Enhancing Paramedic Job Performance: A Diagnostic and Literature-Based Approach

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ABSTRACT

Paramedics are essential providers of emergency and non-emergency healthcare services. However, the evolving demands of the healthcare sector are increasingly constraining their job performance. This article investigates the factors influencing paramedic performance through diagnostic tools such as SWOT analysis, fishbone diagram and risk matrix assessments. A critical review of the existing literature was undertaken to frame the research context, identify prevailing gaps and guide the selection of diagnostic methodologies and interventions. Problem diagnosis indicated that outdated training modules and limited career development or opportunities were key impediments to optimal job performance. Further analysis through a research model matrix led to the identification of two targeted interventions: the development of updated training modules and the incorporation of promotion board assessments within a structured career development framework. By integrating systematic problem diagnosis with evidence-based insights from the literature, this study provides a foundation for future research aimed at evaluating the effectiveness of these interventions in strengthening paramedic job performance.

Keywords: Job performance; Healthcare; Paramedics; Research tools

INTRODUCTION

The latest global healthcare landscape is undergoing significant transformations driven by technological advancements and a focus on improving patient experience, enhancing healthcare delivery and addressing workforce challenges. Key developments include the integration of emerging technologies such as artificial intelligence (AI) (Mundinger & Mundinger, 2024), healthcare robotics (Kumar & Ali, 2024), telehealth systems (Iqbal et al., 2024) and digital therapeutics (Xiong et al., 2023), mainly aimed to improve patient care and streamline healthcare workflows. The global healthcare industry is also focusing on addressing staffing shortages, clinical burnout, and employee retention through innovative recruitment and retention strategies, as well as leveraging cloud technology (Putzier et al., 2024) to optimize patient care and access historical and recent clinical results.

As the healthcare landscape continues to evolve, the Malaysian public healthcare industry has started to face the challenge of job performance issues due to several converging factors such as the COVID-19 pandemic, high patient load, clinical burnout, and the inability to cope with the rapid advancement of medical technology. These challenges also occurred in the Armed Forces Health Services (AFHS), which has a special focus on the Armed Forces Health Training Institute (INSAN) as the leading institute to train paramedics in the Malaysian Armed Forces (MAF). However, continuous learning and training were essential for them to stay updated with the emergence of new medical devices and treatment protocols. These would be adding to their existing workload and stress. Furthermore, integrating new technology into daily practice requires time and effort, and any technical malfunctions could complicate emergencies. These challenges would necessitate adequate training, support, and resources to enhance their job performance and maintain high standards of patient care.

In action research, various diagnostic tools are employed to identify problems, analyze their causes, and guide effective interventions. A SWOT Analysis helps evaluate internal strengths and weaknesses alongside external opportunities and threats to identify areas needing improvement (Namugenyi et al., 2019). The TOWS Matrix extends this by aligning internal and external factors to create strategic responses (Weihrich, 1982). The

Fishbone Diagram visually maps out potential root causes of a specific issue (Sakdiyah et al., 2022), and Root Cause Analysis further explores these causes systematically (Soares et al., 2022). Risk Matrix Analysis prioritizes risks based on their likelihood and impact to support decision-making in planning (Prasetyo & Arvitriada, 2025). The LR Matrix facilitates the synthesis of literature to form a theoretical framework that supports the research process (Chen et al., 2018), while the Research Model Matrix identifies themes that encourage continuous cycles of action and reflection to refine interventions (Mallory, 2024). Collectively, these tools enhance the rigor, depth, and clarity of action research by enabling systematic diagnosis and informed planning of interventions.

Problem Statement

Armed Forces Health Training Institute (INSAN) is responsible for providing training for paramedics in Armed Forces Health Services since 1980. Early observations from interviews with eight stakeholders revealed that outdated training modules (Training and Development) and insufficient career progression (Career Development) were identified as the primary factors contributing to their declined job performance.

Problem Diagnosis

Early observations revealed that outdated training modules (Training and Development) and insufficient career progression (Career Development) were identified as the primary factors contributing to the decline in job performance among paramedics trained by INSAN. In order to further diagnose the problems, SWOT analysis, TOWS analysis, fishbone diagram, root cause analysis and risk matrix assessment table were also used.

SWOT Analysis

SWOT (acronym for Strengths, Weaknesses, Opportunities and Threats) analysis is a straightforward instrument that does not require complex knowledge or abilities. It used four fundamental categories to assess and organize information, making the process of diagnosis and analysis more intuitive and straightforward to comprehend (Helms & Nixon, 2010). A SWOT analysis of INSAN could provide insight into the situation faced and offer helpful information for problem diagnosis and formulation. Table 1 shows the SWOT analysis of INSAN.

Table 1: The SWOT Analysis of INSAN

Strength	**Weakness**
S1: INSAN is the only military medical learning centre in Malaysia S2: INSAN has a new high-tech simulation teaching aid	W1: The curriculum is outdated and not technologically based W2: High failure rate of the promotion board among INSAN's students W3: INSAN's graduates are weak in job performance W4: Lack of basic infrastructure
Opportunities	**Threats**
O1: Digital transformation at the stakeholder level O2: Lots of experts at the stakeholder level O3: High support from stakeholders	W1: Global economic uncertainties W2: Located in a suburban area

By using SWOT analysis, INSAN's strengths were identified in its expertise in military medicine and status as the sole training center for Malaysian Armed Forces paramedics. Opportunities emerged from Education 4.0 and stakeholder support for modernization. However, weaknesses included outdated curricula, lack of standardized management, and inconsistent program delivery, all of which reduced graduate competency.

Threats such as obsolete infrastructure and global economic uncertainty further jeopardized performance. This analysis revealed that outdated training and poor career progression are critical issues, directly guiding the problem diagnosis and prioritizing interventions to modernize training and strengthen career development frameworks.

TOWS Analysis

Further TOWS analysis outlined the strategic actions by directly linking INSAN's internal and external factors. For SO strategies, S2O1 recommends integrating high-tech simulation with stakeholder-driven digital transformation to strengthen training, while S1O3 leverages INSAN's unique national role to secure stakeholder and military budget support. In WO strategies, W2O3 calls for collaboration with stakeholders to redesign transparent promotion and salary systems, and W2O2 focuses on reforming HR policies with external best practices. Under ST strategies, S1T1 highlights INSAN's national uniqueness to secure funding during economic downturns, and S2T1 emphasizes tech-enhanced curricula as cost-effective investments. Lastly, WT strategies such as W4T2 prioritize infrastructure upgrades to overcome rural challenges, while W2T1 proposes contingency budgets to safeguard salaries.

Table 2: The TOWS analysis of INSAN

SO Strategies		
Derived from	**Strategic focus**	**Initiatives**
S2O1	Training	Integrate high-tech simulation (S2) with stakeholder-driven digital transformation (O1) to upgrade internal training programs.
S1O3	Budget	Use INSAN's unique position (S1) to secure stakeholder support and special military government allocations (O3) for budget enhancements.
WO Strategies		
W2O3	Compensation	Collaborate with stakeholders (O3) to redesign transparent and motivational promotion and salary structures.
W2O2	HR Policies	Reform HR policies around performance appraisals and career progression with input from external best practices
ST Strategies		
S1T1	Budget	Highlight INSAN's national uniqueness (S1) to argue for a protected or increased budget despite the global economic downturn.
S2T1	Curriculum	Promote tech-enhanced curriculum (S2) as a cost-effective long-term investment amid budget constraints.
WT Strategies		
W4T2	Infrastructure	Prioritize essential upgrades (e.g., new hostels, learning facilities) to mitigate rural disadvantages (T2)
W2T1	Compensation	Secure a contingency budget to protect salaries and avoid demotivating effects from the global recession.

Fishbone Analysis

Ishikawa (1990), a Japanese quality control statistician, developed a fishbone diagram to illustrate the complex interrelationships and interactions between certain phenomena or causes (Coccia, 2018). It would facilitate a

thorough root cause analysis, leading to a diagnosis of the probable root cause of the problem and assisting organizations in identifying the underlying causes of the issue (Groot, 2021). The fishbone diagram of a paramedic's job performance is shown in Figure 1.

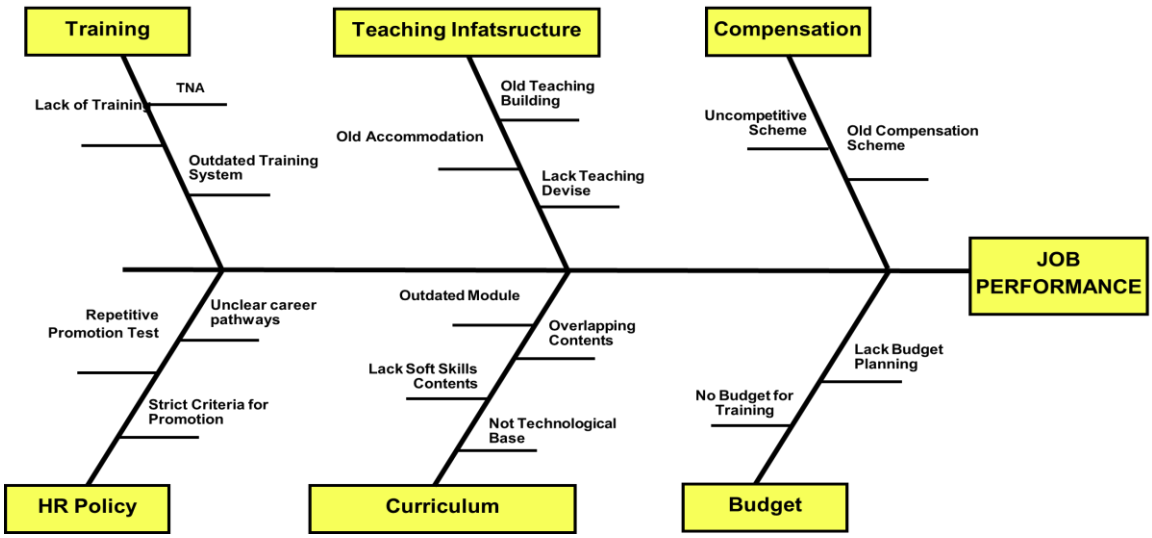

Figure 1: Fishbone diagram of a paramedic's job performance

Figure 1 shows the problem diagnosis of declined job performance, which was divided into six categories: training, teaching infrastructure, compensation, human resource policies, curriculum and budget. It was determined that all these factors were significant influencers, and therefore, further root cause analysis is required.

Root Cause Analysis

The root cause analysis identified six key factors contributing to the decline in job performance among paramedics trained by INSAN. These include a lack of training due to an outdated training system, inadequate teaching infrastructure stemming from old facilities, an uncompetitive and outdated compensation scheme, unclear career progression linked to repetitive promotion tests, curriculum issues such as outdated modules and overlapping content, and limited training opportunities resulting from budget restrictions. All six categories showed clear issues with no area reported as problem-free. These findings suggest that systemic weaknesses in organizational support, resource allocation and curriculum development are collectively impacting the effectiveness and motivation of paramedics, leading to declined job performance. The summary of root cause analysis is shown in Table 3.

Table 3: Summary of possible root causes for declined job performance

Category	**Cause Effect (Level 1)**	**Cause Effect (Level 2)**	**Yes (Issues)**	**No (No issues)**
Training	Lack of training	Outdated training system	Yes	-
Teaching's Infrastructure	Old accommodation	Old teaching building	Yes	-
Compensation	Uncompetitive scheme	Old compensation scheme	Yes	-
HR Policies	Repetitive promotion test	Unclear career pathway	Yes	-
Curriculum	Outdated module	Overlapping content	Yes	-
Budget	Budget restriction	Lack of budget for training	Yes	-
Summary of Analysis	Declined job performance		6	0

Risk Matrix Assessment

The identified issues are further categorized and examined. By prioritizing the individual problem entries for risk assessment, a clearer view of the priority level of INSAN's problem diagnosis is gathered. The 5X5 risk matrix is a standard risk assessment instrument with the horizontal axis represented by an integer from 1 to 5 indicating the probability of the risk occurring and the vertical axis represented by an integer from 1 to 5 indicating the severity of the risk. The product of the intersections of the horizontal and vertical axes is the criterion for evaluating the likelihood of the risk's occurrence, with higher values indicating a greater risk priority (Kovačević et al., 2019). Table 4 indicates that "curriculum " and "training " are the top two priorities based on the risk assessment of INSAN. Therefore, these two issues are the most perilous and must be addressed immediately.

Table 4**:** The Risk Matrix Assessment of INSAN

Organization Name: **ARMED FORCES HEALTH TRAINING INSTITUTE (INSAN)**		**Date:** **2 MAY 2025**		**Assessor's Position:** **Program Head**
Category	**Description**	**Likelihood (1-5)**	**Consequences (1-5)**	**Priority**
Training	Training Need Analysis (TNA)	4	5	20
Teaching Infrastructure		3	3	9
Compensation		3	4	12
HR Policy		4	4	16
Curriculum		5	5	25
Budget		3	3	9

LITERATURE REVIEW

Prior studies confirm that training, career development, and organizational commitment are significant predictors of job performance (Hosen et al., 2024; Gatotrianto & Nadirah, 2024). Furthermore, few scholars have specifically addressed the challenges of outdated training modules and limited career progression within paramedic education. For instance, Dagnew and Elantheraiyan (2023) emphasize the need for training assessments, while Aung et al. (2023) highlight unclear promotion criteria as detrimental to performance. This gap directly aligns with the issues identified at INSAN, where outdated curricula and rigid promotion systems hinder workforce effectiveness. However, existing studies seldom integrate diagnostic tools with targeted interventions, leaving a gap that this article addresses by proposing updated training modules and structured promotion board assessments tailored to the needs of paramedics

Social Exchange Theory

The theory by Emerson (1976) posits that social interactions and relationships are based on the idea of maximizing benefits and minimizing costs. The concept of social exchange theory can be applied to training and job performance by understanding how individuals assess the value of their interactions and make decisions based on the expected outcomes. In the context of training, this theory suggests that individuals will be motivated to engage in training programs if they perceive the benefits, such as acquiring new skills or advancing their careers, to outweigh the costs, including time and effort. Employers can utilize this understanding to design training programs that emphasize the rewards and benefits for employees, thereby increasing their motivation to participate in and engage with the training process.

Job Embeddedness Theory

Job Embeddedness Theory explains why employees stay in their jobs rather than why they leave. It was introduced by Mitchell et al. (2001) as a more comprehensive approach to understanding employee retention beyond traditional turnover theories. The theory posits that employees become "embedded" in their jobs through three key dimensions: links, fit and sacrifice. Job embeddedness is a strong predictor of job retention and performance (Probosari et al., 2024). It is particularly relevant in healthcare settings, where strong professional relationships, alignment with organizational values, and the cost of leaving (e.g., losing tenure, patient relationships, or professional development opportunities) contribute to enhancing job performance.

Synthesis Of the Problem's Solution (Interventions)

Based on the risk assessment analysis, we identified curriculum and training as the top two priorities. To further solve the problem, the Literature Review (LR) Matrix and the Research Model Matrix were utilized.

Literature Matrix

A Literature Matrix is a tool used to systematically organize and compare key findings from various studies on a specific topic. It typically includes columns for study details, research methods, findings, and relevance to the research question. The Literature Matrix will facilitate the researcher's ability to quickly compare articles and determine the scope of research across time. It will make the task of spotting differences and similarities between journal articles about a research topic easier (The Matrix Method for Literature Reviews, 2020). It will also identify trends, gaps, and the effectiveness of different approaches. It aids in evaluating which solutions or methodologies have been most effective based on evidence, making it easier to pinpoint the best solutions for the problem being studied. In this study, the LR Matrix was used to identify possible antecedents (interventions) that could address the main issues, specifically reducing paramedics' job performance trained by INSAN. A part of the Literature Matrix and the summary are shown in Tables 5 and 6.

Table 5: Summary of Past Studies

Scholars and Year	**Research Title**	**Dependent Variable**	**Independent Variable**	**Result**
Aung et al., (2023)	Effects of demotivational managerial practices on job satisfaction and job performance: Empirical evidence from Myanmar's construction industry.	Job Performance	Inadequate Reward	Significant
			Inadequate recognition	Significant
			Unclear Promotion Appraisal Criteria	Not Significant
Gatotrianto & Nadirah (2024)	Determination of Motivation, Competence and Training on Employee Performance Through Job Satisfaction.		Employee's Motivation	Not Significant
			Employee's Competency	Significant
			Employee's Training	Significant
Suryanto et al., (2022)	Study of working from home: the impact of ICT anxiety and smartphone addiction on lecturers at NIPA School of Administration on job performance.		ICT Anxiety/ Literacy	Significant
			Smart Phone Addiction (interruption)	Significant

Hosen et al., (2024)	Training & development, career development, and organizational commitment as the predictor of work performance.		Training and Development	Significant
			Career Development	Significant
			Organizational Commitment	Mediating effect
Dagnew & Elantheraiyan (2023)	A study on the effect of training on employee performance in the case of Mekelle City, Tigray, Ethiopia.		Training Need Assessments	Significant
			Resource Availability	Significant
			Employee Perception	Significant (weak)

Table 6: Summary of Literature Matrix

Parameter	**Result**
Total of Articles Reviewed	40
Article's Index	Scopus 5, Emerald 7, Science Direct 22, others 6
Year Published	82.5% published in the year 2022 onwards
Dependent Variable	100% Job/ Work/ Employee Performance
Independent Variables	HR practices, job satisfaction, continuous commitment, task complexity, leadership, skills competency, digital competency, professional competency, training, motivation, Quality of Work Life (QWL), comprehensive curriculum, compensation, talent management and demotivational managerial practices
Industries Related	37.5% Healthcare Industry
Subject	37.5% Healthcare Personnel
Discipline	90% Human resources
Country of Origin	5% Malaysia
Type of Study	97.5% Cross-sectional studies

Research Model Matrix

Based on the Literature Matrix, studies with possible similar interventions were grouped and finalized, as shown in Table 7.

Table 7: Research Model Matrix

No.	**Independent Variable**	**Intervention**	**Dependent Variable**
1(a)	Training Need Assessment (Dagnew Gebrehiwot & Elantheraiyan, 2023)		
	Comprehensive Curriculum (Loftus et al., 2021)		
	ICT Literacy (Suryanto et al., 2022)		

	Digital Competency (Pacheco & Coello, 2023)	Training Module Development	
	Professional Competency (Indrayani et al., 2023)		
	Employee's Competency (Gatotrianto & Nadirah, 2024)		
	Academic Competency (Bishop, 1992)		
1(b)	Employee's Training (Gatotrianto & Nadirah, 2024; Somuah et al., 2024; Mohd Nasurdin et al., 2020)	Career Training	
	Training and Development (Kovachi & Tahiri, 2024; Hosen et al., 2024)		
2	HR Practice (Keltu, 2024; Noor et al., 2023)	Career Development (Integrated Promotion Board Assessment)	Job Performance
	Career Development (Hosen et al., 2024; Wiyanto et al., 2024)		
	Unclear Promotion Appraisal Criteria (Aung et al., 2023)		
	Inadequate Reward and Recognition (Aung et al., 2023)		
	Perceived Compensation System (Ohunakin & Olugbad, 2022)		
	Compensation (Mohd Nasurdin et al., 2020)		

DISCUSSION

This study investigated declining job performance among paramedics trained at INSAN and identified two key issues: outdated training modules and limited career progression pathways. Both factors are widely recognized in literature as central to employee performance and motivation, particularly in healthcare, where continuous learning is essential. To address these challenges, two interventions were proposed: updating training modules to align with modern medical technologies and integrating promotion board assessments into a structured career development framework. Guided by Social Exchange Theory and Job Embeddedness Theory, these measures aim to enhance competence, recognition, and motivation, fostering stronger engagement and improved job performance.

The significance of this work extends beyond military healthcare setting. The framework developed here has potential relevance for civilian healthcare training institutions. While military paramedics operate under rigid structures, frequent deployments and resource constraints, civilian paramedics, on the other hand, face challenges such as high patient loads, administrative burdens and diverse patient populations, both sectors, however, struggle with training gaps, burnout and unclear career pathways. Beyond Malaysia, the findings are relevant to ASEAN countries and other global contexts where healthcare sectors share similar concerns of outdated curriculum, limited promotion opportunities and rising demands for digital competencies, making these proposed interventions widely applicable and scalable.

As a conceptual paper, the interventions have not yet been tested in practice. The findings, therefore, serve as a foundation rather than a final answer. Future research should focus on conducting pilot studies to test the feasibility and effectiveness of the proposed interventions. A small cohort of paramedics can be selected to undergo the revised training and structured career development framework. Effectiveness will be measured through job performance scores, competency-based assessments and promotion success rates, alongside qualitative feedback from trainees on relevance and practicality. These pilot findings will provide valuable evidence to refine interventions and guide larger-scale implementation across healthcare training institutions.

CONCLUSION

This study demonstrates how the integration of research tools and literature review can effectively diagnose organizational problems and guide evidence-based interventions. The use of SWOT, TOWS, Fishbone, Root Cause, and Risk Matrix analyses were able to identified underlying critical issues. The literature review further validated these findings by linking them to established theories and prior studies, while highlighting gaps that were not previously addressed. Together, these approaches enabled the development of targeted interventions. By combining diagnostic rigor with theoretical insights, this study contributes a practical framework for enhancing paramedic job performance and offers a replicable model for other healthcare institutions.

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