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ENHANCING OPERATIONAL EFFECTIVENESS:
THE MEDIATING IMPACT OF LEADERSHIP AND PEER
SUPPORT ON AV8 GEMPITA OPERATORS IN MALAYSIA

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Abstract:

This study investigates the mediating role of leadership and peer support in the relationship between workload, skills, experience, training, and work effectiveness among AV8 Gempita armoured vehicle operators in Malaysia. Recognising that human factors are as vital as technical capabilities in military operations, the study employs a quantitative methodology involving 226 qualified operators who responded to structured questionnaires. Data analysis using SPSS 29.0 and SmartPLS 4.0, applying Partial Least Squares Structural Equation Modelling (PLS-SEM), revealed significant findings. The results show that skills, experience, and training have strong positive effects on work effectiveness, while workload, though demanding, can enhance performance when managed effectively. Leadership and peer support partially mediate these relationships, mitigating the negative impacts of workload and amplifying the benefits of training and skills. The structural model accounted for 62% of the variance in work effectiveness, underscoring the critical influence of interpersonal dynamics in operational success. These findings emphasise the importance of cultivating leadership capabilities and fostering peer support networks within military teams. The study recommends comprehensive leadership training, institutionalised peer mentoring, and improved workload management strategies to optimise the operational readiness and effectiveness of armoured vehicle crews. This research contributes to a deeper understanding

**Keywords:**

Leadership, Peer Support, Workload

Introduction

In contemporary military operations, success depends not only on technological superiority but also on the human factors that influence operational effectiveness (Cakiroglu et al., 2021; Britannica Encyclopaedia, 2013). Among armoured vehicle units, such as those operating the AV8 Gempita in Malaysia, achieving high performance demands a synergy of technical proficiency, experience and cohesive teamwork. Key factors such as workload management, skills mastery, cumulative operational experience and the quality of training significantly impact the work effectiveness of military personnel (Thunholm & Henoker, 2020; NCO Worldwide, 2019). Nevertheless, studies in military science and organisational behaviour highlight that those interpersonal dynamics, particularly the roles of leadership and peer support, are equally crucial in determining mission outcomes (Whyte & Mazanec, 2023; McCrie & Lee, 2021).

Historical analyses of military failures, such as the Battle of Savo Island and the Battle of Kasserine Pass during World War II, have consistently demonstrated that inadequate leadership, insufficient training and poor teamwork critically undermine operational success (Grimaldi, 2020; Allen et al., 2023; Godfrey, 2021). Conversely, cohesive teams with strong leadership tend to perform better under high-pressure environments, even when faced with significant logistical or tactical disadvantages (Wasser et al., 2021; Malkasian, 2021). In the Malaysian context, where geopolitical dynamics require a strong, agile and resilient defence force, understanding these human elements becomes vital, especially for frontline units like AV8 Gempita operators who serve as key components in mechanised infantry operations (Gunawan et al., 2022; Kurnia & Agustian, 2021). Also, rapid technological advancements in warfare necessitate continuous adaptation among military personnel (Whyte & Mazanec, 2023). Operational readiness now requires not only technical skill but also psychological resilience, mutual trust and a supportive environment fostered by effective leaders and peers (Baker et al., 2021). Despite the emphasis on training and equipment, gaps remain in understanding how leadership and peer support mediate the effects of workload and technical competencies on actual job performance (Sullivan et al., 2023). Therefore, this study focuses on bridging this knowledge gap by empirically investigating these relationships, offering insights critical for strengthening Malaysia's military capabilities (Ahmad Zoolfadli, 2025).

Research Objectives

The primary objective of this study is to explore the factors influencing the work effectiveness of military personnel who operate the AV8 Gempita armoured vehicles in Malaysia (Ahmad Zoolfadli, 2025). Specifically, the study seeks to identify the levels of workload, skills, experience, training, leadership role, peer support and work effectiveness among these personnel (Cakiroglu et al., 2021). Additionally, the study aims to examine the relationships between workload, skills, experience, training and work effectiveness, reflecting the operational importance of these variables in high-demand military environments (Thunholm &

Henoker, 2020; NCO Worldwide, 2019). It also investigates the mediating effects of leadership and peer support on these relationships, based on the understanding that interpersonal dynamics significantly influence team and individual performance (Whyte & Mazanec, 2023; McCrie & Lee, 2021).

More specifically, the study seeks to test the direct relationships between workload, skills, experience and training with work effectiveness, as previously emphasised in military effectiveness literature (Essens et al., 2005; Grimaldi, 2020). It also aims to explore how leadership support and peer support mediate the relationships between these independent variables and the dependent variable, work effectiveness (Baker et al., 2021). By achieving these objectives, the study hopes to offer meaningful recommendations for enhancing military operational effectiveness through better human factors management (Sullivan et al., 2023; Ahmad Zoofadli, 2025). This study is guided by several research questions. First, it seeks to answer: What are the levels of workload, skills, experience, training, leadership role, peer support, and work effectiveness among the AV8 Gempita armoured vehicle operators in Malaysia (Ahmad Zoofadli, 2025)? Second, it examines whether there are significant relationships between workload, skills, experience, training and the work effectiveness of these military personnel, reflecting concerns identified in operational readiness studies (Godfrey, 2021; Allen et al., 2023). Third, the study asks whether leadership support and peer support mediate the relationships between workload, skills, experience, training and work effectiveness, as suggested by contemporary research on team cohesion and leadership impacts (Wasser et al., 2021; Malkasian, 2021). These research questions are designed to provide a comprehensive understanding of both the direct and mediated effects of critical operational and interpersonal factors on the effectiveness of armoured vehicle operators.

Research Methodology

This study employed a quantitative research methodology to investigate the relationships between workload, skills, experience, training, leadership support, peer support and work effectiveness among AV8 Gempita armoured vehicle operators in Malaysia. A structured questionnaire the study used as the primary data collection instrument, based on validated constructs identified in previous military effectiveness and organisational behaviour studies (Essens et al., 2005; Ahmad Zoofadli, 2025). The questionnaire measured participants' perceptions regarding workload, skill proficiency, operational experience, adequacy of training, quality of leadership support, peer cooperation and overall work effectiveness.

The study population consisted of military personnel from armoured units under the Malaysian Army, specifically those operating the AV8 Gempita vehicles. A total of 226 respondents the researchers using purposive sampling to ensure that only qualified operators with relevant experience participated (Ahmad Zoofadli, 2025). Data were collected in a cross-sectional design over a specified period during operational and training assignments. Before the main survey, the researchers conducted a pilot study the researchers conducted to validate the instrument for reliability and validity, following standard research protocols (Hair et al., 2014).

The team carried out using the Statistical Package for Social Science (SPSS) version 29.0 and Smartpls version 4.0, which enabled the application of Partial Least Squares Structural Equation Modelling (PLS-SEM) techniques (Hair et al., 2019; Ahmad Zoofadli, 2025). These tools were chosen because PLS-SEM is particularly suited for complex models involving multiple constructs and mediating effects, and it accommodates non-normal data distributions

typical in social science research. The study followed ethical research practices, ensuring confidentiality and voluntary participation. Approval for data collection the team obtained from the appropriate military authorities (Ahmad Zoolfadli, 2025). Overall, the methodology the researchers designed it to robustly test the direct and indirect relationships hypothesised in the study's conceptual framework while ensuring the rigour and credibility of the findings.

Findings

The descriptive statistics revealed that AV8 Gempita armoured vehicle operators generally reported moderate to high levels of skills proficiency, operational experience, adequacy of training, leadership support, and peer support. Although the workload was perceived as challenging, it was considered manageable by most respondents. These baseline findings suggest that the operators possess a solid foundation of technical and interpersonal resources conducive to effective performance.

The Partial Least Squares Structural Equation Modelling (PLS-SEM) analysis using Smartpls 4.0 further elucidated the relationships among the study variables. The results indicated that workload, skills, experience and training each have significant positive direct effects on work effectiveness, with path coefficients (β) of 0.23, 0.31, 0.19, and 0.27, respectively, all statistically significant at $p < 0.05$ or better. This confirms that higher levels of skills, experience and training contribute substantially to better work outcomes, while a well-managed workload can also enhance performance.

Importantly, leadership and peer support proved to partially mediate these relationships. Leadership support reduced the negative impact of workload on work effectiveness (indirect effect $\beta = 0.12$, $p < 0.01$) and amplified the positive effects of skills (indirect effect $\beta = 0.15$, $p < 0.001$) and training (indirect effect $\beta = 0.14$, $p < 0.001$). Similarly, peer support mediated these relationships with indirect effects ranging from $\beta = 0.10$ to 0.13 (all $p < 0.05$), demonstrating its role in enhancing operational capability through improved communication, coordination, and morale.

The structural model exhibited good predictive power, explaining 62% of the variance in work effectiveness ($R^2 = 0.62$), and showed strong reliability and validity metrics, including Cronbach's alpha values exceeding 0.8 and average variance extracted (AVE) above 0.5. These findings collectively highlight that while individual competencies and workload are critical to performance, the interpersonal dynamics fostered by leadership and peer support are essential mediators that translate these factors into effective operational outcomes.

The findings of this study reveal significant insights into the factors influencing the work effectiveness of AV8 Gempita armoured vehicle operators in Malaysia. Firstly, the analysis shows that workload, skills, experience and training each have a positive and significant relationship with work effectiveness (Ahmad Zoolfadli, 2025). Operators who reported higher levels of skill proficiency, operational experience and adequate training demonstrated better work performance, consistent with prior research on military operational readiness (Thunholm & Henoker, 2020; Grimaldi, 2020). Although workload was generally associated with increased pressure, it was found that when managed well, a challenging workload could positively stimulate higher performance levels. Secondly, the study confirmed the mediating role of leadership and peer support. Leadership support significantly reduced the negative impacts of excessive workload and amplified the positive effects of skills, experience and

training on work effectiveness (Baker et al., 2021; Wasser et al., 2021). Similarly, strong peer support systems enhanced the operational capability of armoured vehicle crews, facilitating better communication, coordination and morale among team members. These mediating effects demonstrate that interpersonal dynamics within military units play a critical role in translating individual competencies into collective operational success. Finally, the structural model testing through Smartpls revealed that both leadership and peer support act as positive partial mediators, strengthening the predictive capacity of the model. The study's findings underline the necessity of not only focusing on individual competencies but also fostering an environment where leadership and teamwork are integral to sustaining high levels of operational performance (Ahmad Zoolfadli, 2025; Whyte & Mazanec, 2023).

Discussions

The findings align with contingency leadership and social exchange theories, emphasising that leadership provides critical emotional and resource support, enabling operators to perform under stress (Essens et al., 2005; Baker et al., 2021). Peer support fosters unit cohesion and morale, which are vital for synchronising complex armoured vehicle operations (Wasser et al., 2021; Malkasian, 2021). The nuanced role of workload suggests that while excessive workload can impair performance, effective leadership and peer support transform workload into a motivational factor. This highlights the importance of balanced task allocation and proactive leadership in high-pressure military contexts (Billing et al., 2021).

The results of this study reinforce the growing consensus in military and organisational behaviour research that technical competence alone is insufficient for achieving optimal performance in complex operational environments. In line with contingency leadership theory and social exchange theory (Essens et al., 2005; McCrie & Lee, 2021), this study demonstrates that effective leadership and robust peer support structures significantly enhance the positive contributions of skills, training, and experience to work outcomes. Leadership acts as a key moderating force, providing direction, emotional support and resource facilitation that enable operators to perform under stress (Baker et al., 2021; Godfrey, 2021).

Additionally, the finding that peer support substantially improves work effectiveness supports previous research emphasising the importance of unit cohesion and collective morale in military settings (Wasser et al., 2021; Malkasian, 2021). Trust and mutual assistance among team members help mitigate the cognitive and emotional burdens posed by high workloads and operational uncertainties. This is particularly critical in armoured vehicle operations, where synchronisation and rapid decision-making often mean the difference between mission success and failure (Grimaldi, 2020; Sullivan et al., 2023).

The study also sheds light on the nuanced role of workload. While excessive workload can lead to fatigue and reduced effectiveness, a manageable level of workload can act as a positive motivator when mediated by leadership and peer support. This highlights the need for balanced task allocation, strategic stress management and proactive leadership interventions to optimise soldier performance in high-pressure environments (Billing et al., 2021; Ahmad Zoolfadli, 2025).

Overall, the findings advocate for a holistic approach to enhancing military effectiveness—one that addresses both technical training and human factors—to prepare operators for the demands of modern warfare. These insights are vital for military policymakers, trainers and commanders

who aim to strengthen operational readiness and resilience among their frontline armoured units.

Recommendations

Based on the findings and discussions, generally, the study recommends enhancing leadership development and fostering a supportive team environment through peer mentoring and team-building initiatives. Additionally, it is important to continuously update and tailor skills development and training programs to meet evolving operational demands. Specifically, several recommendations are proposed to enhance the work effectiveness of AV8 Gempita armoured vehicle operators in Malaysia and similar military contexts. Firstly, it is recommended that military leadership development programs place a greater emphasis on interpersonal leadership skills. Leaders at all levels must be trained not only in operational tactics but also in emotional intelligence, communication and team motivation techniques. Effective leadership was shown to mitigate the negative impacts of workload and enhance overall performance (Baker et al., 2021; Ahmad Zoofadli, 2025). Therefore, structured leadership training modules should be integrated into officer and non-commissioned officer (NCO) courses, with a focus on leading under pressure and building cohesive teams. Secondly, there is a need to strengthen peer support structures within armoured units. Military organisations should promote initiatives that encourage teamwork, trust-building and mutual support among personnel. Regular team-based exercises, peer mentoring programs and unit cohesion activities can be institutionalised to build stronger interpersonal bonds that contribute directly to operational success (Wasser et al., 2021; Malkasian, 2021). Thirdly, continuous improvements must be made to training programs, ensuring that operators are equipped with updated skills relevant to evolving warfare technologies and operational environments. Training modules should combine technical, tactical and cognitive skill development and should be evaluated periodically to incorporate lessons learned from operational deployments (Grimaldi, 2020; Godfrey, 2021). Realistic simulation exercises should be conducted to prepare operators for high-stress scenarios, enabling them to better handle operational challenges. Additionally, workload management strategies must be implemented to prevent operator fatigue and maintain high performance. Command structures should be sensitive to signs of burnout and excessive stress and should adjust operational assignments where necessary to maintain a sustainable work pace (Billing et al., 2021; Sullivan et al., 2023). Scheduling sufficient rest periods and implementing rotational task assignments can help distribute operational stress evenly across teams.

Finally, future research should expand on this study by incorporating mixed-methods approaches, including qualitative interviews with operators and leaders, to gain deeper insights into the dynamics of leadership, peer support and work effectiveness. Comparative studies involving different types of armoured units or across different national contexts could also broaden the applicability of the findings (Whyte & Mazanec, 2023; Ahmad Zoofadli, 2025).

Conclusion

The success of armoured vehicle operations hinges on a delicate balance between individual competence, strong leadership and cohesive teamwork. This study has shown the critical roles that leadership and peer support play in mediating the effects of workload, skills, experience and training on the work effectiveness of AV8 Gempita armoured vehicle operators in Malaysia. The findings highlight that while technical proficiency and adequate training are essential, the presence of effective leadership and a supportive team environment is equally

vital for optimising operational performance. This research contributes valuable insights to the understanding of human factors in military operational effectiveness. It emphasises the need for a holistic approach that integrates technical training with the cultivation of strong leadership and team dynamics to prepare military personnel for the complexities of modern warfare.

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