

# Cognitive Readiness of Military Personnel: Issues and Considerations for Malaysian Army

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## Abstract

How do military organizations prepare military personnel readiness to deal with the complex operational environment of modern warfare? The military organization realizes the challenges of modern warfare and needs an approach to ensuring military personnel at each level (strategic, operational, and tactical) are ready for modern warfare. The purpose of this article is to highlight the issue and consideration concept of cognitive readiness. The concept of cognitive readiness is related to the preparation of military personnel readiness with military knowledge, skills, and abilities to perform in a military operation. To address this issue and consideration, this article provides a literature review related to the concept of cognitive readiness and the rationale for the Malaysian Army. Moreover, the Malaysian Army (MA) should focus on the development of a conceptual framework of military personnel cognitive readiness that aligns with the operational context of the MA to defend Malaysian sovereignty.

**Keywords:** Cognitive Readiness, Military Personnel, Military Training, Transfer of Training, Human Resource Development

## Introduction

How do military organizations prepare military personnel readiness to deal with the complex operational environment (COE) of modern warfare? The term readiness is applied to military organization to refer to the ability to produce, deploy, and sustain military forces that will perform successfully in military operations. To succeed in COE military operations, military organizations realize that the development of future forces depends on military personnel who can think, react, and accurate decisions making when facing an uncertain situation in a dynamic environment (LaCroix et al., 2021; Belin et al., 2020; Salas et al., 2006; Nindl & Kyröläinen, 2022; Rao et al., 2020; Shortland & Barrett-Pink, 2018). Studies agree that Cognitive Readiness (CR) is the concept of dealing with the advancement of technology and unpredictable situations (Crameri et al., 2021; Etter et al., 2000; Grier et al., 2012).

Morrison & Fletcher (2002) define CR refers to the mental preparation of military personnel with military knowledge, skills, and abilities (KSA) to perform in military operations. Situation awareness, memory, transfer, meta-cognition, automaticity, problem-solving, decision-making, mental flexibility, creativity, leadership, and emotion are components related to cognitive readiness that need to be established to deal with the COE. The characteristics of the complex operating environment (COE) involving multi-domain operations require military personnel who can think critically, process information, and make quick and accurate decisions during the military mission.

To achieve the development of CR military personnel readiness, the MA must prioritize the development of a human resource that focuses on building and enhancing cognitive readiness to be capable of performing at their best in any situation at all levels of strategic, operational, and tactical. Therefore, the Malaysia Army (MA) needs to prepare military personnel who are cognitively ready to navigate the complex and unpredictable operating environment of modern warfare. By focusing on the CR concept, this article will provide an understanding related to issues and considerations for MA to enhance overall combat readiness.

## **Literature Review**

### **The Concept of Cognitive Readiness**

Etter et al., (2000) began to introduce the theoretical concept of Cognitive readiness (CR). This concept is critical research to predict the performance of human individuals and teams before engaging in complex, uncertain, and dynamic task environments. Etter (2002) explained that military personnel must not only be ready physically but must also be ready cognitively for effective performance and sustainability in military operations. Morrison & Fletcher (2002), Bolstad et al., (2008), and Grier (2011) also define CR as shown in Table I. These definitions are related to preparing military personnel mental preparation to perform in military operations, especially cognitive functions at strategic, operational, and tactical levels.

**Table I***The definition of Cognitive Readiness.*

Definition of the concept of Cognitive Readiness	
Morrison & Fletcher, (2002)	CR refers to the mental preparation (including skills, knowledge, abilities, motivations, and personal dispositions) an individual needs to establish and sustain competent performance in the complex and unpredictable environment of modern military operations.
Bolstad et al., (2008)	CR refers to optimizing the human dimension of soldiering by ensuring that individuals and teams possess the essential KSA needed to perform effectively in complex military operations.
Grier (2011)	The concept of CR refers to the level of military organization: <ol style="list-style-type: none"> <li>a. The tactical level - refers to the state of mental preparation of military personnel that contributes to mission performance.</li> <li>b. Operational Level - Grier (2011) refers to the definition Morrison &amp; Fletcher, (2002).</li> <li>c. Strategic Level - refers to military personnel who have individual potential to perform assigned cognitive tasks in military operations.</li> </ol>

In real-world modern operations, military personnel often face unpredictable situations and the need to adapt to the rapidly changing of nature military operations (Hoffman, 2021; Savage-Knepshield et al., 2021; Townsend, 2018). The new environment of modern operations involving peacekeeping, humanitarian relief, and counterterrorism where military personnel were being deployed to fulfill different military operations as opposed to traditional military combat roles. This new battle space requires military personnel who are ready for the mission assigned. However, the current state of literature still argues regarding the theoretical framework among leading researchers who are involved in the research on military personnel readiness (Cramer et al., 2021). Table II illustrates the relevant studies of CR.

**Table II:***The relevant Cognitive Readiness studies.*

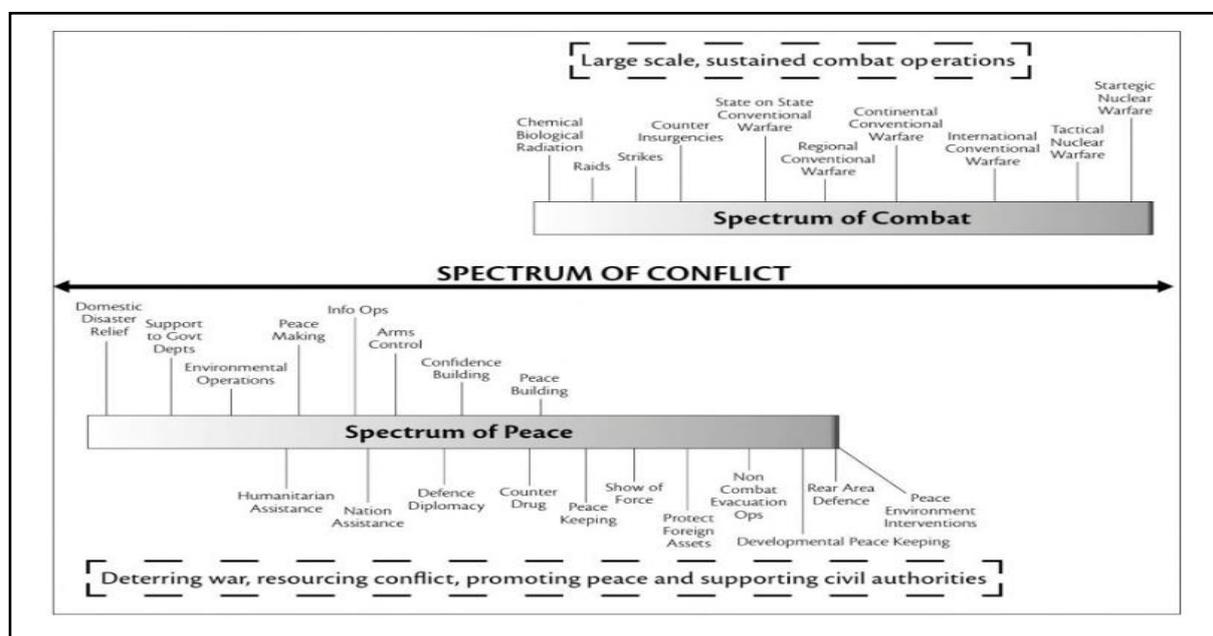
Cognitive Readiness Studies	Focus Area	Finding/Future Research
Etter, (2002)	Human optimization	The challenges to humans include sustained operations, environmental ambiguity, and information overload. Future research focuses on physiological monitoring, embedded training, learner-centric instruction, and augmented reality
Morrison & Fletcher (2002)	Concept CR	CR definition, readiness assessment, and training Future research focuses on developing methods to train and measure it and implement capabilities to help ensure its availability for military operations.
Bolstad et al., (2008)	Predicting cognitive readiness	Using the Medical Cognitive Readiness Survey Tool (M-CREST) to predict military personnel CR and potential solutions to enhance CR. Future research needs to focus on establishing the construct and convergent validity of measures to predict individual and team performance.
Schatz et al., (2012)	Examines the CR of U.S Marine Corps instructors and career progression.	The CR of instructors in the development of military personnel KSAs for modern warfare. - Adopting new strategies by developing a small unit decision-making initiative to enhance cognitive skills.
Preddy et al., (2020)	To explore, examine, and identify the CR of police for preparation and response to violent encounters	The results stated that police officers are not adequately prepared for violent police-public encounters. The study revealed the importance of situational awareness, problem-solving, adaptability, decision-making, confidence, and critical thinking in preparing future police officers. -Suggested training strategies.
Crameri et al., (2021)	A review of Individual Operational Cognitive Readiness	CR Literature, Theory Development, and Framework Future research focuses on the development CR model and specific case studies of the CR constructs.

To excel in the new environment of modern operation, Prykhodko et al., (2021) explained that military personnel can think critically, make sound decisions under pressure, and work effectively by applying their training to real-world work environments. The

development of cognitive readiness is an essential aspect of preparing military personnel readiness begins when someone joins military service, either as a cadet (officer) or a recruit (enlisted personnel). Recognizing individual characteristics, such as cognitive abilities, self-efficacy, and motivation to learn lead to more effective developments of cognitive readiness (Kosni et al., 2018; Oprins et al., 2018). By addressing these personnel traits, military training programs can be designed in an early stage of basic military training (transform civilians into military personnel). The basic military training provides them with the necessary mental and physical skills to function effectively in the modern military operations.

**Rationale Cognitive Readiness for Malaysian Army**

Military personnel is a crucial component that potentially leads to better outcomes in mission success (Billing et al., 2021; D’Angelo et al., 2019; Goodwin et al., 2018; Griffith, 2006; Martin et al., 2020). In the context of Revolution Military Affairs (RMA), disruptive technologies have the potential to fundamentally change the character of warfare. The character of warfare involves the integration of land, air, sea, cyberspace, and space. To achieve mission success in each domain of warfare, military organizations depend on the cognitive skills of military personnel to have a high level of situational awareness, the ability to rapidly process information and effective decision-making, and maximize their combined capabilities. In addition, the rapidly evolving nature of warfare requires military personnel to be adaptable, and quickly, and effectively operate with new technology to respond to an emerging threat. Enhancing cognitive readiness by identifying components for improvement practical implications in military settings. Moreover, military organizations must foster the development of military personnel readiness for the realities of the modern warfare spectrum of conflict (Shinga, 2016) in future operational environments as illustrated in Figure I.



**Figure I** The modern warfare spectrum of conflict.

The dynamic landscape of military operations will necessitate the MA to re-evaluate its capabilities and re-design an appropriate approach to be a force that is constantly evolving to remain effective and relevant. In developing cognitive readiness, the ability of military personnel to think critically, make sound decisions, and adapt to dynamic situations is

paramount for the MA to bolster operational effectiveness and achieve mission success. Achieving cognitive readiness is critical in terms of the knowledge, skills, and abilities (KSAs) for effective cognitive functioning required to succeed in challenging complex military environments. The capacity of military personnel to analyze complex situations, make informed decisions under pressure, and adapt swiftly to evolving circumstances on the battlefield is intricately linked with the quality and efficacy of military training programs as shown in Table III.

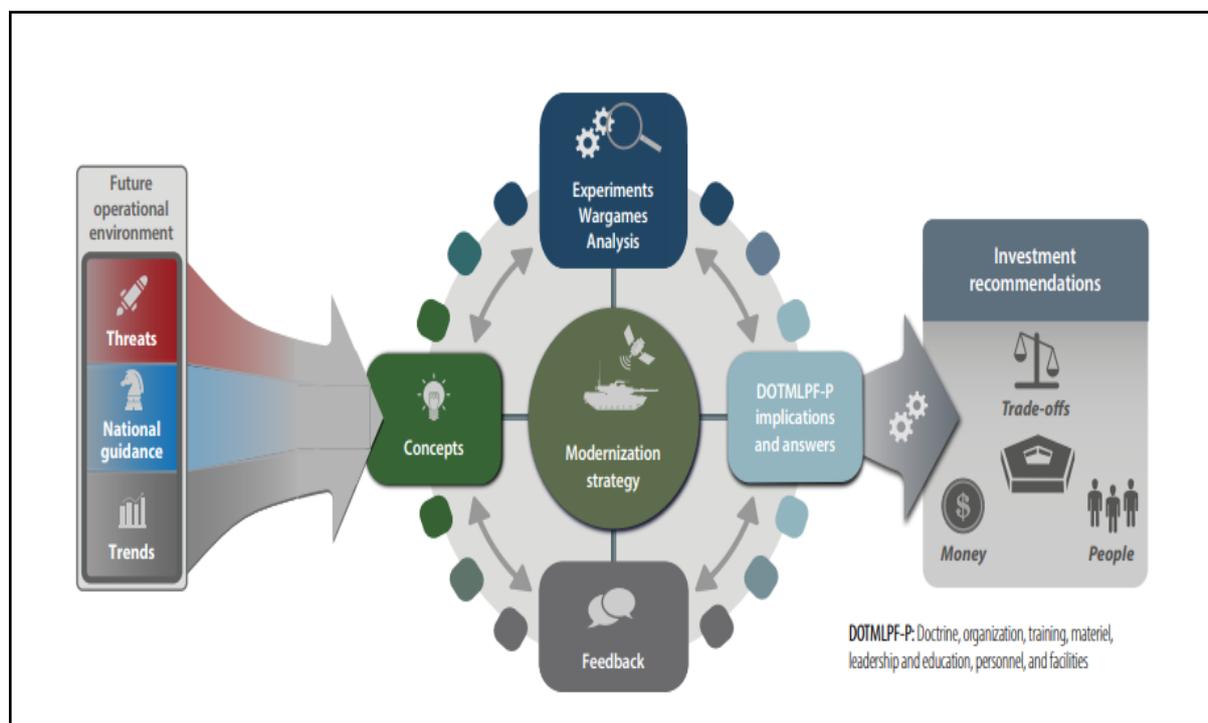
**Table III**  
*Training Design for Cognitive Readiness*

Training Design		To develop expertise
The History of Warfare/ Domain Operations - Theory and the nature of war	Multi- Classroom Seminar Conferences	Military Knowledge Military Deployment Develops important critical thinking skills
Expertise in adapting to uncertainty - The ability to adapt a plan to meet a new crisis or capitalize	Scenarios Planning Simulation Cognition Training Situational training exercises (STXs)	Thinking Skill Problem-Solving Decision-Making
Expertise in the environment, weapon systems, and equipment	Effectively shoot, move, and communicate in a variety of environments Virtual training Video game Field training exercises (FTXs)	Develop personnel skill Leadership Teamwork

The military training program is designed to train military personnel for the missions they are expected to perform. By enhancing military personnel's physical, mental, and cognitive with KSAs, ensuring their readiness will play a vital role in helping optimize human performance for the diverse challenges in military operations. In modern military operations, O'Neil et al., (2014) argue that the cognitive readiness of military personnel is essential for individuals because that allows them to adapt the knowledge (prerequisite and domain), skills (adaptability, adaptive problem solving, communication, decision making, and situation awareness), ability (adaptive expertise, creative thinking, metacognition, and teamwork) as they possess to solve real-world, practical problems in operational environments. Military training especially targeted cognitive training programs integrated with technology is important in aligning with KSA suggested by O'Neil et al., (2014) to enhance military personnel's cognitive readiness for MA to face challenges in military operations contexts.

Technology advancements have the potential to significantly improve cognitive readiness. Integration of technology offering revolutionized military training approaches such as virtual reality (VR), augmented reality (AR), artificial intelligence, gaming, and simulation-based training. These approaches offer a variety of training environments to develop military personnel's cognitive skills in a safe, repeatedly engaging realistic scenario, and a controlled

environment without risks (Brunyé et al., 2020; Fatkin & Patton, 2018; Flood & Keegan, 2022; Hamilton et al., 2019; Mumford et al., 2017; Zanesco et al., 2019). Moreover, Hasselbladh & Yden (2020) mentioned that leveraging technology provides military leaders with relevant data and performance assessment for evaluation to ensure that technology integration aligns with training objectives and effectively enhances cognitive readiness. The integration of technology in military training brings further advantages for military personnel receiving targeted training that aligns with their cognitive capabilities to practice critical thinking, problem-solving, and decision-making skills in highly realistic settings scenario training (Blacker et al., 2019; Männiste et al., 2019; Zwilling et al., 2020). It allows military personnel to evaluate areas in need of improvement from feedback for identifying strengths and weaknesses in their training programs to enhance cognitive readiness. Overcoming challenges for successful technology integration, the considerations related to cost, user acceptance, and infrastructure can be expensive for the MA to prepare their military personnel to enhance cognitive readiness. The MA can refer to the Army Modernization Framework that drives the United States (U.S) military to change an Army-winning mentioned by Wesley and Bates, (2020) as shown in Figure II.



**Figure II** Army Modernization Framework.

In the context of modernization and the complex operating environment of military operations, it is important to encourage military personnel at all levels of military organizations to cultivate and promote a learning culture for professional development within the MA (Malaysian Army, 2021). The MA can establish a structured framework for the development of cognitive enhancement including specialized training programs, workshops, conferences, and seminars focused on cognitive readiness. Experts from the military, academia, and industry provide solutions on how and why cognitive readiness is important to address specific cognitive abilities like critical thinking, problem-solving, decision-making, and situational awareness through training and education. To support these initiatives Malaysian

Army Transformation Plan (Army4nextG) for the development of thinking soldiers, the MA Department of Operation and Training can oversee the implementation of the training policy, manage resources, provide guidance or directives, and evaluate the progress of the development of military personnel's cognitive readiness.

### Conclusion and Future Agendas

Modern warfare involves a wide of cognitive skills that require military personnel who can analyze complex situations, make informed decisions, and adapt to the situation of military operations environment. The challenging modern warfare needs the Malaysian Army (MA) to refer to the concept of cognitive readiness as the solution and opportunity to enhance combat readiness. The foreseeable future is still related to enhancing military personnel readiness in a variety of operational settings as a key element for combat readiness, so future agendas should focus on the development of a conceptual framework cognitive readiness model. The model offers a value for enhancing the cognitive readiness of military personnel that aligns with the operational context of the MA to defend Malaysian sovereignty. The collaborations between the MA, academic institutions, research organizations, and industry experts develop a comprehensive framework for understanding, assessing, and applying to enhance cognitive readiness in the military context. Academic institutions bring their expertise in areas of human resources, training, human factors, cognitive science, psychology, and related disciplines to collaborations.

This collaboration can contribute their theoretical knowledge, research findings, and innovative methodologies that allow the development of military personnel's cognitive readiness through military training. Research organizations especially in defense and military studies can offer valuable insight and provide empirical evidence for the development of evidence-based practices for assessing and improving cognitive readiness. Industry experts, including technology developers and training providers, offer insight into the latest technological advancements which can be integrated into cognition training programs that are up-to-date, engaging, and effective in improving cognitive skills. This interdisciplinary approach facilitates knowledge exchange and fosters innovations in the field of cognitive readiness in the MA to improve overall operational effectiveness in military operations.

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