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

Lotfi Anuar, Nomahaza Mahadi
Universiti Teknologi Malaysia
Email: lotfi75@graduate.utm.my, nomahaza.kl@utm.my

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Abstract
Paramedics are essential providers of emergency and non-emergency healthcare services, yet their job performance is increasingly constrained by the evolving demands of the healthcare sector. This article investigates the factors influencing paramedic performance through diagnostic tools such as SWOT analysis, fish-bone 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 Problem diagnosis indicated that outdated training modules and limited career developments or opportunities were key impediments to optimal job performance.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 to enhance paramedic job performance through healthcare technological advancements. 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 outcomes.

In action research, various diagnostic tools are used to identify problems, analyze causes and guide interventions effectively. SWOT Analysis can be used to evaluate internal strengths and weaknesses alongside external opportunities and threats to determine areas needing improvement (Namugenyi et al., 2019), while 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) and Literature Review (LR) Matrix aids in synthesizing literature to form a theoretical framework that supports the research process (Chen et al., 2018). Research Model Matrix further can be used to identifies themes that encourage continuous cycles of action and reflection in refining interventions (Mallory, 2024). Collectively, these tools enhance the rigor, depth and clarity of action research by enabling systematic diagnosis and informed intervention planning.

Problem Statement

Armed Forces Health Training Institute (INSAN) is responsible in providing training for paramedics in Malaysian Armed Forces (MAF) since 1980. Early observations by interviews found that outdated training modules (Training and Development) and inefficient career progressions (Career Development) were identified as the main key factors contributing to declined job performance. Outdated training module had caused the paramedics unable to deliver high-quality care, adapt to new medical protocols and respond effectively to a wide range of emergencies. At the same time, high failure rate of the promotion board was also identified as antecedent factors. Therefore, a structured analysis was needed in order to coming out with few possible interventions.

Problem Diagnosis

Other than early observations, SWOT analysis, TOWS analysis, fish-bone diagram, root cause analysis and risk matrix assessment table were also used for problem diagnosis.

SWOT Analysis

SWOT (acronym for Strengths, Weaknesses, Opportunities and Threats) analysis is a straight forward 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 provide useful information for formulation of problem diagnosis. INSAN's strengths are rooted in its long-standing expertise in military medicine and its strategic position as the sole training center for paramedics within the Malaysian Armed Forces (ATM). The institution benefits from a well-established educational framework provided by the Malaysian education system, which serves as a strong foundation for its training programs. INSAN faces several weaknesses, including a lack of standard curriculum management procedures, leading to inconsistencies in educational programs. This lack of uniformity can affect the overall effectiveness of the educational delivery and the competency of the graduates. The high demand for military medical and field services presents a significant opportunity for INSAN. As the only institution offering such services, INSAN has the responsibility to train and prepare paramedics to be competent in fulfilling their responsibilities during crises. The rapid development of the national education system towards Education 4.0 and sustainability also presents an opportunity for INSAN to align its training programs with the latest industry standards and technological advancements. INSAN faces threats such as obsolete basic infrastructure which can disrupt daily operations and affect the quality of education and training. Global economic

uncertainty, particularly the anticipated economic uncertainty from 2024 onwards, may impact the institution's financial stability and resource allocation, potentially hindering its ability to maintain the quality of its educational programs.

TOWS Analysis

Further TOWS analysis found that INSAN's potential to strengthen its training, curriculum, and infrastructure by ali ning internal strengths with external opportunities. By leveraging its unique position as Malaysia's only military medical learning center and utilizing high-tech simulation tools, INSAN can collaborate with stakeholders undergoing digital transformation to modernize training and curriculum. Key opportunities such as stakeholder expertise and support provide avenues for curriculum revision, remedial training, and transparent career pathways. Budget limitations due to global economic uncertainties can be mitigated by showcasing INSAN's national importance, while remote location challenges can be addressed through strategic infrastructure upgrades. This analysis emphasizes a strategic shift toward modernization through technology, enhanced HR policies, and closer stakeholder collaboration. These initiatives will be positioning INSAN for sustainable growth despite economic and geographical constrain.

Fish Bone Analysis

Ishikawa (1990), a Japanese quality control statistician developed a fish-bone diagram to illustrate the complex interrelationships and interactions between certain phenomena or causes (Coccia, 2018). It would help in thorough root cause analysis, leading to a diagnosis of the problem's probable root cause and assisting the organizations in identifying the underlying causes of the issue (Groot, 2021). It is found that the problem diagnosis of declined job performance which was divided into six categories, which were training, teaching infrastructure, compensation, human resource policies, curriculum and budget. The training consisted of lack of training, outdated training system and training need analysis. The teaching infrastructure includes old teaching building, old accommodations and lack of teaching devices. Compensations include uncompetitive scheme and old compensation scheme. HR policies include repetitive promotion test, unclear career pathways and strict criteria for promotion. Curriculum includes outdated module, overlapping contents, lack or soft skills contents and not emphasizing on technology. Lastly, budgeting includes no budget for training and lack of planning. It was determined that all these were significant influencing factors and therefore further root cause analysis was 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 lack of training due to an outdated training system, inadequate teaching infrastructure 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 caused by 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 reduced job performance. Addressing these root causes is essential to improve training outcomes and overall workforce competency.

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 gathered. The 5X5 risk matrix is a common 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). It is found 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.

Synthesis of The Problem's Solution (Interventions)

From the above findings, it is found that "curriculum " and "training " are the top two priorities based on the risk assessment of INSAN. In order to reach to the problem's solution, Literature Review (LR) Matrix and Research Model Matrix were used.

Literature Review (LR) Matrix

A Literature Review (LR) 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. LR Matrix will facilitate the researcher to quickly compare and contrast articles in order to determine the scope of research across time. It will make the task to spot differences and similarities between journal articles about a research topic more easily (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 the possible antecedents (interventions) towards the main issues which was reducing of paramedic's job performance trained by INSAN.

Research Model Matrix

Based on the Literature Review Matrix, each study that have possible similar interventions were grouped and finalized to come out with possible interventions which are related to Training and Development, Career Training and Career Development as in Table 1. Only part of the literatures were shown.

Table 1
Research Model Matrix

No.	Independent Variable	Intervention	Dependent Variable
1.	Training Need Assessment (Dagnew Gebrehiwot & Elantheraiyan, 2023)	raining Module Development	Job Performance
	Comprehensive Curriculum (Loftus et al., 2021)		
	Digital Competency (Pacheco & Coello 2023)		
	Professional Competency (Indrayani et al., 2023)		
2.	Employee's Training (Almarashdah., 2024; Mohd Nasurdin et al., 2020)	Career Training	
	Training and Development (Hosen et al., 2024)		
3.	HR Practice (Noor et al., 2023)	Career Development	
	Career Development (Hosen et al., 2024)		
	Unclear Promotion Appraisal Criteria, inadequate recognition and reward (Aung et al., 2023)		
	Compensation (Mohd Nasurdin et al., 2020)		

Conclusion

In conclusion, the aim of this study is achieved when the researcher able to propose two interventions in order to solve the problems of reducing job performance trained by Armed Forces Health Training Institute (INSAN). Both interventions were developed based on research tools and literature review analysis. Since this paper is conceptual paper, it gives significant overall view about the diagnosing the problems and formulation of solutions relating to issues of declined job performance among paramedics trained by INSAN.

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