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The Evaluation of Performance Allowances Policy Towards Professional Improvement of Navy Personnel using System Dynamic Model

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Abstract: The performance allowances policy which given to the Navy personnel has not significantly affected at the performance, professionality and capabilities of Navy personnel. The application of performance allowances is not yet fully based on the achievements, workload and assigment risks which the responsibility of Navy personnel. This study aims to evaluate the performance allowance policy to assess professionality of the Navy personnel. The evaluation model in this research is the development of the system dynamic method model. Identification of aspects and variables on performance allowance system is done. Each aspect has interrelated variable or criteria which interacting each other in the system dynamics relationships. The output of the system dynamic model is a score or policy evaluation index on the assessed variables. This policy evaluation index serves as an indicator that indicates the variable needs to be evaluated at the performance allowances system, (according to the value of the conversion index and the strategic meaning it gains). Furthermore, the policy scenario is "Enhancement of profession capability of Navy personnel". The scenario is focused on increasing the competence of the Navy personnel advanced skills. Based on the results of analysis and evaluation conducted thoroughly in the scenario, the resulting evaluation of the policy as follows: evaluation index of performance allowances 8.31 (high warning), evaluation index of professionality aspect 8.67 (high warning), evaluation index professionality of Navy personnel 9.33 (very high alert), evaluation index of capability Navy personnel 9.28 (very high warning).

Key words: System dynamic model, performance allowances, professionality of Navy personnel, scenario, allowances, index

INTRODUCTION

Bureaucracy reform has become a national policy that continues to roll in line with the development of a dynamic strategic environment. The focus of bureaucratic reform is directed to the creation of clean government and good government. In the Navy, bureaucracy reform continues to be implemented gradually and sustainably as a form of commitment for the Navy to position itself appropriately and to optimize its role in the national life order of the Indonesian nation. Bureaucracy reform is an important decision not only for the Navy but also for all nations and countries along with national interests in general (Wright *et al*., 2003).

The provision of performance allowances for the Navy has been regulated under the regulation of president of Indonesian Republic Joko Widodo who has set performance allowances within the Navy in the hope of improving the performance of personnel in the implementation of bureaucratic reforms that have been carried out within the Navy institution.

Performance allowances are expected to improve performance measured by key agency performance indicators (Masango, 2007). Performance allowances in the implementation of bureaucratic reforms use the following principles. Efficiency and optimization of budget ceilings of Ministry of Institutions and Government and equal pay for equal work which is the amount of performance allowance in accordance with the price of position and achievement of performance.

Conceptually, giving performance allowance is actually one of the right steps to improve the performance of Navy personnel. Implementation of the policy of giving performance benefits in the Navy has actually been implemented but at the level of application in the field it still appears some potential problems (Dye, 2001). Some of the problems identified against the implementation of performance allowances within the Navy, among others, include.

The provision of remuneration or performance allowances has not fully supported the achievement of a relatively significant change to the performance,

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productivity and improvement of the welfare of members of the Navy and even on the public service. Moreover, in the implementation, the grant of performance allowance is only based on the grade or rank of rank and does not fully look at the performance load performed. This is indicated by the data in the field that there are still many disciplinary violations committed by Navy personnel are increasing every year. Number of disciplinary offenses Indonesia Navy year 2013-2017 shows that the remuneration provision has not significantly influenced the performance improvement and productivity of Navy personnel. Should the phenomenon that occurs is with the existence of an increasing remuneration, then the performance, discipline, productivity of Navy personnel should be increasing as well, meaning the number of disciplinary offenses also must be further down. But the facts show the number of violations of the performance discipline of the Navy personnel is increasingly rising.

The application of performance allowance is also not fully based on the achievement, burden and level of work risk which is the responsibility of each personnel of Navy. The amount of performance allowance is only based on the position class of the office holders, regardless of achievement, workload and risk level of the work it carries. It can be illustrated that the performance allowance of a Pilot or a member of the Denjaka Force (Detachment Jalamayangkara as special forces of the Navy) with the rank of Major is equal to the performance allowance of a head of administration in the staff with the rank of Major. Though the three professions have a level of competence, burden and risk of work is very different. The provision of performance allowances regulated under Presidential Regulation 87 of 2015 does not yet accommodate the existing theories of achievement, burden and work risk associated with performance satisfaction, welfare and equitable principles.

The absence of sanctions against low-performing personnel, they have the same rights, resulting in the unprofessional performance of Navy personnel. Thus, the existing assessment does not reflect the objectivity and yet measurable. Whereas the provision of performance allowances should be based on an objective and measurable assessment as an integral part of the bureaucracy reform policy based on awareness as well as commitment to realize clean and good governance. On the basis of its implementation, changes and reforms implemented in the context of realizing such clean and authoritative governance are unlikely to be effectively implemented without objectivity and measurement and rewards of decent welfare to the personnel who carry them out (Janamanchi and Burns, 2013).

Based on these problems, it is necessary to analyze, study and in-depth research on how the application of performance allowance policy for Navy personnel in Navy working unit and its impact on performance, welfare of soldier and public service. In-depth analysis, study and research are conducted by considering the dynamics of the upcoming system, so as to obtain the results and the real impact of the best policy evaluation in the field of human resources, so that, it can be used to improve the performance allowance system within the Navy. This study is very urgent to be implemented because so far, the government has not given adequate attention to the results and the impact of policies related to the provision of performance allowances.

MATERIALS AND METHODS

Professionality of Navy personnel: The professionality carried out by the Navy personnel is regulated in Law No. 34 of 2004 on the TNI which affirms the main task of the Navy, namely to carry Out Military Operation of War (OMP) and Military Operation non War (OMSP) to protect the entire nation and the entire country from the threat of Indonesia and disruption of the integrity of the nation and state. Especially for OMSP, the form of implementation, consists of:

- Destroying armed separatist organizations
- Destroying an armed rebellion
- Destroying acts of terrorism
- Securing border areas
- Securing national vital objects that are strategic
- Carry out the task of world peace in accordance with Foreign policy
- Secure the president and vice president and his family
- Empower the region of defense and its supporting forces early in accordance with the defense system of the universe
- Assisting the task of government in the region
- Assisting the police of the Republic of Indonesia in the framework of the security and public order stipulated in the law
- Assist in securing the country's head-level guests and representatives of Foreign governments residing in Indonesia

  Helping to cope with natural disasters, displacement and humanitarian assistance
- Assist search and rescue in search and rescue
- Assist the government in securing shipping flights to piracy, piracy and smuggling

System dynamic approach: The system dynamics methodology basically uses causal relationships in constructing a complex system model. It is the basis for recognizing and understanding the system's dynamic behavior. In other words, the use of system dynamics methodology is more emphasized to the goals of increasing our understanding of how the behavior of the system arises from its structure. Issues that can be appropriately modeled using dynamic methodology are systems that have dynamic properties (changing over time) of its phenomenon structure contains at least one feedback structure (Forrester, 1997).

This study has many literatures to support the research such as: system dynamics model of sustainable urban development (Chen *et al*., 2006). A system dynamic based DSS for sustainable coral reef management in kenting coastal zone (Chang *et al*., 2008), dynamics of financial system: A system dynamics approach (Nair and Rodrigues, 2013), Simulation of Dynamics behaviors for shipping equipment support with system dynamics analysis approach (Song and Yang, 2015), influence of compensation and reward on performance of employees at Nakuru country government (Njoroge and Kwasira, 2015). A system dynamics approach to food security through smallholder farming (Tsolakis and Srai, 2017), establishing the location of Naval base using fuzzy MCDM and covering technique methods (Suharyo *et al*., 2017), location determination of logistics Warehouse facility using Fuzzy Multi Criteria Decision Making (FMCDM) approach in Western Sea Sector of Indonesia (Gunawan *et al*., 2018). According to Sterman (2000) the principles for creating dynamic models with the characteristics as described above are as follows:

- The desired conditions and actual circumstances must be differentiated in the model
- The existence of stock and flow structures in real life must be represented in the model
- Different streams conceptually within the model must be differentiated
- Only information that is actually available to actors within the system should be used in decision modeling
- The structure of the rules of decision making within the model should be appropriate (fit) with managerial practices
- The dynamic system model is not created just to provide forecasting or prediction but furthermore, the dynamic system is intended to understand the characteristics and behavior of internal and external process mechanisms that occur within a particular system

Dynamic systems are very effective for systems that require good data management. With the flexibility it has it helps in the process of model formulation, model definition, model validation, policy analysis and model implementation (Crosby, 1996). According to Sterman (2000) the use of the system dynamic model is to simulate a policy evaluation to evaluate the strategic steps taken (ex-post) in generating system performance as well as for future evaluation (ex-ante), i.e., alternative steps taken in achieving the objectives.

RESULTS AND DISCUSSION

Variable identification: From the understanding of the performance allowances system in the Indonesian Navy and the identification of all influential variables, the performance allowances system of Navy personnel can be categorized into 3 main aspects that are:

- Professionality of Navy personnel
- Welfare of Navy personnel
- State/public service of Navy personnel

Every main aspect of the performance allowance evaluation system has interrelated variables or criteria interacting in the system as shown in Fig. 1. Interaction model among the main aspects of the Navy personnel performance allowances system. In this study, more details will be identified specifically on the aspect of professionality of Navy personnel. Based on the results of the identification of variables on the performance allowance system of personnel of the Navy, it is found that the variables significantly affect the aspect of professionality as shown in Table 1. Professionality aspects variable.

Professionality aspects variable:

- Navy personnel performance
- Discipline
- Work target
- Motivation
- Violation
- Capability
- Basic performance
- Profession ability
- Physics
- Spirituality
- Assigment risk
- Work load

Each variable on the professional aspect of the Navy personnel has interrelated values and forms an interaction in the evaluation of performance allowance system (Odunlami and Matthew, 2014).

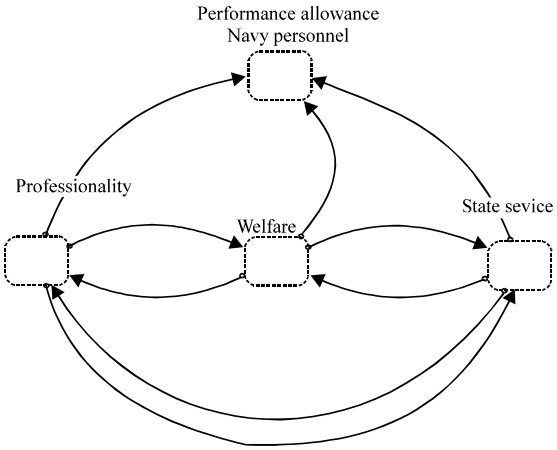

Fig. 1: Interaction model of the main aspects of the performance allowances system

Table 1: Index of evaluation performance allowances variable

Evaluation of performance allowance variables	Index convertion	Strategic meaning
Very low	1.00-2.99	Very safe
Low	3.00-4.99	Safe
Medium	5.00-6.99	Moderate
High	7.00-8.99	Warning
Very High	9.00-10.00	Alert

The model: The model is a representation of interactions between aspects: performance allowance of Navy personel by professionality, welfare and state service. All variables provide an assessment of interactions in a dynamic system of performance allowance (Fig. 1).

Stock and flow diagram: Furthermore, based on the interaction relationship, stock flow diagrams are arranged, which are changes in performance allowance based on aspects: professionality, welfare and state public service (Fig. 2).

Algorithm 1; The formulation:

PERFORMANCE ALLOWANCE NAVY PERSONNEL:
PERFORMANCE__ALLOWANCE(t) = PERFORMANCE__ALLOWANCE(t-dt) + (CHANGE_OF__PERFORMANCE_ALLOWANCE) * dt
INIT PERFORMANCE__ALLOWANCE = 5
INFLOWS:
CHANGE)_OF__PERFORMANCE_ALLOWANCE = ((0.342*STATE_SERVICE.STATE_PUBLIC_SERVICE+0.353*WELFARE.NAVY_PERSONNEL_WELFARE+0.305*PROFESSIONALITY.PROFESSIONALITY_OF__NAVY_PERSONNEL))-PERFORMANCE__ALLOWANCE

Professionality aspect model: This model illustrates all interactions of variables on aspects of Navy professionalism which are manifested in the form of stock and flow diagrams.

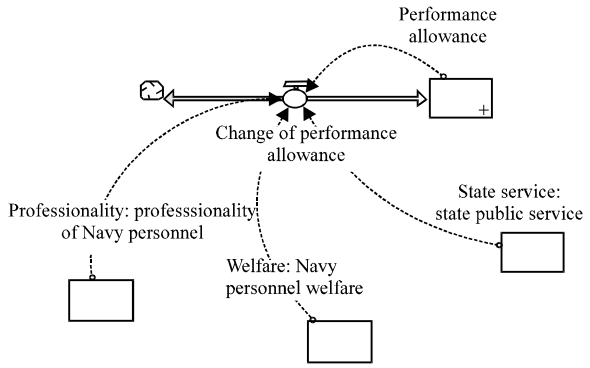

Fig. 2: Stock and flow of the main aspects of the performance allowances system

Algorithm 2; The formulation:

START PROFESSIONALITY
JOB_RISK(t) = JOB_RISK(t-dt)+(CHANGE_OF_JOB_RISK) * dt
INIT JOB_RISK = 10
INFLOWS
CHANGE_OF_JOB_RISK = Round((0.092*JOB_RISK*0.091*WORK_LOAD))*2
PROFESSIONALITY_OF_NAVY_PERSONNEL(t) = PROFESSIONALITY_OF_NAVY_PERSONNEL (t - dt) + (PROFESSIONALITY_CHANGE)*dt
INIT PROFESSIONALITY_OF_NAVY_PERSONNEL = 5
INFLOWS
PROFESSIONALITY__CHANGE = (CAPABILITY_OF_NAVY_PERSONNEL+NAVY_PERSONNEL_INCOME)/2-PROFESSIONALITY_OF_NAVY_PERSONNEL+1
PROFESSION_ABILITY(t) = PROFESSION_ABILITY (t - dt) + (CHANGE_OF_PROFESSION_ABILITY)*dt
INIT PROFESSION_ABILITY = 3.5
INFLOWS
CHANGE_OF_PROFESSION_ABILITY = (PROFESSION_ABILITY*PROFESSIONAL_EDUCATION)
BASIC_SKILL = random (7, 8, 1)
CAPABILITY_OF_NAVY_PERSONNEL = (0.077*BASIC_SKILL+0.077*GENERAL_ABILITY+0.090*PROFESSION_ABILITY)*4+2
DISCIPLINE = random (8, 9, 1)
GENERAL_ABILITY = (0.077*SPIRITUALITY+0.077*PSYCHOLOGY+0.077*PHYSICS)*3
MOTIVATION = random (7, 8, 1)
NAVY_PERSONNEL_INCOME = ((100*SALARY+0.088*NAVY_PERSONNEL_PERFORMANCE)/2)+5
NAVY_PERSONNEL_PERFORMANCE = (0.077*MOTIVATION+0.077*DISCIPLINE+0.089*WORK_TARGET-0.077*VIOLATIONS)*4
NAVY_PERSONNEL_SERVICE = IF TIME = 0 then 0.12 else (JOB_RISK- History(JOB_RISK, time-1))/JOB_RISK
PHYSICS = random (7, 8, 1)
PROFESSIONAL_EDUCATION = 0.04
PSYCHOLOGY = random (7, 8, 1)
SPIRITUALITY = random (7, 8, 1)
VIOLATIONS = random (7, 8, 1)
WORK_LOAD = (PROFESSIONALITY_OF_NAVY_PERSONNEL+STATE_SERVICE.RISK_OF_ASSIGNMENT)/2
WORK_TARGET = random (8, 9, 1)
SALARY = GRAPH (WELFARE.THE_VALUE_OF_HUMAN_RESOURCES_NAVY)
(0.00, 0.015), (0.1, 0.035), (0.2, 0.065), (0.3, 0.115), (0.4, 0.26), (0.5, 0.37), (0.6, 0.645), (0.7, 0.765), (0.8, 0.89), (0.9, 0.925), (1, 0.965)

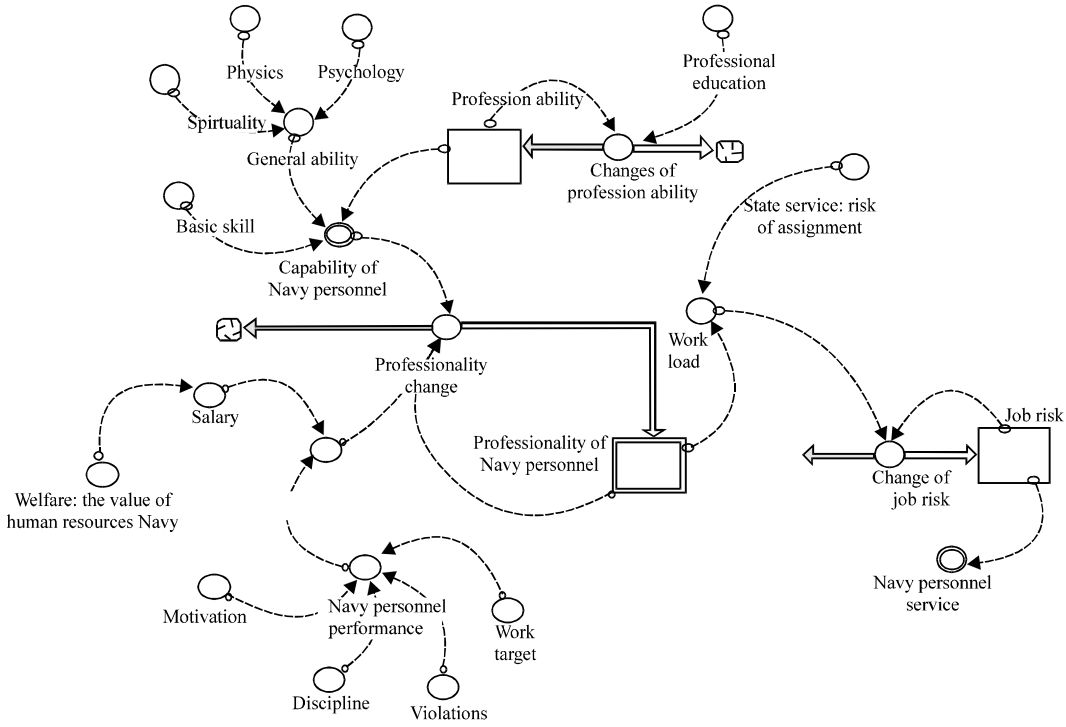

Fig. 3: Stock and flow diagram of Navy professionality aspect model

Finish professionality

Evaluation index: Each variable in the evaluation of performance allowances system is assessed and scored (rating) on the dynamic system model, namely: very low, low, medium, high and very high by using parameters measurable. The evaluation index serves to show that these variables need to be given special attention in the evaluation of performance allowance systems, according to the value of the conversion index and the strategic significance of very safe, secure, moderate, warning and alert. The higher the value of the conversion index the higher the variable is evaluated. The evaluation Index can be shown index of evaluation (Fig. 3).

Policy scenario and running model: The next step is to develop a policy scenario on the evaluation of a performance allowance system. The policy scenario is done on the aspect of profesionality of Navy personnel. The simulated scenario is "improvement of profession capability/special skill of Navy personnel" which is focused on increasing the special skill competence or advanced skill of the soldier who professionally and potentially can influence the capability of a soldier which in the end will have an impact on the professionality aspects. The purpose of this scenario is to find out how the influence of the criteria of the professional ability of the soldier to the soldier capability and the professionality aspect of Navy personnel as a system. Based on the simulation run on the system dynamic model, scores or evaluation index for each of the following criteria aspect variables are obtained:

- Evaluation index of performance allowances: 8.31 (high warning)
- Evaluation index of professionality aspect: 8.67 (high warning)
- Evaluation index professionality of Navy personnel 9.33 (very high alert)
- Evaluation index of capability Navy personnel 9.28 (very high warning)

These results or scores represent the output of dynamic system models that occur in all parameters and variables aspects of professionalism as a system which indicates the level of importance for policy evaluation, meaning that with a score 9.33 (very high, alert), the scenario "improvement of profession capability/special skill of Navy personnel" should be immediately undertaken to achieve the desired professionalism of the soldier as a necessity to increase the performance allowance of Navy personnel.

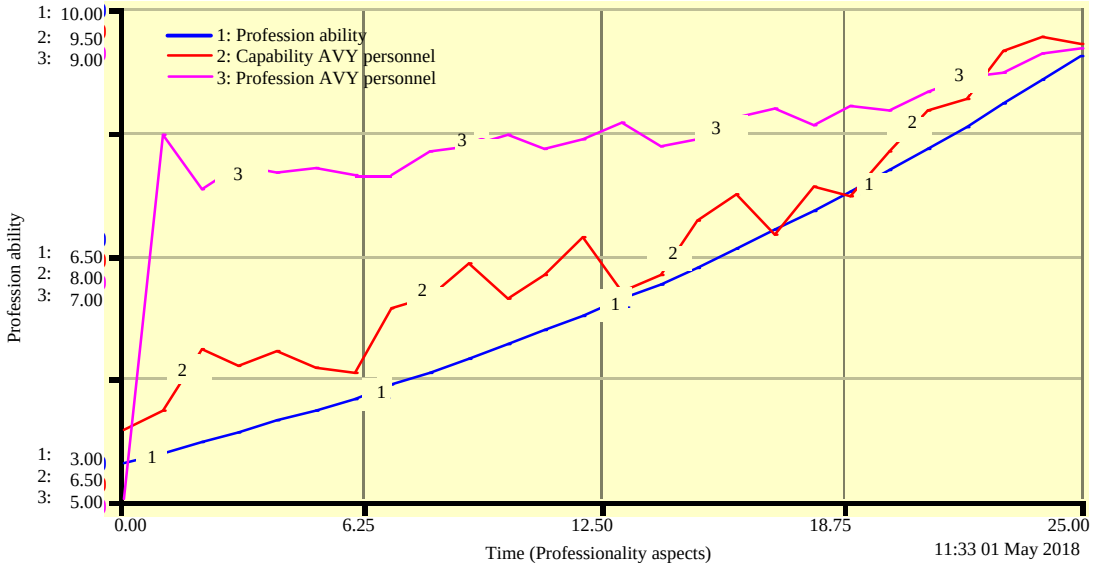

Fig. 4: Rrelationship variable profession ability, capability of navy personnel and professionality of Navy personnel

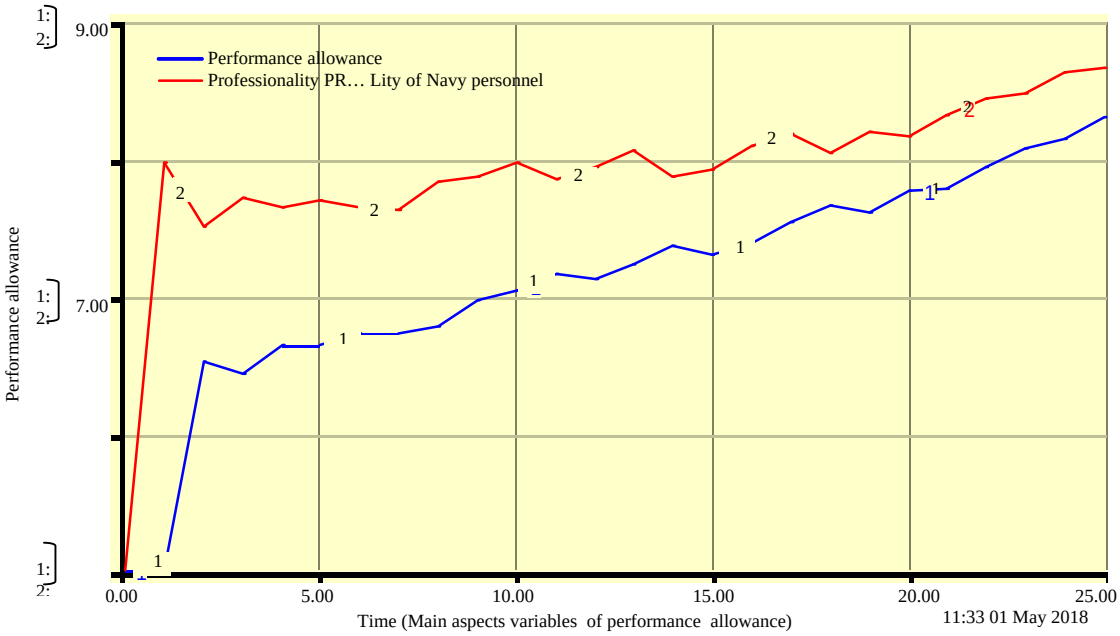

Fig. 5: Relationship variable performance allowance and professionality of Navy personnel

Figure 4 is a of the results of the simulation of performance evaluation model of performance alteration on the professionalism aspect of Navy soldiers. In this graph, there is a significant linearity relationship between the value of special skill profession the capability value of the soldier and the professionality of the navy soldiers for the period up to 25 years. Enhancement of special profession ability of soldier can be done by giving more opportunity to Navy soldiers to follow education or course according to field of assignment.

In Fig. 5, it can be analyzed that the professionalism of warrior values is strongly influenced by the conditions of the capability of a soldier and the condition of profession ability, the higher the value of the two variables, the higher the value of professional warriors. The relationship of the three is the relationship of system dynamics between the variables aspects and criteria on the aspect of professionalism. The next step is to assess how the effect of aspect professional variables

on performance benefits of Navy soldiers as the main aspects in the system which will be explained in Fig. 5.

In Fig. 5, graph of relationship professionality of Navy personnel aspects and performance allowances can be analyzed that the higher the professionality of soldiers the higher the value of performance allowance of soldiers. Meanwhile the professionality of Navy personnel values is strongly influenced by the capability of Navy personnel based on the value of professional ability. This proves that the variable capability of Navy personnel is a key variable (key variable) in the evaluation of performance allowances of Navy soldiers.

CONCLUSION

The evaluation model of performance allowances policy in the Navy has been done with the system dynamic modeling. System dynamic modeling of performance allowances policy evaluation is a model to describe the interaction of all aspects and criteria affecting evaluation of performance allowances, especially, on the aspect of professionality including the criteria or variables in it. This model generates a score or indekx of policy evaluations which used as indicators, based on dimensions of aspects, criteria and time. The score is an indicator of the importance of a policy which represents the policy being run or not and to determine which variables are most significantly influential.

The scenario is "improvement of profession capability/special skill of the Navy personnel". The scenario is focused on increasing the competence of special expertise or advanced skill of soldier. The analysis and evaluation is done thoroughly in the policy scenario and generates the evaluation value of the policy:

- Evaluation index of performance allowances: 8.31 (high, warning)
- Evaluation index of professionality aspect: 8.67 (high warning)
- Evaluation index professionality of Navy personnel 9.33 (very high, alert)
- Evaluation index of capability Navy personnel 9.28 (very high, warning)

RECOMMENDATIONS

Based on the evaluation results obtained that the policy to improve the ability of the profession or special curiosity of soldiers to give a significant impact on the capabilities of soldiers which further improve the professionalism aspect of the soldier. This policy scenario is part of the main aspect of the professionalism of the soldiers having a significant impact on the increase in performance allowances. In the end this policy scenario must be programmed and executed to achieve the desired professionality of the troops as a necessity for the improvement of performance allowance of Navy personnel.

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