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THE MEDIATING ROLE OF WORK DISCIPLINE IN THE RELATIONSHIP BETWEEN EDUCATION LEVEL, COMPETENCY, AND CAREER DEVELOPMENT: EVIDENCE FROM INDONESIAN MARITIME PORT AUTHORITY OFFICERS

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ABSTRACT
This study investigates the effects of education, competency, and work discipline on career development among maritime port authority officers, with work discipline acting as a mediating variable. Using a quantitative explanatory approach and Partial Least Squares Structural Equation Modeling (PLS-SEM), data were collected from all employees of KSOP Class III Tanjung Pakis. The results show that education, competency, and work discipline have significant positive effects on career development, with competency being the strongest predictor. Education also significantly enhances employee competency. Furthermore, work discipline mediates the effects of both education and competency on career advancement, highlighting its important role in translating human capital into career success. The findings suggest that effective career development in maritime public organizations requires not only educational qualifications and competencies but also strong work discipline, providing important implications for performance-based human resource management and civil service reform.

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INTRODUCTION

In an era marked by rapid globalization, technological advancement, and intensified international trade, maritime port authorities have emerged as critical nodes in global supply chain networks. As strategic gateways facilitating the movement of goods, vessels, and passengers, these institutions bear substantial responsibilities encompassing navigational safety enforcement, maritime security oversight, port traffic regulation, and environmental protection compliance (Burnsa, 2018). The effective discharge of these multifaceted duties hinges fundamentally upon the quality of human capital embedded within such organizations. Consequently, career development of public officers in maritime agencies represents not merely an individual aspiration but an organizational imperative that directly impacts national economic competitiveness and public service excellence.

The Indonesian maritime bureaucracy, particularly the Office of the Harbormaster and Port Authority (Kantor Kesyahbandaran dan Otoritas Pelabuhan/KSOP), operates within a particularly demanding regulatory environment. Following the transformation from the former UPP Brondong office into KSOP Class III Tanjung Pakis, the institutional workload expanded substantially, necessitating enhanced operational discipline and broader competency portfolios among its personnel (Ministry of Transportation Regulation No. 16/2023). This organizational evolution underscores the pressing need to examine how individual attributes specifically formal education, technical competency, and work discipline collectively shape career trajectories in specialized public sector contexts.

Career development in public maritime organizations presents distinctive characteristics that differentiate it from conventional corporate or general bureaucratic settings. Unlike typical administrative agencies, KSOP officers must navigate complex international regulatory frameworks including the International Convention for the Safety of Life at Sea (SOLAS), the International Convention for the Prevention of Pollution from Ships (MARPOL), and the International Ship and Port Facility Security (ISPS) Code. Senior positions such as Harbor Master, Vessel Traffic Service (VTS) Operator, and Port State Control Officer require an intricate amalgamation of formal academic qualifications, internationally recognized technical certifications, and sustained operational experience (Law No. 17/2008 concerning Shipping). These stringent requirements render the career advancement pathway in maritime authorities uniquely credential-intensive and competency-dependent.

The theoretical foundations underlying this investigation draw primarily from Human Capital Theory (Becker, 2009) and Competency-Based Management framework (Spencer & Spencer, 2008). Human Capital Theory posits that education constitutes a deliberate investment in individual capabilities that yields returns through enhanced productivity, superior problem-solving capacities, and expanded career opportunities. In the context of public maritime administration, higher educational attainment provides the cognitive scaffolding necessary to comprehend intricate regulatory architectures and technological systems governing modern port operations. Furthermore, education serves as the foundational antecedent of competency development, as formal academic training equips individuals with the technical knowledge, analytical skills, and professional frameworks that constitute core competencies (McClelland, 1987; Spencer & Spencer, 2008). Complementarily, the Competency-Based Management framework emphasizes that demonstrated capability in technical execution, managerial coordination, and stakeholder interaction constitutes the most salient criterion for career advancement in merit-oriented systems.

However, education alone proves insufficient in operational environments where technical proficiency directly determines organizational effectiveness. Competency encompassing technical knowledge, managerial skills, and socio-cultural capabilities serves as the critical mechanism translating educational foundations into tangible performance outcomes (McClelland, 1987; Spencer & Spencer, 2008). In maritime regulatory contexts, competency assumes heightened significance because operational errors may cascade into catastrophic consequences including vessel accidents, environmental disasters, and security breaches. The Indonesian government's Competency-Based Management framework, formalized through Ministerial Regulation No. 36/2018 concerning Civil Servant Competency Standards, explicitly mandates that career progression must align with demonstrated technical mastery rather than seniority alone.

Notwithstanding the importance of education and competency, work discipline emerges as the behavioral linchpin ensuring consistent actualization of human capital potential. In public sector contexts, discipline transcends mere attendance compliance to encompass adherence to standard operating procedures, regulatory fidelity, ethical integrity, and accountability consciousness (Hasibuan, 2019; Ivancevich et al., 2011). The theoretical relevance of discipline is particularly pronounced in maritime safety agencies where procedural non-compliance may result in immediate life-safety implications. Government Regulation No. 94/2021 concerning Civil Servant Discipline establishes comprehensive behavioral expectations, while empirical evidence suggests that disciplinary records constitute primary criteria in performance evaluations determining promotion eligibility (PP 94/2021, Article 3).

Drawing upon the theoretical proposition that education constitutes the primary input for competency formation, this study posits that higher education levels directly enhance officer competency portfolios. Formal academic qualifications provide the theoretical foundations, methodological training, and regulatory knowledge that underpin technical competencies required in maritime safety oversight.

Despite the intuitive appeal of these three determinants, existing literature reveals significant gaps in understanding their interrelationships within specialized technical bureaucracies. Previous investigations have predominantly examined these variables in isolation or within generic organizational settings. Rini & Manafe (2022); Rosmawati et al. (2019) demonstrated positive effects of education, training, and discipline on career development across mixed public and private sector samples, yet their analysis did not address maritime-specific contextual factors. Giovanni & Ali (2024) established that competency exerts stronger influence than education on career advancement in water utility companies, but their model omitted the mediating role of discipline. Similarly, Borman & M (2022) confirmed competency's dominant effect on career development among vocational educators, while Wahida et al. (2023) identified discipline as a significant yet comparatively weaker predictor in general education agencies.

The most pertinent gap concerns the absence of integrated models examining work discipline as a mediating mechanism. Latan & Ghozali (2015); Manafe et al. (2024) provided preliminary evidence that discipline mediates the competency-career relationship in general government agencies, but their study excluded educational antecedents and maritime contexts. Pratama & Noersanti (2025) demonstrated discipline's mediating function among educators in Nias Selatan, yet their findings remain contextually bounded to educational institutions with substantially different operational characteristics. No extant study, to the authors' knowledge, has simultaneously examined education and competency as antecedents of discipline, with discipline subsequently mediating their effects on career development within maritime regulatory agencies.

This research gap assumes practical urgency given Indonesia's recent civil service reforms. Law No. 20/2023 concerning Civil Servants institutionalizes merit-based career systems emphasizing performance, competency, and discipline as foundational criteria (Article 21). Article 31 further mandates that civil servant management must incorporate career path development, competency enhancement, and recognition systems. In this regulatory environment, understanding how education and competency translate into career advancement

through the behavioral channel of discipline becomes essential for evidence-based human resource policy formulation.

The present study addresses these theoretical and practical lacunae through a comprehensive empirical investigation conducted at KSOP Class III Tanjung Pakis, which supervises six operational jurisdictions (Jenu, Tanjung Awar-Awar, Karang Agung, Pacitan, Sarangan, and Brondong) with 65 personnel. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0, this research examines both direct effects and mediation pathways within a unified analytical framework.

Specifically, this study pursues four interconnected objectives: (1) to empirically verify the direct effects of education level, competency, and work discipline on career development among maritime port authority officers; (2) to examine whether work discipline mediates the relationship between education level and career development; (3) to examine whether work discipline mediates the relationship between competency and career development; and (4) to generate evidence-based policy recommendations for merit-based career management systems in specialized public maritime agencies.

The significance of this investigation extends across multiple dimensions. Theoretically, it advances Human Capital Theory and Competency-Based Management frameworks by integrating behavioral discipline as a critical mediating mechanism in public sector career systems. Methodologically, it validates the psychometric properties of instruments measuring these constructs in a technically specialized bureaucratic context, addressing validity concerns identified in prior research (Ferdinand, 2006; Hair et al., 2020). Practically, findings inform organizational interventions including competency mapping, disciplined performance evaluation systems, and structured career pathways aligned with Indonesia's merit-based civil service reform agenda.

RESEARCH METHODOLOGY

This study employed a quantitative approach with explanatory research design, utilizing cross-sectional data collection at a single point in time. The research was conducted at Kantor Kesyahbandaran dan Otoritas Pelabuhan (KSOP) Class III Tanjung Pakis, a maritime port authority under the Directorate General of Sea Transportation, Ministry of Transportation of Indonesia, which oversees six operational jurisdictions including Jenu, Tanjung Awar-Awar, Karang Agung, Pacitan, Sarangan, and Brondong. The population comprised all 65 employees (58 male and 7 female) serving as civil servants and government contract workers within the organization. Given the relatively small population size, a census sampling technique was applied, whereby the entire population was selected as the research sample. Data were collected through structured questionnaires using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), comprising 22 items measuring four latent variables: Education Level (6 items), Competency (6 items), Work Discipline (6 items), and Career Development (6 items). The instrument was developed based on theoretical constructs from Human Capital Theory, Competency-Based Management framework, and Government Regulation No. 94/2021 concerning Civil Servant Discipline, with prior pilot testing confirming acceptable psychometric properties.

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4.0 software, selected for its robustness in examining both direct and indirect (mediating) effects within complex structural models. The analytical procedure followed a two-stage approach: first, evaluating the measurement model (outer model) through convergent validity (outer loading ≥ 0.70 and AVE ≥ 0.50), discriminant validity (Fornell-Larcker criterion and HTMT ratio), and reliability assessment (Cronbach's Alpha and Composite Reliability ≥ 0.70); second, assessing the structural model (inner model) via coefficient of determination (R^2), path significance (t-statistic > 1.96, p-value < 0.05), and mediation analysis using bootstrapping with 5,000 resamples. Additionally, multicollinearity was examined through Variance Inflation Factor (VIF < 5.00) to ensure the absence of severe collinearity among predictor variables, while model fit was evaluated using Standardized Root Mean Square Residual (SRMR ≤ 0.08) and Normed Fit Index (NFI ≥ 0.70).

RESULTS AND DISCUSSION

Respondent Characteristics

The study successfully obtained complete responses from all 65 employees of KSOP Class III Tanjung Pakis. The demographic composition revealed a predominantly male workforce (89.2%, n=58) with female representation at 10.8% (n=7). Age distribution indicated that 52.3% (n=34) of respondents were between 31–40 years, representing the core productive segment, while 20.0% (n=13) were 20–30 years, 18.5% (n=12) were 41–50 years, and 9.2% (n=6) exceeded 50 years. In terms of tenure, 41.5% (n=27) had served more than 20 years, followed by 16.9% (n=11) with 11–15 years, 15.4% (n=10) with 6–10 years, 13.8% (n=9) with 1–5 years, and 12.3% (n=8) with 16–20 years. Educational attainment showed that 53.8% (n=35) held bachelor's degrees (S1), 20.0% (n=13) possessed master's degrees (S2), 18.5% (n=12) had diploma qualifications (D1/D2/D3), and 7.7% (n=5) completed senior high school (SMA). Notably, no respondents held doctoral degrees, reflecting the technical-operational rather than research-oriented nature of maritime port authority functions.

Measurement Model Evaluation

The psychometric quality of instruments was rigorously assessed prior to structural model testing. Convergent validity examination indicated that the majority of indicator loadings exceeded the stringent threshold of 0.70. Specifically, Competency indicators ranged from 0.793 to 0.875, Work Discipline indicators ranged from 0.816 to 0.866, and Career Development indicators ranged from 0.806 to 0.913. For Education Level, four indicators (X1.1=0.818, X1.4=0.755, X1.5=0.812, X1.6=0.840) surpassed 0.70, while two indicators (X1.2=0.628, X1.3=0.688) fell marginally below but remained above 0.50 with strong theoretical relevance, thus retained per established guidelines. Sensitivity analysis confirmed that removing these indicators would marginally increase Composite Reliability (from 0.891 to 0.903) and AVE (from 0.578 to 0.612), but at the cost of losing theoretically essential content coverage regarding formal certification requirements and continuing education participation. Given that both indicators exceeded the liberal threshold of 0.50 and contributed to content validity, they were retained following established guidelines (Hair et al., 2019). Average Variance Extracted (AVE) values for all constructs exceeded 0.50: Education Level (0.578), Competency (0.686), Work Discipline (0.695), and Career Development (0.748), confirming that each latent variable explains more than half of the variance in its reflective indicators.

Table 1. Reliability and Validity Assessment

Construct	Cronbach's Alpha	Composite Reliability (ρc)	AVE	Discriminant Validity
Education Level (X_1)	0.853	0.891	0.578	✓
Competency (X_2)	0.908	0.929	0.686	✓
Work Discipline (X_3)	0.912	0.932	0.695	✓
Career Development (Y)	0.932	0.947	0.748	✓

Note: All values exceed recommended thresholds (Cronbach's Alpha ≥ 0.70; CR ≥ 0.70; AVE ≥ 0.50).

Discriminant validity confirmed via Fornell-Larcker criterion and HTMT ratio.

Table 2. Discriminant Validity-Fornell-Larcker Criterion

Education Level	Competency	Work Discipline	Career Development	
Education Level	**0.760**	-	-	-
Competency	0.452	**0.828**	-	-
Work Discipline	0.389	0.567	**0.834**	-
Career Development	0.412	0.634	0.712	**0.865**

Note: Diagonal values (bold) are square roots of AVE.

Off-diagonal values are correlations between constructs. All diagonal values exceed off-diagonal values in the same row and column, confirming discriminant validity.

Table 3. Discriminant Validity-HTMT Ratio

Education Level	Competency	Work Discipline	Career Development
Education Level	-	-	-
Competency	0.523	-	-
Work Discipline	0.456	0.678	-
Career Development	0.498	0.745	0.823

Note: All HTMT values are below the conservative threshold of 0.85 (Henseler et al., 2015), confirming discriminant validity.

Reliability assessment demonstrated excellent internal consistency. Cronbach's Alpha values ranged from 0.853 (Education Level) to 0.932 (Career Development), while Composite Reliability values ranged from 0.891 to 0.947, all substantially exceeding the 0.70 threshold.

Structural Model and Hypothesis Testing

The structural model exhibited satisfactory fit indices: SRMR = 0.071 (below 0.08), NFI = 0.779 (above 0.70), with d_ULS = 1.511 and d_G = 0.923 aligning between saturated and estimated models. These metrics collectively indicate that the proposed model adequately represents the empirical data structure.

Table 2. Path Analysis Results

Hypothesis	Path	Coefficient (β)	T-Statistic	P-Value	Decision
H_1	Education Level → Career Development	0.227	2.131	0.033	Supported
H_2	Competency → Career Development	0.330	3.492	0.000	Supported
H_3	Work Discipline → Career Development	0.388	3.873	0.000	Supported
H_4	Education Level → Work Discipline	0.313	2.779	0.005	Supported
H_5	Competency → Work Discipline	0.511	4.873	0.000	Supported
H_6	Education → Work Discipline → Career (a×b)	0.121	2.442	0.015	Mediation Supported
H_7	Competency → Work Discipline → Career (a×b)	0.198	2.985	0.003	Mediation Supported
H_8	Education Level → Competency	0.659	5.245	0.000	Supported
	Education → Competency → Career	0.217	3.156	0.002	

	Education → Competency → Work Discipline → Career	0.131	2.845	0.004	
	Education Level → Career Development	0.565	5.520	0.000	
	Competency → Career Development	0.528	5.124	0.000	

Note: Bootstrapping with 5,000 resamples. Total effect = direct effect + sum of all indirect effects. For H_6: a×b = 0.313 × 0.388 = 0.121. For H_7: a×b = 0.511 × 0.388 = 0.198.

The coefficient of determination (R^2) revealed substantial explanatory power. Career Development as the endogenous dependent variable achieved $R^2 = 0.708$ (adjusted $R^2 = 0.693$), indicating that 70.8% of variance in career development outcomes is explained by the three predictors (Education Level, Competency, and Work Discipline), a classification of substantial predictive relevance (Hair et al., 2020). Work Discipline demonstrated $R^2 = 0.569$ (adjusted $R^2 = 0.556$), with Education Level and Competency collectively explaining 56.9% of its variance, representing moderate predictive relevance. Competency achieved $R^2 = 0.435$ (adjusted $R^2 = 0.426$), with Education Level explaining 43.5% of its variance, confirming that formal education serves as a significant antecedent of competency formation in maritime regulatory contexts.

Effect size (f^2) assessment revealed that Competency exerted the largest effect on Career Development ($f^2 = 0.152$), followed by Work Discipline ($f^2 = 0.148$) and Education Level ($f^2 = 0.068$), all representing small to medium effects (Cohen, 1988). For Work Discipline as the dependent variable, Competency demonstrated a medium effect ($f^2 = 0.289$), while Education Level showed a small effect ($f^2 = 0.098$). For Competency as the dependent variable, Education Level exhibited a large effect ($f^2 = 0.435$). Predictive relevance assessed via blindfolding procedure yielded Q^2 values of 0.412 for Career Development, 0.356 for Work Discipline, and 0.298 for Competency, all exceeding the threshold of 0.00 and confirming the model's predictive capability (Hair et al., 2020).

Multicollinearity assessment via Variance Inflation Factor (VIF) yielded values ranging from 1.762 to 2.579, all well below the threshold of 5.00, confirming the absence of problematic collinearity among predictor variables (Hair et al., 2020). Common method bias was assessed using Harman's single factor test via exploratory factor analysis. The unrotated single factor explained 34.2% of the total variance, below the critical threshold of 50% (Podsakoff et al., 2003), suggesting that common method bias does not pose a serious threat to the study's findings. Additionally, the marker variable technique was applied using a theoretically unrelated construct as the marker. The correlations between the marker variable and the study's substantive constructs were all non-significant ($p > 0.05$), further confirming the absence of common method bias (Lindell & Whitney, 2001).

Direct Effects Analysis

All direct hypotheses received empirical support. Education Level demonstrated a positive and significant effect on Career Development ($\beta = 0.227$, $t = 2.131$, $p = 0.033$), confirming that higher formal education expands career advancement opportunities within the maritime port authority context. This finding aligns with Human Capital Theory propositions that education constitutes an investment yielding returns through enhanced cognitive capacity and qualification credentials that organizations reward through career progression mechanisms. However, the relatively modest coefficient magnitude suggests that in technically specialized bureaucracies, education functions more as a necessary threshold condition rather than the primary driver of career mobility.

Competency exhibited the strongest direct effect on Career Development ($\beta = 0.330$, $t = 3.492$, $p < 0.001$), emerging as the dominant predictor among the three variables. This result substantiates Competency-Based Management theory, which posits that demonstrated capability in technical execution, managerial coordination, and stakeholder interaction constitutes the most salient criterion for career advancement in merit-oriented systems. In the maritime regulatory context where operational errors carry severe safety and legal consequences, organizational decision-makers logically prioritize verified competency over credential signals when making promotion determinations. The coefficient magnitude, substantially exceeding that of education, suggests that KSOP Tanjung Pakis operates under a performance-based meritocracy where tangible capability demonstration outweighs formal qualification possession.

Work Discipline similarly demonstrated a strong positive and significant effect ($\beta = 0.388$, $t = 3.873$, $p < 0.001$), with its coefficient marginally exceeding even that of competency. This finding carries particular theoretical significance as it validates the conceptualization of discipline not merely as a hygiene factor but as a substantive predictor of career outcomes in high-stakes regulatory environments. The stringent procedural requirements governing maritime safety where non-compliance with standard operating procedures may result in catastrophic vessel accidents, environmental damage, or security breaches elevate behavioral reliability to paramount importance in personnel evaluation. Discipline thus functions as organizational insurance against operational risk, making it a critical consideration in career advancement decisions.

Additionally, the analysis confirms that Education Level exerts a strong direct effect on Competency ($\beta = 0.659$, $p < 0.001$), explaining 43.5% of competency variance. This finding substantiates the theoretical proposition that formal education serves as the foundational antecedent of competency development in maritime regulatory contexts. Higher educational attainment provides the cognitive scaffolding, technical knowledge, and analytical frameworks that constitute core competencies required for port safety oversight. This path also generates significant indirect effects on Career Development through two channels: (1) Education → Competency → Career ($\beta = 0.217$), and (2) Education → Competency → Work Discipline → Career ($\beta = 0.131$), further reinforcing education's multifaceted influence on career trajectories.

Mediation Analysis

The mediation analysis reveals two distinct parallel indirect pathways. First, Work Discipline significantly mediates the relationship between Education Level and Career Development (indirect effect $\beta = 0.121$, $p = 0.015$), accounting for approximately 21.4% of education's total effect on career outcomes ($\beta = 0.565$). Second, Work Discipline also mediates the Competency-Career relationship (indirect effect $\beta = 0.198$, $p = 0.003$), representing approximately 37.5% of competency's total effect ($\beta = 0.528$). These parallel mediation pathways confirm that behavioral discipline serves as the critical behavioral nexus connecting human capital inputs to career rewards.

These mediation findings integrate Human Capital Theory with behavioral performance perspectives in a manner previously unexamined in maritime public administration contexts. Education provides foundational knowledge and analytical frameworks, yet its career impact materializes substantially through the behavioral mechanism of disciplined work conduct. Individuals with higher education demonstrate enhanced understanding of regulatory rationales, consequence awareness, and professional identity formation that translates into consistent rule adherence and procedural fidelity. Similarly, competency without disciplined execution remains latent potential; technical mastery achieves career relevance only when manifested through reliable, consistent behavioral patterns that organizational evaluators can trust for higher-responsibility assignments.

The comparative mediation magnitudes reveal that Work Discipline mediates Competency's effect ($\beta = 0.198$) more strongly than Education's effect ($\beta = 0.121$). This asymmetry suggests that while education shapes discipline through cognitive understanding, competency shapes discipline through capability-confidence technically proficient individuals exhibit disciplined behavior because they possess the skills to execute procedures correctly and understand the operational implications of non-compliance. Both pathways converge on the same behavioral outcome but through distinct psychological mechanisms: education through comprehension, competency through execution capability.

Simultaneous Effects and Theoretical Integration

Collectively, the three predictors explained 70.8% of Career Development variance, representing a remarkably high explanatory power for behavioral research in public administration. This substantial R^2 value indicates that the tripartite model of Education-Competency-Discipline captures the essential determinants of career progression in maritime regulatory agencies, with less than 30% of variance attributable to extraneous factors such as political connections, seniority accumulation, or organizational politics that often confound career outcomes in less merit-oriented bureaucracies.

The theoretical integration emerging from these findings positions Work Discipline as the behavioral nexus connecting human capital inputs to career outputs. Education and Competency represent potential cognitive and capability resources that individuals possess while Discipline represents the behavioral actualization of that potential within organizational contexts. This conceptualization advances beyond traditional Human Capital Theory, which often assumes automatic translation of education into productivity, by specifying the behavioral mechanism through which potential converts into organizational value and career rewards. The

addition of the Education → Competency path further refines this integration by acknowledging that education serves not merely as a direct credential signal but as the fundamental building block of competency development, which subsequently channels through disciplined behavioral expression into career advancement.

In the specific context of KSOP Tanjung Pakis, this model carries practical implications for the ongoing civil service transformation under Law No. 20/2023. The legislation mandates merit-based career systems, yet operationalizing merit requires identifying specific, measurable attributes that predict effective performance in specialized technical roles. This study demonstrates that merit in maritime regulatory contexts comprises not merely credential accumulation or skill possession, but the disciplined behavioral expression of those attributes in high-stakes operational environments where procedural fidelity determines safety outcomes.

Comparative Contextualization

The findings both converge with and diverge from prior research in meaningful ways. The dominance of Competency over Education in direct effects corroborates (Giovanni & Ali, 2024) findings in water utility companies and Borman & M (2022) results among vocational educators, suggesting a broader pattern in technical organizations where demonstrated capability supersedes formal credentials. However, the particularly strong Discipline effect ($\beta = 0.388$) exceeds patterns observed in general education agencies (Wahida et al., 2023) and mixed-sector samples (Rosmawati et al., 2019), likely reflecting the unique safety-critical nature of maritime regulatory work where behavioral reliability carries existential organizational significance.

The mediation findings extend Latan & Ghozali (2015) preliminary evidence by demonstrating that discipline mediates both educational and competency effects within a unified model, and by establishing this pattern in a technical maritime context with substantially different operational characteristics than general government agencies. Wahida et al. (2023) educator-focused mediation results similarly find broader applicability, though the specific mechanisms competency-confidence versus education-comprehension represent context-specific refinements.

Limitations and Future Research Directions

This study acknowledges several methodological constraints that warrant careful consideration. First, the census sampling of N = 65 employees, while appropriate for capturing the complete population of KSOP Class III Tanjung Pakis, approaches the lower boundary for complex PLS-SEM models incorporating multiple direct paths, parallel mediations, and antecedent relationships. Post-hoc power analysis following Kock (2015) inverse square root method indicates that the minimum required sample size for this model structure (maximum number of arrows pointing at a construct = 3, for Career Development) is approximately 52 cases, suggesting that the obtained sample of 65 achieves adequate statistical power. Nevertheless, the findings should be generalized cautiously to other maritime port authorities with larger personnel complements.

Second, the cross-sectional design precludes definitive causal inferences regarding the temporal sequencing of education, competency, discipline, and career development. Future research

should employ longitudinal designs to capture the dynamic evolution of these relationships over time. Third, the reliance on self-reported questionnaire data, despite rigorous instrument validation, may introduce common method variance. While Harman's single factor test and marker variable analysis confirmed the absence of severe common method bias, future studies could incorporate objective performance metrics and supervisor ratings to strengthen construct validity.

CONCLUSIONS

This study successfully demonstrates that the tripartite framework of education, competency, and work discipline provides a robust explanatory model for career development among maritime port authority officers, with all research objectives achieved through comprehensive empirical validation of both direct and indirect pathways. The direct effects confirm that while higher education levels create foundational career opportunities through enhanced cognitive capacity, competency development, and qualification credentials, competency emerges as the dominant direct predictor and work discipline functions as the strongest behavioral determinant of career advancement in this safety-critical regulatory environment. The Education → Competency path ($\beta = 0.659$) further establishes formal education as the critical antecedent of competency formation, generating substantial indirect effects on career outcomes through both direct competency channels and sequential discipline-mediated pathways.

More importantly, the study's primary theoretical contribution lies in establishing work discipline as a significant mediating mechanism that channels both educational and competency effects into tangible career outcomes, thereby extending Human Capital Theory and Competency-Based Management frameworks beyond their traditional direct-effect assumptions by specifying the behavioral actualization process through which human capital potential converts into organizational value and merit-based rewards. The parallel mediation findings demonstrate that discipline accounts for approximately 21.4% of education's total career effect and 37.5% of competency's total career effect, establishing behavioral reliability as the critical nexus in public sector career systems.

The practical implications of these findings are substantial for Indonesia's ongoing civil service transformation under merit-based career legislation, as they provide empirical justification for integrating disciplined behavioral assessment into human resource management systems rather than relying solely on credential verification or competency testing. Maritime regulatory agencies and similar technical bureaucracies should prioritize the development of structured career pathways that simultaneously invest in education advancement, technical competency certification, and disciplined performance evaluation systems, recognizing that the latter serves as the critical behavioral nexus ensuring consistent actualization of human capital investments. Future research directions include expanding the model to incorporate additional variables such as motivation, leadership support, or organizational culture across multiple maritime port authorities, as well as employing longitudinal designs to capture the dynamic evolution of these relationships over time, thereby strengthening the generalizability and causal rigor of the proposed theoretical framework in public sector human resource management contexts.

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