Factors affecting the working motivation of the teaching staff of the University of Fire Prevention and Fighting

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Abstract:
This study investigates key determinants of lecturers' work motivation in the unique administrative and disciplinary context of the University of Fire Prevention and Fighting. A sample of 439 faculty members across three campuses was analyzed using Structural Equation Modeling (SEM) to examine the effects of six factors: Nature of Work, Compensation & Recognition, Perceived Competence, Organizational Engagement, Performance–Reward Expectancy, and Career Autonomy. Results confirm that all variables positively influence motivation ($R^2 = 0.712$), with Performance–Reward Expectancy ($\beta = 0.417$) being the strongest predictor, followed by Career Autonomy ($\beta = 0.318$) and Perceived Competence ($\beta = 0.314$). Interestingly, Organizational Engagement shows only moderate influence ($\beta = 0.260$), suggesting that in hierarchically structured institutions, motivation stems more from internalized career expectations and symbolic recognition than from social affiliation. The model demonstrates excellent fit (CFI = 0.978; RMSEA = 0.023), validating both its measurement reliability and theoretical soundness.
Keywords: factors, work motivation, lecturers, semi-militarized context.

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1. Introduction

As Vietnam's higher education landscape undergoes a dynamic transformation, ensuring the quality and vitality of academic staff has emerged as a cornerstone of institutional sustainability and national educational modernization. Within this context, the University of Fire Prevention and Fighting stands as a unique training institution where lecturers must not only deliver theoretical knowledge but also engage in physical training, disciplinary guidance, and professional skill instruction. Such demands intensify the importance of work motivation - not merely as an individual attribute but as a strategic imperative for institutional effectiveness.

International literature has long affirmed the centrality of work motivation in shaping teaching quality, institutional engagement, and educational innovation (Herzberg, 1966; Ryan & Deci, 2000). In the broader Asian region, studies by Han and Yin (2016) and Zhang and Liu (2020) highlight how motivation is deeply intertwined with working conditions, reward systems, career development opportunities, and organizational ethos. In Vietnam, pioneering efforts by scholars such as Nguyen Thi Lan and Le Hoang Tung (2021), and Pham Quang Vinh (2022), have begun to illuminate the motivational landscape of university lecturers, particularly in civilian higher education settings.

Nevertheless, each educational institution functions within its own contextual logic – defined by organizational structure, cultural values, and the nature of its educational mission. In this light, an exploration of motivational dynamics within a semi-militarized academic environment, such as that of the University of Fire Prevention and Fighting, may not only respond to practical managerial concerns but also enrich the theoretical understanding of academic motivation in specialized higher education settings.

2. Theoretical basis

This study approaches the analysis of lecturers' work motivation within the distinctive context of the University of Fire Prevention and Fighting by integrating three well-established theoretical foundations in organizational psychology and human resource management.

First, Herzberg's Two-Factor Theory (1959) categorizes factors influencing work motivation into two groups (Figure 1): (1) motivators, including achievement, recognition, the nature of the job, responsibility, and opportunities for advancement; and (2) hygiene factors, such as salary, working conditions, relationships with colleagues, and company policies. According to Herzberg, while hygiene factors prevent dissatisfaction, only motivators generate true satisfaction and intrinsic motivation. In a semi-militarized academic setting where discipline and dual responsibilities are emphasized, this theory helps delineate between what sustains performance and what truly drives engagement.

Second, Self-Determination Theory (SDT) developed by Ryan and Deci (2000) expands the understanding of intrinsic motivation through the fulfillment of three basic psychological (Figure 2) needs: autonomy, competence, and relatedness. When these needs are satisfied, individuals are more likely to engage in work with self-initiative, creativity, and enduring commitment. In a teaching environment where lecturers face instructional, practical, and physical training demands, SDT offers a profound lens to explore how internal drives are activated or inhibited by organizational culture and job structure.

Finally, Victor Vroom's Expectancy Theory (1964) asserts that motivation is a function of three interconnected variables (Figure 3): expectancy (belief that effort will lead to good performance), instrumentality (belief that performance will lead to rewards), and valence (value placed on the expected rewards). This theory is particularly applicable in settings where lecturers' rewards extend beyond material compensation, encompassing professional recognition, advancement opportunities, and the intrinsic pride of serving in a vital societal role.

Integrating these three theories allows for the construction of a multidimensional framework that considers environmental factors,

individual psychological needs, and value-driven expectations. This comprehensive perspective is essential for unpacking the complex factors influencing lecturers' work motivation in the unique institutional context of the University of Fire Prevention and Fighting.

3. Research Method

3.1. Research conceptual framework

In the context of Vietnam's ongoing reform in higher education, lecturer motivation emerges as a key determinant of teaching quality and institutional sustainability. At the University of Fire Prevention and Fighting, where academic responsibilities intersect with paramilitary duties, motivation is shaped not only by organizational structures but also by internalized professional values. Grounded in three foundational theories—Herzberg's Two-Factor Theory (1959), Ryan & Deci's Self-Determination Theory (2000), and Vroom's Expectancy Theory (1964)—this study proposes a conceptual framework encompassing six independent variables hypothesized to influence work motivation.

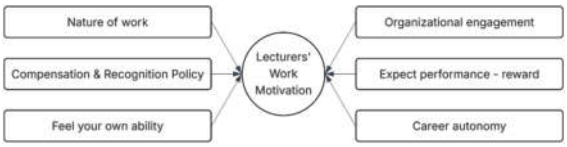

Figure 1. Research Model

(1) Nature of Work reflects the degree to which lecturers find their work meaningful, engaging, and challenging. As a motivator in Herzberg's framework, it significantly enhances intrinsic motivation when aligned with personal values (Nguyen Van Phuc & Le Thi Kim Loan, 2021). Gagné and Deci (2005) suggest that well-designed work content can spark deep engagement when it activates perceived competence and autonomy.

(2) Reward and Recognition Policy, a hygiene factor in Herzberg's theory, indicates satisfaction with salaries, promotions, and acknowledgment of achievements. Pham Thi Lan & Nguyen Thi Minh (2022) found that transparent advancement systems increase faculty retention in Vietnamese public universities. Internationally, Al-Emadi et al. (2017) highlighted timely recognition as a key predictor of academic motivation in Qatar.

(3) Perceived Competence, central to SDT, reflects lecturers' belief in their ability to succeed in academic tasks. Deci & Ryan (1985) argue that perceived control over challenges fosters sustained intrinsic motivation. Yu et al. (2019), studying Chinese universities, found that perceived competence was positively linked with teaching innovation and engagement.

(4) Organizational Connectedness measures the quality of interpersonal relationships and support within departments. SDT posits that a sense of relatedness fosters commitment and motivation. Le Thi Huong & Tran Van Thanh (2021) showed that collegial support and leadership cohesion are strong predictors of job satisfaction in Vietnamese academia. McInerney et al. (2018) emphasized the importance of "interpersonal relatedness" in structured academic environments.

(5) Professional Autonomy refers to lecturers' control over content, methods, and instructional pace. According to SDT, autonomy is essential for activating intrinsic motivation. Nguyen Van Huy & Phan Thi My Hanh (2020) revealed strong correlations between autonomy and teaching innovation. Pearson & Moomaw (2005) also found that autonomy alleviates stress and enhances motivation.

(6) Expectancy of Reward, drawn from Vroom's theory, captures the belief that effort will lead to meaningful outcomes. Chiang & Jang (2008) argue that when faculty members perceive misalignment between effort and reward, their motivation and productivity suffer.

3.2. Research Sample

The research sample comprises 439 lecturers currently working across three campuses of the University of Fire Prevention and Fighting, selected using a stratified random sampling technique based on campus location. This approach ensured proportional representation from each campus while maintaining the objectivity and randomness essential to quantitative research.

The sample distribution is as follows:

Campus 1 (Main Campus) – 243 Khuat Duy Tien Street, Thanh Xuan District, Hanoi: 168 lecturers (38.3% of the total sample).

Campus 2 – Hoa Son Commune, Luong Son District, Hoa Binh Province: 143 lecturers (32.6%).

Campus 3 – An Phuoc Commune, Long Thanh District, Dong Nai Province: 128 lecturers (29.2%).

At each campus, the population of full-time lecturers served as the sampling frame. A simple random sampling technique was then applied to select participants. Data collection was conducted through either printed questionnaires or online forms with assurances of confidentiality and anonymity. This sampling strategy minimizes selection bias and enhances the reliability and generalizability of the study findings across the university's academic workforce.

3.3. Research Hypothese

Grounded in Herzberg's Two-Factor Theory (1959), Self-Determination Theory by Ryan and Deci (2000), and Vroom's Expectancy Theory (1964), the author proposes three general hypotheses to examine how different groups of factors influence the work motivation of lecturers at the University of Fire Prevention and Fighting. These hypotheses are formulated based on a conceptual model consisting of six key variables, which are grouped thematically for analytical clarity.

(1) H1+: (Job-related factors) The nature of work and professional autonomy have a positive impact on lecturers' work motivation.

These two factors represent the intrinsic content of academic duties and the extent to which lecturers can exercise control over their professional responsibilities. As noted by Herzberg (1959) and Deci & Ryan (2000), when educators perceive their work as meaningful and experience autonomy in teaching, they are more likely to develop sustained intrinsic motivation.

(2) H2+: (Psychological factors) Perceived competence and reward expectancy positively affect lecturers' work motivation.

These personal cognitive variables reflect a lecturer's internal belief system—specifically, their confidence in their abilities and their expectations of receiving appropriate recognition. According to Self-Determination Theory and Vroom's Expectancy Theory, motivation is significantly enhanced when individuals believe that effort leads to valued outcomes and they feel capable of achieving their goals.

(3) H3+: (Organizational factors) Recognition–reward policies and organizational connectedness positively affect lecturers' work motivation.

These factors represent external support structures within the institution. Both international (e.g., Al-Emadi et al., 2017) and Vietnamese studies (Pham Thi Lan & Nguyen Thi Minh, 2022) suggest that when lecturers feel recognized, supported, and integrated within the organization, their motivation tends to be more robust and enduring.

3.4. Research Methodology

This study uses a triangular methodological approach - combining qualitative and quantitative methods to explore and test the factors affecting the work motivation of lecturers at the University of Fire Prevention and Fighting. The specific methods applied include:

(1) Confirmatory Factor Analysis (CFA) was conducted to test the measurement model and assess the construct validity and reliability of the six independent factors and the dependent variable—lecturers' work motivation. The CFA helped verify the dimensional structure of the constructs derived from theoretical frameworks such as Herzberg's Two-Factor Theory and Self-Determination Theory.

(2) Structural Equation Modeling (SEM) was applied to analyze the causal relationships between independent variables and the dependent variable. SEM enabled a comprehensive evaluation of both direct and indirect effects, as well as the overall fit of the conceptual model.

(3) Linear Regression Analysis was additionally used to assess the relative weight and statistical significance of each independent factor's influence on work motivation, allowing a clearer interpretation of practical implications in the university's context.

In addition, expert consultation was utilized to refine the design of the research instrument, particularly during the development of observable indicators representing the theoretical constructs. This process helped ensure the content validity of the questionnaire and alignment with the study's theoretical underpinnings.

Furthermore, a series of semi-structured interviews were conducted during the early stage of the research with faculty members in leadership positions across all three campuses. These qualitative insights enriched the construct

operationalization process and supported the contextual adaptation of the model to the specific characteristics of a paramilitary higher education institution.

3.5. Coding Observed Variables

The observed variables were coded as shown in Table 2 for input in SPSS software.

Table 1. Coding Observed Variables

No.	Code	Details	Num
	Independent		
1	IV_NW	Nature of Work	7
2	IV_CR	Compensation & Recognition Policy	7
3	IV_FA	Feel your Own Ability	7
4	IV_OE	Organizational Engagement	7
5	IV_PR	Expect Performance – Reward	7
6	IV_CA	Career Autonomy	7
	Dependent		
7	DV_WM	Lecturers' Work Motivation	9

4. Finding and discussion

4.1. Scale Testing Result

The results of the reliability analysis using Cronbach's Alpha (Table 2) demonstrate a high degree of internal consistency across all constructs in the proposed research model. Specifically, the six independent variables—Nature of Work (IV_NW), Compensation & Recognition Policy (IV_CR), Feel your Own Ability (IV_FA), Organizational Engagement (IV_OE), Expect Performance – Reward (IV_PR), and Career Autonomy (IV_CA)—yielded Cronbach's Alpha values ranging from 0.877 to 0.896. The highest value, 0.896, was recorded for IV_CR, indicating an excellent level of consistency among its observed items. Additionally, all Corrected Item–Total Correlations exceeded 0.60, suggesting that each item is strongly associated with its respective construct and that no items required removal.

Notably, the dependent variable—Lecturers' Work Motivation (DV_WM)—achieved a Cronbach's Alpha of 0.945, which represents an exceptionally high reliability score. Although a few items displayed lower item–total correlations (as low as 0.507), they remained well above the minimum acceptable level, and in this case, such variation can be interpreted as reflecting the diverse manifestations of work motivation within the specific institutional context of a public security university.

Table 2. Cronbach's Alpha of the scales

Item	Scale Variance if Item Deleted	Corrected Item – Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Independent Variables				
IV_NW	10.606 – 11.123	0.668 – 0.733	0.873 – 0.881	0.893
IV_CR	17.153 – 17.849	0.661 – 0.721	0.878 – 0.885	0.896
IV_FA	13.834 – 14.349	0.652 – 0.711	0.871 – 0.878	0.890
IV_OE	12.427 – 13.066	0.629 – 0.678	0.857 – 0.863	0.877
IV_PR	19.075 – 19.451	0.665 – 0.710	0.870 – 0.876	0.890
IV_CA	16.132 – 16.701	0.639 – 0.703	0.863 – 0.871	0.884
Dependent Variables				
DV_WM	9.409 – 10.677	0.507 – 0.886	0.933 – 0.952	0.945

In conclusion, the reliability findings affirm that the entire measurement instrument is statistically robust and theoretically sound. The high internal consistency of all constructs provides a solid empirical foundation for

subsequent analyses such as CFA and SEM, reinforcing the validity and relevance of the conceptual framework and survey design in this context.

4.2. Exploratory Factor Analysis Result

The results of the Exploratory Factor Analysis (EFA) confirm that the measurement model in this study meets strong statistical and psychometric standards (Table 3).

Firstly, the Kaiser–Meyer–Olkin (KMO) measure is 0.886, which exceeds the recommended threshold of 0.80, indicating that the sample size is adequate and factor analysis is appropriate (Hair et al., 2019). Moreover, Bartlett's Test of Sphericity is highly significant (Chi-square = 8821.056; df = 861; $p < 0.001$), demonstrating sufficient correlations among the observed variables to justify factor extraction.

Table 3. KMO & Bartlett's Test Result

Kaiser – Meyer – Olkin Measure of Sampling Adequacy		0.886
Bartlett's Test of Sphericity	Approx. Chi – Square	8821.056
	df	861
	Sig.	0.000
Total Variance Explained Cummulative		60.451

The total variance explained by the six extracted factors is 60.451%, which surpasses the commonly accepted minimum of 50% (Costello & Osborne, 2005). This suggests that the model accounts for a substantial proportion of the variance in the data.

Table 4. Pattern Matrix

	1	*2*	*3*	*4*	*5*	*6*
IV_CR	0.742 – 0.810					
IV_NW		0.762 – 0.818				
IV_FA			0.745 – 0.791			
IV_PR			0.753 – 0.792			
IV_CA				0.748 – 0.785		
IV_OE					0.727 – 0.774	

The rotated component matrix indicates that all items load strongly (above 0.70) on their intended factors, with values ranging from 0.727 to 0.818 (Table 4). This confirms a clear pattern of convergence without cross-loadings, validating the distinction between the six constructs: IV_CR, IV_NW, IV_FA, IV_PR, IV_CA, and IV_OE. No items were removed, and the theoretical structure of the scale remains intact.

4.3. Confirmatory Factor Analysis (CFA) Result

The results of the Confirmatory Factor Analysis (CFA) based on a sample of 439 respondents (Figure 2) reveal that the measurement model exhibits an excellent fit to the empirical data. The Chi-square value of 856.036 with 804 degrees of freedom, resulting in a Chi-square/df ratio of 1.065, falls well within the acceptable threshold (commonly < 2), indicating minimal discrepancy between the observed and model-implied covariance matrices.

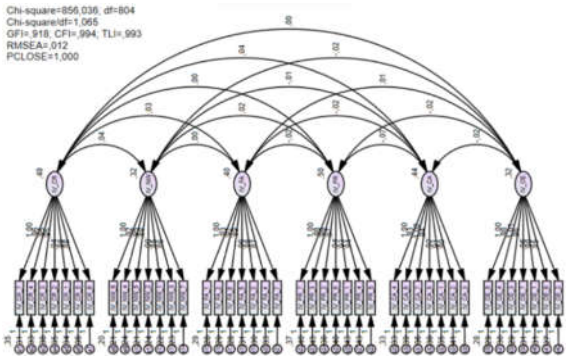

Figure 2. CFA ModelFit Result

The extended fit indices further support this conclusion. Although the GFI (0.918) is slightly below the ideal threshold of 0.95, it still

reflects an acceptable level of model fit. More impressively, both the CFI (0.994) and TLI (0.993) substantially exceed the commonly accepted cutoff value of 0.95, confirming that the specified model fits the data significantly better than the null or baseline model.

Crucially, the RMSEA value of 0.012 is far below the 0.05 benchmark, indicating a very low approximation error and excellent fit to the population model. The PCLOSE value of 1.000 reinforces this finding by suggesting no statistical reason to reject the hypothesis that RMSEA ≤ 0.05, affirming the acceptability of the model's overall structure.

The validity analysis of the measurement model (Figure 3) confirms that the constructs possess strong convergent and discriminant validity. Specifically, the Composite Reliability (CR) values range from 0.877 to 0.996, significantly above the accepted threshold of 0.7 (Hair et al., 2019), demonstrating excellent internal consistency among items within each latent construct. Additionally, the Average Variance Extracted (AVE) values range from 0.504 to 0.552, exceeding the 0.5 cutoff, thereby indicating that the majority of variance in observed variables is well captured by their respective constructs.

	CR	AVE	MSV	MaxR(H)	IV_CR	IV_NW	IV_FA	IV_PR	IV_CA	IV_OE
IV_CR	0,896	0,552	0,011	0,897	**0,743**					
IV_NW	0,894	0,545	0,011	0,895	0,106*	**0,739**				
IV_FA	0,890	0,537	0,004	0,891	0,065	-0,007	**0,733**			
IV_PR	0,890	0,536	0,019	0,890	0,002	0,040	-0,048	**0,732**		
IV_CA	0,884	0,521	0,019	0,885	0,084	-0,033	-0,056	-0,138*	**0,722**	
IV_OE	0,877	0,504	0,004	0,877	0,002	-0,064	0,016	-0,037	-0,044	**0,710**

Figure 3. Vilidity Analysis Result

For discriminant validity, all constructs exhibit MSV values lower than their corresponding AVE, with MSV ranging from 0.004 to 0.019, thus fulfilling the Fornell–Larcker criterion. Moreover, the square roots of AVE (ranging from 0.710 to 0.743) are consistently higher than the inter-construct correlations (ranging from -0.138 to 0.110), affirming clear conceptual separation among latent factors.

	IV_CR	IV_NW	IV_FA	IV_PR	IV_CA	IV_OE
IV_CR						
IV_NW	0,110					
IV_FA	0,063	0,004				
IV_PR	0,003	0,044	0,048			
IV_CA	0,084	0,031	0,055	0,134		
IV_OE	0,001	0,064	0,017	0,033	0,049	

Figure 4. HTMT Analysis Result

The HTMT (Heterotrait–Monotrait Ratio) analysis further reinforces these findings: all HTMT values are remarkably low, ranging from 0.001 to 0.134 (Figure 4), which is well below the commonly accepted thresholds of 0.85 or 0.90 (Henseler et al., 2015). These results suggest minimal overlap between constructs and strong evidence of discriminant validity.

In sum, all indicators confirm that the measurement model is reliable, convergent, and discriminantly valid, thereby providing a robust foundation for proceeding with Structural Equation Modeling (SEM) and hypothesis testing.

4.4. Structural Equation Modeling (SEM) Result

The results of Structural Equation Modeling (SEM) analysis in this study demonstrate that the proposed theoretical model exhibits an excellent fit to the empirical data (Figure 5). After incorporating modifications based on the Modification Indices (M.I.)—specifically, by adding correlated error terms between observed variables (e.g., e50–e51, e45–e43, e47–e51)—the model fit indices reached optimal thresholds: Chi-square/df = 1.235 (acceptable < 2), GFI = 0.889 (approaching 0.90), CFI = 0.978, and TLI = 0.977 (both > 0.95), RMSEA = 0.023 (< 0.05), and PCLOSE = 1.000. These indicators suggest a well-fitting model with low estimation error and a high degree of compatibility with the survey data collected from 439 faculty members across three training campuses of the university.

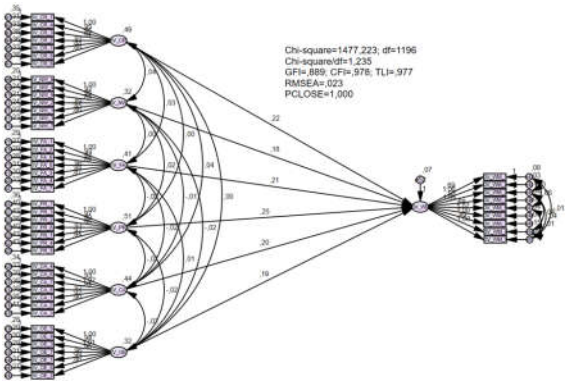

Figure 5. SEM ModelFit Result

The standardized regression weights between the independent variables and the dependent variable—Lecturers' Work Motivation (DV_WM)—are all positive and statistically significant, ranging from 0.236 to 0.417 (Table 5). Notably, Performance–Reward Expectancy (IV_PR = 0.417), Career Autonomy (IV_CA = 0.318), and Perceived Ability (IV_FA = 0.314) show the strongest effects. These findings indicate that, in the context of a security training institution, work motivation is influenced not only by external compensation but also by the recognition of professional identity and internal self-efficacy.

Table 5. Regression Weights Result

	Estimate
DV_WM ← IV_CR	0.359
DV_WM ← IV_NW	0.236
DV_WM ← IV_FA	0.314
DV_WM ← IV_PR	0.417
DV_WM ← IV_CA	0.318
DV_WM ← IV_OE	0.260
1 – 7 ← IV_CR	0.706 – 0.769
1 – 7 ← IV_NW	0.717 – 0.783
1 – 7 ← IV_FA	0.691 – 0.764
1 – 7 ← IV_PR	0.706 – 0.763
1 – 7 ← IV_CA	0.683 – 0.754
1 – 7 ← IV_OE	0.683 – 0.729
1 – 9 ← DV_WM	0.481 – 0.933

Most observed variables load strongly onto their respective latent constructs (all ≥ 0.683), confirming the validity of the measurement instrument. However, DV_WM_8, with a loading of 0.481, falls below the commonly accepted threshold and should be considered for revision or removal in future studies. Overall, the SEM results confirm both the structural reliability and causal validity of the research model, offering empirical evidence for the relationships among the six identified motivational factors.

5. Findings and discussion

The study's findings reveal that lecturers' work motivation at the University of Fire Prevention and Fighting stems not only from institutional policies or material benefits but also from a deeper sense of professional alignment and self-efficacy. The dominant influence of "Performance–Reward Expectancy" underscores that in a semi-militarized academic environment, faculty members are not merely driven by salary, but also by symbolic rewards and recognition—such as promotion in rank, public commendation, or training opportunities that affirm their institutional value.

This aligns with Chiang and Jang (2008) who emphasized the critical role of expectancy in structured organizations, and reinforces Vroom's Expectancy Theory (1964) in explaining motivation in bureaucratic educational settings. However, when compared to Nguyen Thi Lan and Le Hoang Tung (2021), who stressed the primacy of collegiality and institutional climate in civilian universities, this study shows that "Organizational Engagement," although positive, plays a more secondary role in motivation among lecturers in regimented systems. This divergence highlights how, in hierarchical, rule-bound environments, motivation may be more strongly anchored in tangible career progression and self-mastery than in emotional-social factors.

Notably, "Career Autonomy" and "Perceived Competence" emerged as significant predictors of motivation, reflecting a subtle but important shift toward intrinsic psychological drivers even within a traditional and control-oriented context. This supports the tenets of Self-Determination Theory (Ryan & Deci, 2000), which posits that when individuals perceive autonomy and competence, they are more likely to exhibit sustained engagement, regardless of external constraints. This also challenges the implication of Herzberg's (1959) original assertion that hygiene factors dominate in discipline-oriented work settings, suggesting that

even in controlled structures, intrinsic values increasingly matter.

Based on these insights, several managerial implications are proposed. First, reward systems should be designed to integrate both material and symbolic incentives—e.g., peer-recognition programs, merit-based advancement, or mission-based acknowledgments. Second, institutions should offer structured career development pathways that allow faculty to perceive their personal progress and contributions beyond mere administrative titles. Third, while organizational connectedness may not be the most dominant factor, it should still be fostered through team-based initiatives and mentoring programs, especially to counterbalance the linear rigidity often associated with security training institutions.

Limitations of the study

While this study offers valuable insights into the factors influencing lecturers' work motivation within a specialized academic institution, several limitations must be acknowledged to provide direction for future research.

First, the scope of the study was limited to three campuses within the same university system. Given the semi-militarized structure, hierarchical administration, and disciplined environment of the University of Fire Prevention and Fighting, the findings may not be easily generalizable to other higher education institutions, particularly those in the civilian or private sectors.

Second, the study employed a cross-sectional quantitative design, which does not allow for the observation of motivational changes over time or in response to organizational events (e.g., policy shifts, personnel transitions, external shocks). The causal model tested here reflects theoretical assumptions but does not confirm temporal causality, which would require future research using longitudinal or panel-based designs.

Third, although the measurement instrument was constructed based on theoretical synthesis and validated through EFA, CFA, and SEM, the potential for response bias remains. The study setting—characterized by formality, discipline, and perceived authority—may have influenced participants' willingness to respond honestly, particularly on items perceived as sensitive or evaluative.

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