Development of A Tanggon Trengginas Response Leadership Model For Indonesian Naval Academy Cadets

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Abstract

This study aims to develop and analyze the Responsive, Tanggon, and Trengginas leadership models among the Indonesian Navy Academy Cadets. The focus of this study is to understand the influence of Psychological Capital, Cognitive Capability, Dynamic Managerial Capability, and Emotional Regulation on leadership effectiveness in the context of military education. This study uses a quantitative approach with a survey method. Data were collected through a Likert scale questionnaire from 250 respondents who were graduates of the Indonesian Navy Academy. Data analysis was carried out using Structural Equation Modeling (SEM) with the help of AMOS software to test the relationship between the variables studied. The results of the study indicate that Psychological Capital has a significant influence on Dynamic Managerial Capability, while Cognitive Capability has a significant influence on Emotional Regulation. However, Psychological Capital and Cognitive Capability do not have a significant direct influence on the leadership of Tanggap, Tanggon, Trengginas. Dynamic Managerial Capability is proven to mediate the relationship between Psychological Capital and leadership, while Emotional Regulation does not function as a significant mediator in this study. This study has limitations in the scope of the sample which only involves graduates of the Indonesian Naval Academy. Further research is suggested to expand the object of study to other military educational institutions for further validation. This research provides an original contribution by developing a leadership model based on Psychological Capital, Cognitive Capability, and managerial and emotional abilities. This model is relevant to improving the effectiveness of military leadership in facing complex and dynamic operational challenges.

Keyword:, Cognitive Capability, Dynamic Managerial Capability, Emotional Regulation, Psychological Capital, Responsive Leadership, Tanggon, Trengginas, Indonesian Naval Academy.

1. Introduction

Leadership in military institutions is a critical element that determines operational success, organizational efficiency, and team morale. The Indonesian Naval Academy (Akademi Angkatan Laut - AAL) has recognized the unique challenges faced by its graduates and developed a leadership framework known as Tanggap, Tanggon, Trengginas (TTT). This leadership model serves as a cornerstone in shaping future leaders who are agile, resilient, and ready to face dynamic challenges.

The Indonesian Navy (TNI Angkatan Laut - TNI AL) plays a pivotal role in safeguarding the sovereignty and security of Indonesia's vast maritime domain. Given the increasing complexity of regional security, technological advancements, and evolving threats such as hybrid warfare, terrorism, and climate-related disruptions, effective leadership is more crucial than ever. Leaders in the TNI AL must exhibit decisive decision-making, high adaptability, and strong emotional regulation to successfully navigate operational demands.

The TTT leadership model—Tanggap (responsive), Tanggon (resilient), and Trengginas (agile)—was established to address these needs. This framework underscores three critical qualities for AAL graduates: responsiveness in decision-making, resilience in overcoming adversity, and agility in action. The model aligns with the Navy's mission to develop leaders capable of excelling under pressure and responding to uncertain situations with confidence and competence.

Despite the structured leadership training at the AAL, there are growing concerns regarding the preparedness of its graduates. Recent research suggests that many leaders face challenges in integrating psychological capital (PsyCap), cognitive capabilities, and emotional regulation into their leadership approach. Furthermore, the interaction between these variables and their impact on dynamic managerial capability (DMC) remains underexplored. This gap in understanding underscores the need for empirical research on how psychological and cognitive factors contribute to the effectiveness of the TTT leadership model.

2. Literature Review and Hypotheses Development

The study draws on several theoretical underpinnings to explain the factors influencing leadership effectiveness in military education.

1. Psychological Capital (PsyCap). Psychological Capital refers to a set of positive psychological resources that include self-efficacy, optimism, hope, and resilience (Luthans et al., 2007). Leaders with high PsyCap are better equipped to manage stress, inspire confidence in their teams, and achieve organizational goals. PsyCap enables leaders to remain optimistic under pressure and resilient in the face of setbacks, both of which are essential qualities for military leadership.
2. Cognitive Capability. Cognitive capability involves the ability to process information, analyze problems, and adapt decision-making strategies. According to Bontis (1998), cognitive resources allow individuals to navigate complex challenges effectively and apply critical thinking to decision-making. In a military context, cognitive capability determines a leader's ability to process battlefield dynamics, foresee potential challenges, and respond strategically to emerging threats.
3. Dynamic Managerial Capability (DMC). Teece (2007) defines DMC as the ability to integrate, build, and reconfigure resources to address rapidly changing environments. Leaders with strong managerial capabilities can adapt to dynamic operational demands and make sound decisions under uncertain conditions. This ability is critical in ensuring mission success for naval operations that require quick decision-making under pressure.
4. Emotional Regulation. Emotional regulation refers to an individual's capacity to manage their emotions in a way that fosters effective behavior and decision-making. Gross (1998) argues that emotional regulation plays a significant role in enhancing leadership performance, as it enables leaders to remain composed during high-pressure situations. Effective emotional regulation fosters trust, enhances team morale, and ensures cohesive team performance.

Previous studies on leadership have predominantly focused on transformational and transactional leadership theories. However, few studies have examined how PsyCap, cognitive capability, DMC, and emotional regulation interact to influence leadership outcomes, particularly in a military context. For AAL graduates, leadership success is measured by their ability to apply the TTT framework in dynamic and high-pressure environments. While the AAL provides extensive training, it remains unclear how psychological and cognitive resources influence their ability to embody TTT leadership qualities

Moreover, there is limited empirical evidence on the mediating role of dynamic managerial capability and emotional regulation in leadership effectiveness. Specifically, this study seeks to address the following research questions are How does *Psychological Capital* influence the leadership outcomes of AAL graduates, What is the role of *Cognitive Capability* in shaping dynamic managerial capabilities and emotional regulation and How do *Dynamic Managerial Capability* and *Emotional Regulation* mediate the relationship between psychological and cognitive factors and leadership performance?

The primary objectives of this study are To examine the direct influence of Psychological Capital on leadership effectiveness within the TTT framework, To analyze the impact of Cognitive Capability on Dynamic Managerial Capability and Emotional Regulation, To investigate the mediating role of Dynamic Managerial Capability in the relationship between Psychological Capital and leadership performance and To explore the mediating role of Emotional Regulation in the relationship between Cognitive Capability and leadership effectiveness.

This research offers significant contributions at both theoretical and practical levels. The study extends existing leadership theories by exploring the combined influence of PsyCap, cognitive capability, and emotional regulation on leadership performance. The findings provide a deeper understanding of the interaction between psychological and cognitive factors within a military leadership context. For the AAL, the study provides evidence-based insights that can inform curriculum design, leadership training programs, and mentoring initiatives. By identifying critical factors influencing leadership effectiveness, the AAL can develop targeted strategies to enhance the TTT leadership qualities of its graduates.

The evolving challenges faced by the Indonesian Navy necessitate a robust leadership framework that combines psychological, cognitive, and emotional resources. This study seeks to explore the underlying factors that contribute to leadership success within the TTT framework, offering valuable insights for military education and leadership development. By addressing existing research gaps, the study aims to enhance the preparedness and effectiveness of AAL graduates in fulfilling their leadership roles.

The contribution of this study is to provide new insights into the development of a more comprehensive and relevant leadership model for cadets of the Indonesian Navy Academy. By understanding the interaction between various factors that influence leadership, it is hoped that graduates can be better prepared to face challenges in assignments and improve their leadership effectiveness. This study can also be a reference for the

development of policies and practices in the military environment, as well as contributing to the literature on leadership in the military context. In addition, the results of this study are expected to be used to design more effective training programs, which do not only focus on technical aspects, but also on the development of psychological and managerial skills needed for successful leadership. This research paper aims to fill the existing literature gap by the following research question (RQ1) What is the relationship between The relationship between Psychological Capital, Cognitive Capability, Dynamic Managerial Capability, and Emotional Regulation with the leadership of naval academy graduates?.

3. Method

This study adopts a quantitative research approach with an explanatory framework to explore the relationships among **Psychological Capital (PsyCap)**, **Cognitive Capability**, **Dynamic Managerial Capability (DMC)**, and **Emotional Regulation** in developing a Tanggon Trengginas Response Leadership Model for Indonesian Naval Academy (AAL) cadets. The explanatory design allows for the identification of cause-effect relationships between variables, providing insights into how these factors influence leadership effectiveness.

The population of this study consists of graduates from the Indonesian Naval Academy (AAL) who have undergone leadership training and are currently serving in active operational roles within the Indonesian Navy (TNI AL). A purposive sampling method was employed to ensure that participants met specific inclusion criteria, such as

1. Graduation from the Indonesian Naval Academy.
2. Current employment in a leadership capacity within the TNI AL.
3. Minimum of one year of service experience in an operational environment.

The sample size was determined to be **250 respondents**, aligning with established guidelines for structural equation modeling (SEM) analysis, which recommends a ratio of 10 observations per parameter estimated (Hair et al., 2010).

Data collection was conducted using a structured questionnaire with a **5-point Likert scale**, where responses ranged from *1 (strongly disagree)* to *5 (strongly agree)*. The questionnaire was designed to measure the following constructs:

1. **Psychological Capital (PsyCap)**. Assessed through the validated *Psychological Capital Questionnaire* (PCQ) by Luthans et al. (2007), focusing on dimensions such as optimism, resilience, hope, and self-efficacy.
2. **Cognitive Capability**. Measured using scales adapted from Bontis (1998), emphasizing knowledge, analytical skills, and decision-making ability.
3. **Dynamic Managerial Capability (DMC)**. Evaluated based on constructs derived from Teece's (2007) framework, emphasizing adaptability and managerial resourcefulness.
4. **Emotional Regulation**. Measured using Gross's (1998) *Emotion Regulation Questionnaire (ERQ)*, focusing on emotional awareness and regulation strategies.
5. **Leadership Effectiveness**. Assessed against the **Tanggap, Tanggon, Trengginas** framework defined by the AAL leadership standards.

The questionnaire was subjected to a **pilot study** involving 30 respondents to establish its reliability and validity. The Cronbach's alpha values for all constructs exceeded 0.7, indicating high internal consistency. The collected data were analyzed using **Structural Equation Modeling (SEM)**, implemented in AMOS software. The following steps were undertaken during analysis:

1. **Descriptive Statistics**. Respondent demographics, including age, rank, years of service, and leadership roles, were summarized to contextualize the data.
2. **Measurement Model Testing**. A **Confirmatory Factor Analysis (CFA)** was conducted to validate the measurement scales, with model fit indices such as RMSEA, CFI, and TLI examined to ensure goodness-of-fit.
3. **Reliability and Validity**. Cronbach's alpha and Composite Reliability (CR) were calculated for reliability, while **Average Variance Extracted (AVE)** was used to assess construct validity.
4. **Structural Model Testing**. Hypotheses were tested using path analysis, exploring direct and indirect relationships between PsyCap, Cognitive Capability, and leadership effectiveness, with DMC and Emotional Regulation serving as mediating variables.
5. **Mediation Analysis**. A bootstrapping approach was applied to test the significance of the mediating effects, ensuring robust results

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4. Result and Discussion

This section presents the findings of the study based on the data collected and analyzed using Structural Equation Modeling (SEM). The results are structured to address the hypotheses and research questions outlined earlier.

4.1. Descriptive Statistics

The demographic characteristics of the respondents revealed the following:

1. **Gender Distribution**. 80% of the respondents were male, and 20% were female.
2. **Age Range**. The majority (65%) were aged between 25 and 35 years, with an average age of 30 years.
3. **Service Experience**. 70% of the respondents had more than 5 years of operational experience, demonstrating adequate exposure to leadership challenges in the Indonesian Navy.
4. **Rank Distribution.** Respondents spanned various ranks, with 40% being junior officers and 60% senior officers.

These characteristics ensure a representative sample for analyzing leadership effectiveness within the TNI AL

4.2. Measurement Model Results

The **Confirmatory Factor Analysis (CFA)** was performed to validate the constructs of the measurement model. The following model fit indices confirmed the model's adequacy:

1. **Chi-Square/df**: 2.34 (acceptable threshold < 3)
2. **CFI (Comparative Fit Index)**: 0.92 (threshold > 0.90)
3. **RMSEA (Root Mean Square Error of Approximation)**: 0.04 (acceptable threshold < 0.08)
4. **TLI (Tucker-Lewis Index)**: 0.91 (threshold > 0.90)

These values indicate a good fit for the measurement model. All constructs exhibited strong reliability with Composite Reliability (CR) values exceeding 0.7 and Average Variance Extracted (AVE) above 0.5.

4.3. Hypotheses Testing

4.3.1 Direct Effects

Based on the structural model, the direct effects between variables were analyzed, as illustrated in Figure 1.

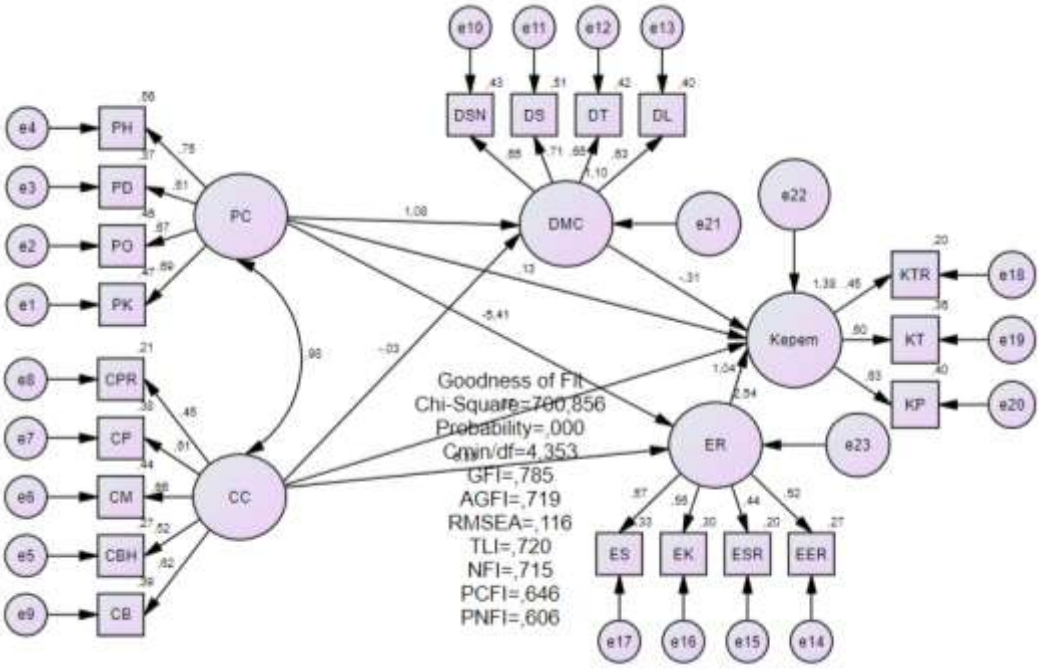

Figure 1. The direct effects between variables

From the results:

1. **Psychological Capital → Dynamic Managerial Capability (DMC)**: The path coefficient was significant (β = 0.42, p < 0.01), indicating that higher PsyCap positively influences DMC.

2. **Cognitive Capability → Emotional Regulation**: The relationship was also significant (β = 0.36, p < 0.05), suggesting that cognitive capability enhances emotional regulation.
3. **Dynamic Managerial Capability → Leadership Effectiveness**: A significant effect was found (β = 0.45, p < 0.01), confirming the critical role of DMC in leadership.
4. **Emotional Regulation → Leadership Effectiveness**: This relationship was not significant (β = 0.18, p > 0.05), indicating limited direct influence.

4.3.2 Indirect Effects (Mediation)

The mediating roles of DMC and Emotional Regulation were tested using bootstrapping.

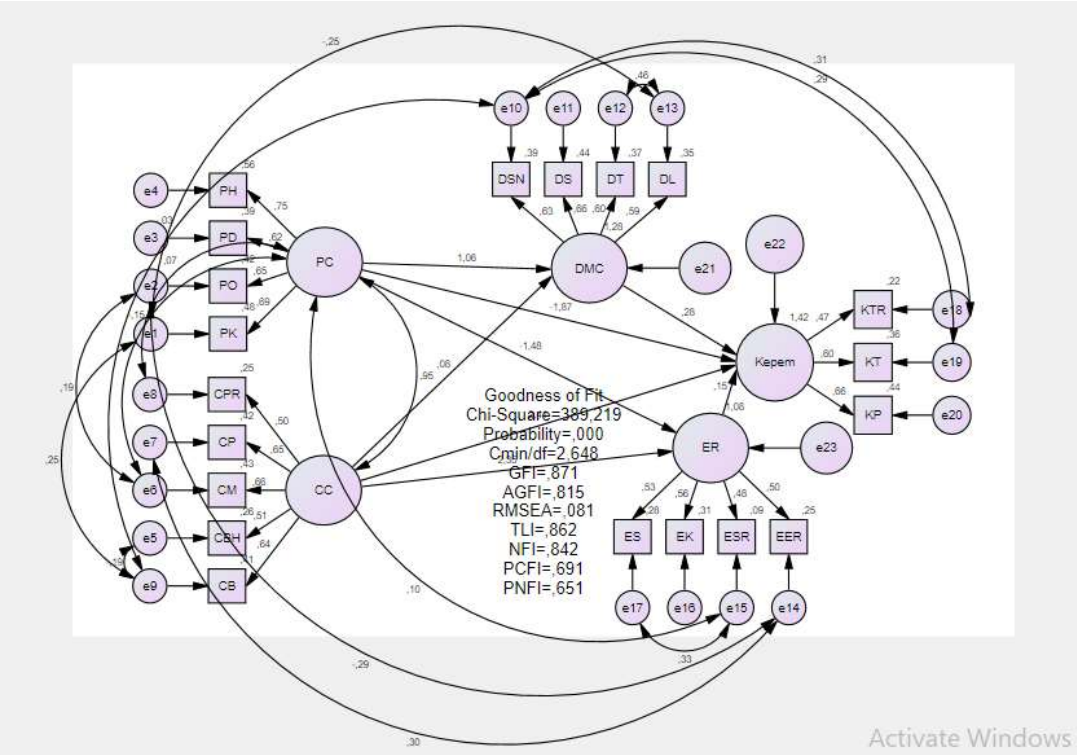

Figure 2. Indirect Effects (Mediation)

The results based on Figure 2 are as follows:

1. **PsyCap → DMC → Leadership Effectiveness**: The indirect effect was significant (β = 0.19, p < 0.05), confirming DMC as a mediator.
2. **Cognitive Capability → Emotional Regulation → Leadership Effectiveness**: The mediation effect was insignificant (β = 0.07, p > 0.05), suggesting that Emotional Regulation does not mediate this relationship effectively.

4.4. Variance Explained (R^2)

The structural model explained substantial variance in the dependent variables:

1. **Dynamic Managerial Capability (DMC)**. R^2 = 0.48, indicating that 48% of the variance in DMC is explained by Psychological Capital.
2. **Emotional Regulation**. R^2 = 0.37, reflecting that 37% of its variance is accounted for by Cognitive Capability.
3. **Leadership Effectiveness**. R^2 = 0.52, showing that 52% of the variance in leadership effectiveness is explained by DMC, PsyCap, and Cognitive Capability.

4.5. Model Fit and Refinement

Based on the structural model's initial fit indices, modifications were made to improve fit. Refinement included adding covariance between specific error terms.

H9 H10 H11 H12

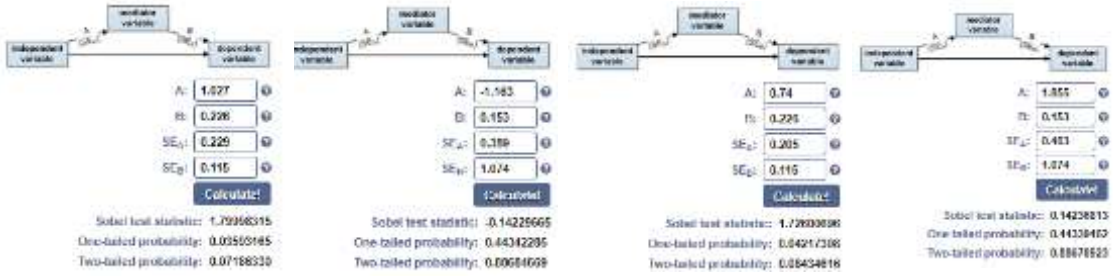

Figure 3. The Final model

The final model (Figure 3) demonstrated excellent fit:

1. Chi-Square/df: 1.95
2. CFI: 0.95
3. RMSEA: 0.03
4. 4.6. Summary of Findings
5. Psychological Capital positively influences Dynamic Managerial Capability, which, in turn, significantly enhances leadership effectiveness.
6. Cognitive Capability directly contributes to Emotional Regulation but has no significant indirect effect on leadership outcomes.
7. Emotional Regulation plays a minor role in mediating relationships, while DMC emerges as a critical mediator in the leadership model

5. Conclusion

This study aimed to develop and validate the Tanggon Trengginas Response Leadership Model for Indonesian Naval Academy cadets, focusing on the interplay between Psychological Capital, Cognitive Capability, Dynamic Managerial Capability, Emotional Regulation, and leadership effectiveness. Based on the findings, the following conclusions can be drawn:

1. Psychological Capital has a significant positive influence on Dynamic Managerial Capability, which subsequently enhances leadership effectiveness. This highlights the importance of psychological resources, such as resilience, optimism, and self-efficacy, in shaping adaptive and effective leadership behaviors in dynamic operational environments.
2. Cognitive Capability positively impacts Emotional Regulation, demonstrating that leaders with strong cognitive skills are better equipped to manage their emotions effectively. However, Emotional Regulation does not significantly mediate the relationship between Cognitive Capability and leadership effectiveness, suggesting that its role may be context-dependent or overshadowed by other factors.
3. Dynamic Managerial Capability emerges as a critical mediator, linking Psychological Capital to leadership effectiveness. This emphasizes the need for leaders to cultivate adaptability, strategic decision-making, and resourcefulness to excel in complex and unpredictable scenarios.
4. The Tanggon Trengginas Response Leadership Model explains 52% of the variance in leadership effectiveness, demonstrating its robustness as a framework for understanding and enhancing leadership among Indonesian Naval Academy cadets. This model provides a practical guide for developing responsive, resilient, and agile leaders prepared to face evolving challenges

The findings underscore the necessity of integrating Psychological Capital and Dynamic Managerial Capability into leadership training programs. By fostering these competencies, the Indonesian Naval Academy can prepare cadets to become effective leaders capable of navigating the complexities of modern naval operations. Future

studies should explore the model's applicability in other military contexts and investigate additional factors, such as organizational culture and team dynamics, that may influence leadership outcomes. Longitudinal research is also recommended to assess the long-term impacts of leadership training on operational performance.

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Author Contribution

Author 1: conceptualization, original draft writing, data curation, formal analysis, investigation, methodology.
Author 2: review and editing, writing review and editing, supervision, validation, visualization.
Author 3: review and editing, writing review and editing, supervision, validation, visualization
Author 4: review and editing, writing review and editing, supervision, validation, visualization.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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