher can summarize the findings as follows:

1. Statistical analysis demonstrates that job rotation positively affects staff performance at Operations Division. Job rotation, which includes some dimensions; additional ability perception, additional knowledge perception, and Work Saturation Level Perception, has a significant effect on employee performance, including work quality, quantity, and commitment.
2. The Spearman Rank analysis result indicates that job rotation is positively and directly associated with employee performance. The researcher discovered that other variables influenced but were not addressed in this study.
3. Job rotation has a positive and significant effect on employee performance, as

determined by SEM Analysis. In addition, certain employee performance metrics have a non-recursive effect on indicators of job rotation. Job rotation is advised to be enhanced as a result of the findings, emphasizing skills development to improve employee performance, particularly in terms of the quality of work indicator.

4. The following are the obstacles encountered in implementing job rotation to increase employee performance at the position or stratum level.

Strata III: acclimation period and adaptation to peer-led activity

Stage IV: senior operator resentment, and determination

Strata IV: Unsuitable placement and counselling issues

5. Efforts by the company to overcome barriers to job rotation implementation include staff bonding and diverse employee development programs.

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