EXAMINING THE RELATIONSHIP BETWEEN COMPETENCY, MOTIVATION, WORKABILITY, AND PERFORMANCE IN THE INDONESIAN NAVY: A STRUCTURAL EQUATION MODELING APPROACH

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ABSTRACT

The success of an organization is intricately linked to the caliber of its human resources. The performance of personnel serves as a fundamental gauge of their quality. Consequently, in order to fulfill the vision of the Indonesian Navy, enhancing the quality of its human resources takes precedence. The program implemented to bolster soldier performance involves equipping them with competence through comprehensive education, training, and personnel development initiatives. Motivation plays a pivotal role in this process, and several measures are taken to foster it. These measures include augmenting welfare benefits, providing career coaching, and bestowing rewards upon exceptional personnel. By synergizing the Competency Variables (X1) and Motivation (X2), the aim is to enhance Work Ability (Z), ultimately leading to elevated Performance (Y) levels and attaining optimal outcomes. The present research employs structural equation modeling to examine the influence of these variables, thereby generating valuable insights into which factors exert the greatest impact on soldier performance. By conducting this study, the intent is to offer precise data pertaining to the variables that wield the most influence over soldier performance. Consequently, the findings will enable the provision of more accurate suggestions and recommendations. Armed with this knowledge, the Indonesian Navy can refine its strategies for enhancing human resource quality, thus fostering an environment conducive to superior performance. Moreover, the research outcomes will contribute to the broader understanding of factors that contribute to organizational success, serving as a guide for other institutions seeking to optimize their workforce performance.

Keywords**:** *Structure Equation Modeling (SEM), Influence Test, Soldier Performance, Motivation, Second Fleet Command*

1. INTRODUCTION

One of the most important reform agendas is to reorganize the roles, functions and duties of the Indonesian Armed Forces within the Indonesian constitutional system. More specifically, the role, functions and responsibilities of the TNI will be reviewed periodically from the point of view of the essence of the TNI, not only as an instrument of national defense, but also as an important part of the national security system in a democratic political order. The main role of the Indonesian Armed Forces is as an instrument in carrying out national defense which has been carried out well through operations carried out by the TNI, both military operations of war (OMP) and military operations other than war (OMSP) with the scope of Activities that are internal to the country. and abroad (UU, 2004).

Based on Law number 34 of 2004 concerning the TNI, Article 9 states that the Indonesian Navy has the following main tasks (Koarmada, 2006): (1) Fulfill the responsibilities of the TNI in the field of defense; (2) Uphold the law and maintain security in the maritime area under national jurisdiction in accordance with ratified provisions of international law; (3) Fulfill the responsibilities of naval diplomacy in order to support the foreign policy of the government; (4) Fulfill the responsibilities of the TNI in the development and augmentation of maritime forces; and (5) Fulfill the empowerment of the sea defense area. Based on these primary responsibilities, it is clear that the Indonesian Navy performs diplomatic, police, and military duties in order to protect sovereignty, security, and safety at sea.

As a guideline and policy direction for creating a large, strong, professional and solid Indonesian Navy, the Indonesian Navy was built with the vision of creating a professional, modern and resilient Navy force in order to achieve high readiness and alertness in carrying out the tasks of the Navy. entrusted by the state. To realize this vision, it is carried out through four priority programs, namely; (1) the development of Professional, Modern and Resilient Indonesian Navy Human Resources; (2) fulfilling the need for defense equipment to achieve strength that is ready to be operationalized in the form of high alertness and readiness; (3) improvement of base facilities and facilities and infrastructure that can support the operations and duties of the Indonesian Navy; (4) operations management and logistics support system (MABESAL, 2023).

In developing organizational quality there are various factors that influence it, including the ability of employees/workers (Suryo and Arfiany 2020). Good competence can help soldiers in dealing with the dynamics of assignments in the current era of globalization and has a positive effect on performance. Improving performance can be done by increasing both academic and vocational competence through education, training, work groups and independent learning (Rivai 2006). This is in line with priority programs in the development of TNI AL human resources which are carried out through the process of recruitment, education, maintenance, assignment and dismissal.

The formation of soldier competence is carried out through education and training patterns. Based on the Kasal Decree Number Kep/451/II/2018 concerning Instructions for Implementing TNI AL Personnel Education, the purpose of education for TNI AL personnel is to form and equip students as professional warriors, capable of carrying out their duties and aware of their responsibilities and obligations. Through education, it is hoped that it will produce soldiers who are qualified in science and technology, have skills appropriate to their profession, and have good attitudes and behavior.

Based on initial information collected from the operations unit in the Second Fleet Command environment, it was found that several soldiers felt less confident and felt they were not able to handle the problems they faced, some soldiers got stressed easily, there was a decrease in a discipline which would ultimately reduce performance. This study aims to determine the effect of Soldier Competence and Motivation on Soldier Performance with Work Ability as an Intervening Variable. The relationship between variables is so complex and complicated and there is a reciprocal relationship between the indicators of each variable. Therefore the authors use the Structural Equation Modeling (SEM) method where SEM is a multivariate statistical analysis method that can be used to measure latent/unobserved variables, analyze factors, pathways, and regression simultaneously, and can measure direct or indirect effects. In addition, the SEM method will present data on which variables are most influential so that they can provide more accurate suggestions and input.

2. MATERIAL.

2.1. *Structural Equation Modelling* (SEM)

Ghozali (2008) explained that the SEM (Structural Equation Modeling) model is a second-generation method for multivariate analysis that enables researchers to look at intricate relationships between variables, both recursive and non-recursive, to get a full view of the entire model (Haryono 2016). The SEM model has been used in various fields of science such as: human resources (HR), education, psychology, economics and other social sciences. SEM was developed as a solution to solve multivariate analysis problems. Latan (2012), Ghozali (2008), Jogiyanto (2011) and Wijaya (2009)

state that SEM provides several advantages, including:

a. Can create models with many variables.

b. Can examine variables that cannot be measured directly (unobserved).

c. Can test the measurement error (measurement error) for the observed variable (observed).

d. Confirming the theory according to research data (Confirmatory Factor Analysis).

e. Can answer various research problems in a set of analyses in a more systematic and comprehensive manner

f. It is more illustrative, robust, and reliable than the regression model when it models interactions, non-linearity, measurement errors, correlations of error terms, and correlations between multiple independent latent variables.

g. Used as an alternative to path analysis and covariance-based time series data analysis.

h. Perform factor, path, and regression analyses simultaneously.

i. Be able to explain the complex interrelationships of variables and the direct or indirect effects of one or several variables on other variables.

j. Has higher flexibility for researchers to connect between theory and data.

The stages of structural equation modeling and analysis are divided into 7 (seven) steps, namely:

a. The creation of theoretical models.

b. Draw a flowchart.

c. Changing structural equations from path diagrams.

d. Select a data analysis input matrix.

e. Evaluate model recognition

f. Evaluating the goodness-of-fit standards.

g. Model estimate interpretation.

The SEM method has several assumptions that must be met before carrying out further analysis. The assumptions that must be complied with include sample size, measurement scale and data distribution. An explanation of these assumptions will be explained as follows:

a. Sampling Technique

According to Hair (2010) the sample size in research must have a minimum sample size of 100 to 200 or at least 5 to 10 times the number of variables in the model that is structured as a system (Hair, et al. 2010), which can be explained in the following formulation This:

n = 5 × Xvariabel Model s.d. 10 × Xvariabel Model

n = sample size to be observed.

In this study, researchers also used the Slovin method as a comparison to determine the minimum number of samples that should be used. This method is used if the population size is known (Wiyono 2020). Determination of the total number of samples was carried out using the Slovin method which can be seen in the following equation:

$n = \frac{N}{1+Ne^2}$ with:

n = sample size to be observed

N = population number of personnel

E = precision value (eg 95% confidence level, then e = 0.05)

b. Measurement Scale

The parameter estimation method used in this study is the Maximum Likelihood Estimation (MLE). This method has the condition that the data used is continuous interval data. Interval scale data measurements have the same characteristics as Likert scale scores. According to Edward and Kenny in Ghozali (2008) the score produced by the Likert scale was correlated with 0.92 higher than the Thurstone scale which is an interval scale. Thus the use of a Likert scale meets the assumptions for using the MLE method in SEM analysis (Bahri 2014). In contrast, Hair (2010) asserts that an indicator with an ordinal response and only slightly more than eight categories may be used as an interval scale or,

conversely, may not be if the variable is continuously variable. To use the SEM method, all indicators do not need to be on the same scale and do not need to be normalized.

c. Multivariate Normal.

The second assumption that must be met in conducting an analysis using the SEM method is the multivariate normal assumption. One of the normality testing methods that can be used in bivariate or multivariate problems is to use the square distance method.

d. *Outlier*

A data that significantly deviates from other data is called an outlier. There are two types of outliers, namely global outliers and collective outliers. In a data set, data is categorized as a global outlier if the data significantly deviates from other data. Global outliers are the simplest type of outliers. Most of the outlier detection methods are used to find global outliers. Meanwhile, collective outliers are data that significantly deviate from the entire existing data (Han, Kamber, and Pei 2012). One of the methods used to detect outliers multivariate is to use the leverage point 〖(h〗_i). An observation with an extreme value in a predictor variable is called data that has a high leverage value.

e. *Confirmatory Factor Analysis* (CFA)

The method used to test how well the measured variable can represent the previously formed construct or factor is Confirmatory Factor Analysis. CFA is used to carry out theoretical testing in measurement models with correspondence specifications between indicators and constructs.

2.2 Methodology

To fulfill the stages in the development of the SEM model, a literature study stage was carried out to find relationships and develop a theoretical model, followed by the preparation of a path diagram. The next stage is to apply the path diagram to the structural equation in the SEM application software. To get the input model, it is done by compiling a research questionnaire on each model variable. The resulting data were then analyzed through the identification of model relationships, which were evaluated based on the goodness of fit value to obtain a valid model. After the model is declared valid, it is continued with model interpretation.

3. RESULT AND DISCUSSION.

3.1 Theoretical Model Development.

According to Wibowo (2012), competence is the capacity to carry out or accomplish a task or job based on knowledge and abilities and backed by the work attitude required by the task. Competence is the workability of each individual, according to Law Number 13 of 2003 Concerning Manpower, which contains elements of knowledge, skills, and attitudes that are in compliance with specified criteria.

Table 1. Indicators in Soldier Competency Variables

Variable	Indikator
Soldiers Competence	Knowledge
	Skills
	Work attitude

Maslow asserts that motivation produces behavior that is focused on achieving goals and that an organizational leader must be aware of the requirements of his subordinates. Maslow developed a hypothesis that is now known as the Need Hierarchy Model or the hypothesis of the Hierarchy of Needs. According to the priority scale, there are different levels of human needs in Maslow's theory. If the basic requirements are satisfied, then someone will naturally want to satisfy the following need, says Maslow. (Notoatmodjo, 2009) suggests that motivation is any effort based on influencing one's behavior to increase organizational goals as much as possible. It can be concluded that motivation is a reason that can also be an encouragement for everyone to do, complete, or complete an activity

that they started to achieve the goals that have been determined by that motivation.

Table 2. Indicators in Motivational Variables

Variable	Indikator
Motivation	Physical Requirements
	Needs for safety
	Public Needs
	The requirement for admiration
	Needs for self-actualization

According to (Hasibuan, 2003), workability is a work result achieved by a person in carrying out the tasks assigned to him based on skills, experience, sincerity, and time. The indicators used include workability, education, and years of service. (Robbins, 1998).

Table 3. Indicators in Soldier Work Capability Variables

Variable	Indikator
Workability	Ability to Work
	Education
	Years of service

According to Mangkunegara (2008), Performance is the outcome of an employee's quality and quantity of work completed while carrying out his obligations in accordance with the duties assigned to him. The indicators used include the quantity of work, quality of work, timeliness, attendance, and cooperation (Bangun, 2012).

Table 4. Indicators in Soldier Performance Variables

Variable	Indikator
Soldiers Performance	Working Quantity
	Work Quality
	Job knowledge
	Soldier's Opinions about work
	Soldier's decision over work
	Soldier work planning
	Division of work area according to corps/vocational school

Based on literature studies and theories on research variables, which are then concluded in a definition that becomes the basis and reference in the research data collection process mentioned above, namely: Soldier Competence (X1), Motivation (X2), Work Ability (Z), and Warrior Performance (Y), The independent latent variables are soldier competence and motivation; the dependent variable is soldier performance; and the intervening variable is work ability.

3.2 Preparation of Path Diagrams.

Developing a structural model based on theory, namely analyzing the relationship between exogenous variables and endogenous variables in accordance with the conceptual framework that has been defined previously.

Based on the theoretical approach, the conceptual framework for this research was produced as shown in Figure 1, as follows:

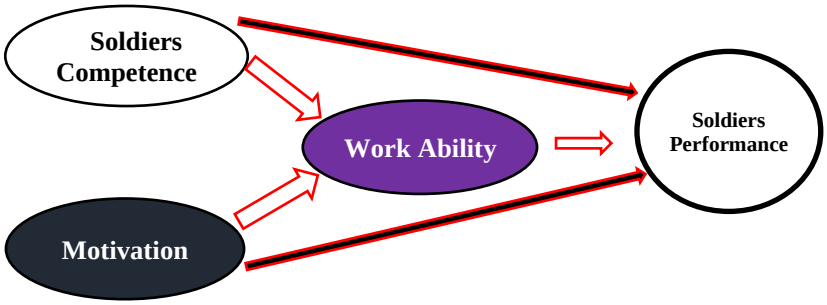

Figure 1. Research Conceptual Model

Hypotheses are conjectures that are tested by collecting facts that lead to a temporary formulation that states the hope that there is a certain relationship between two or more facts (Hair et al. 2010). Based on the conceptual understanding above, the research hypothesis can be arranged in the form of the following statements:

a. Hypothesis H1: Soldier competency characteristics have a substantial impact on job ability.

b. Hypothesis 2, H2: Workability is significantly impacted by motivation.

c. Hypothesis 3, H3: Soldier performance is significantly affected directly by soldier competency.

d. Hypothesis 4, H4: Soldier performance is significantly affected by motivation.

e. Hypothesis 5, H5: Workability has a big impact on troop performance.

f. Hypothesis 6, H6: Soldier work abilities have a huge impact on how well they perform as soldiers.

g. Hypothesis 7, H7: The ability to work hard has a big impact on army performance.

3.3 Compilation of Structural Equations

The studied and postulated variables' causal link is represented by the structural equation as a function or model.

$$Z = a_1X_1 + a_2X_2 + e1$$

$$Y = a_2X_1 + a_3X_2 + e2$$

The preparation of structural equations is carried out based on the results of the analysis between variables and the composition of the sub-variables. The preparation of structural equations was carried out using the AMOS 25 software application.

3.4 Data Collection and Input.

According to Bernard (2012), data are raw facts about people, places, events, and things that are important to organize. Meanwhile, according to William and Sawyer (2007), data are facts and figures that are processed into information. According to the description given above, data is a set of numbers and facts that can be used to create information. The data used as the input model is primary research data from interviews with the Head of the Pusdikpel Head of Education and Research Center and the Opso the Warship in the Second Fleet Command and Satlinlamil environments in Surabaya,as well as questionnaires for non-commissioned officers and enlisted graduates of the Pusdikpel in the warship Second Fleet Command, ranks. This study used samples from the population of non-commissioned officers and privates who graduated from Pusdikpel Batch 1 and 2, 40 batches 1 and 2, and 41 Batches 1. These samples were used to obtain primary data by filling out questionnaires. The population is the entire element or elements to be studied. In this study, the population of non-commissioned officers and privates graduated from Pusdikpel. The composition and number of the population are in Table 5.

Table 5 Number of Non-commissioned Officers and Privates Graduates of Operational Corp Educational Centre.

RANK STRATA	NUMBER OF GRADUATES
NCO Force 39 batch 1	58
Non-commissioned Officer Batch 39 batch 2	31
NCO Battalion 40 batch 1	34
Non-commissioned Officer Batch 40 batch 2	33
NCO Force 41 batch 1	26
Enlisted Batch 39 batch 1	46
Enlisted Batch 39 batch 2	47
Enlisted Batch 40 batch 1	56
Enlisted Batch 40 batch 2	45
Enlisted Batch 41 Batch 1	49
Total	379

Ghozali (2010) asserts that the sample size for structural equation models is typically at least 200 observations. The sample size must satisfy the minimal sample size for the application of the structural equation modeling (SEM) model because the methodology and data analysis require SEM. The Slovin method was used to determine the sample size for this investigation, which included a total of 379 persons.

The sample employed in this study was composed of 195 persons based on the findings of the sample calculation performed using the Slovin method. Descriptive analysis methods and data analysis using inferential statistics are utilized for processing and data analysis. using quantitative descriptive data analysis methods to create a preliminary description of the study's subject and reveal the characteristics of how each variable's scores are distributed Frequency distribution tables and histograms can be used to display descriptive data analysis. While using SEM (Structural Equation Models), inferential analysis is utilized to test the study hypothesis. Every research hypothesis was tested with a value of = 0.05.

The SEM method is included in the parametric statistical test; therefore, before testing the research hypothesis, a basic assumption test is first carried out as a requirement that the data to be analyzed meet the required criteria.

3.5 SEM Structural Model Identification.

The process of data analysis using the SEM model begins with identifying the model to check whether it is over-identified or not so that further analysis can be carried out. This was done after the SEM model diagram was formed using AMOS 25 software. For parameter estimation in the structural equation model, the maximum likelihood method was used. In statistics, maximum likelihood estimation is known as a parameter estimation method of a statistical model that uses the mean and variance as parameters to find certain parameter values that make the most common results to be used in parameter estimation. This is done because, asymptotically, the observation is the most likely (given the model). The maximum likelihood method is unbiased, the estimator obtained is consistent, and the estimator is close to the normal distribution.

3.6 Goodness of Fit Criteria.

The model's goodness of fit index (goodness of fit index) serves as a standard for gauging how well the two models fit together. A change is made to the model if you don't achieve a fit result.

a. Chi-Square

The chi-square is said to be good if the calculated chi-square value is less than the table chi-square. The Chi-square table value can be calculated using the function in the Office Excel

program, namely through the "CHIINV" function and by entering the input command df 109 with a significance of 5%. In this way, the value of the Chi-square table (2table(df=109)) is 160,372.

b. Significant Probability

The probability of the model is said to be good if it is greater than the significance level of 5% or 0.05.

c. CMIN/df

A measurement derived from the Chi-square value divided by the degree of freedom is the referred Chi-square (CMIN/DF). This indicator, which assesses the model's goodness-of-fit relationship with the anticipated number of estimated coefficients to achieve a suitability level, is known as a sparse suitability index. The threshold value is below 2.00.

d. RMSEA

The approximation error with the Root Mean Square To correct for Chi-square values in large samples, one can utilize the RMSE index. Acceptance level suggested: 0.085.

e. GFI

The Goodness of Fit Index (GFI), which is derived from the squared residual of the predicted model compared to the actual data, measures how well the overall model fits the data. Values that are close to 1 show that the model under test fits the data well. With a suggested acceptance rate of more than 0.9.

f. AGFI

The degree of freedom of the suggested model has been matched with the degree of freedom of the null model to create the adjusted goodness of fit index (AGFI), a development of the GFI index. With an AGFI > 0.90 suggested acceptance value.

g. TLI (Tucker Lewis metric)

An alternate incremental fit metric that contrasts the tested model with the reference model is the TLI. TLI is a measure of model fit that is less sensitive to sample size. Value to be used: > 0.95.

h. CFI

A value that approaches 1 in the Comparative Fit measure (CFI), an incremental fit measure that compares the model under test with its magnitude in the range of 0 to 1, denotes a high level of fit. Given that this index has a highly suggested value of > 0.973 and is largely insensitive to sample size and model complexity, it is highly advised that it be used.

3.7 Data Interpretation

Interpret the model obtained from the analysis results on each indicator obtained from the best SEM model. This stage is carried out after the goodness of fit value on the model is declared good.

4. CONCLUSION.

In this study, identification of variables, preparation of hypotheses, determination of research objects and subjects, identification of population and number of samples, path analysis, and model structure were carried out in the AMOS application. Soldier motivation and competence were independent latent factors employed in this study. Soldier performance was the dependent latent variable. Intervening variables included workability. The population of the research object was 379, and the sample used was 195 people. The next research steps can be carried out in the process of compiling questionnaires, data collection, data processing, data input and analysis, structure identification, goodness of fit assessment, model modification, and data interpretation of model results. Data analysis uses SPSS to test basic assumptions. Data analysis uses AMOS to determine the influence between model variables.

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