A Gaming Approach to Train Systems Thinking in the Military

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Stability operations and irregular warfare require keen sensemaking skills to understand complex adaptive systems (e.g., political, military, social, economic) and achieve mission objectives while avoiding dire unintended consequences. Indeed, various methods have been proposed to improve operational art through systems thinking, such as the soft systems methodology [Checkland 2006], the effects-based approach to operations [Smith 2006] and systemic operational design [Wass de Czege 2009]. It has also been proposed that simulated complex environments can be effective tools to hone the decision making skills and intuition of individuals [Bakken 2008]. Here we present 3 incremental scenarios – in the Complex Decision Making simulator CODEM [Lafond 2011] – forming the core of a prototype gaming-based training for decision making in complex environments. Scenario 1 (Arctic operations) focuses on understanding the structural aspects of the underlying system (represented using

influence diagrams). Scenario 2 (Foreign disaster response) focuses on adaptability and resilience when facing information uncertainty and hidden factors. Scenario 3 (Joint, interagency, multinational intervention in Africa) focuses on collaborative sensemaking and integrative problem solving. This four player scenario is inspired by NATO's fictitious Zoran Sea Crisis and demonstrates the value of adopting a comprehensive approach during complex endeavors, i.e., employing and aligning resources (diplomatic, defence, development, and commercial) from numerous agencies, and coordinating these operations through an integrated campaign plan [Leslie 2008]. Several cognitive science principles (e.g., various types of feedback and guidance) are being integrated into the training package to support learning effectiveness. Together, these scenarios aim to augment the cognitive readiness of command teams and their civilian counterparts. The integrative concept of cognitive readiness refers to "possessing the psychological (mental) and sociological (social) knowledge, skills, and attitudes needed to establish and maintain effective performance and mental wellbeing in the dynamic, complex, and unpredictable environments of military operations" [Bolstad 2006]. The benefits of this training will be assessed experimentally. Participants having received the training will be compared to others who did not, on the basis of their success in a test counter-insurgency scenario using CODEM [Lafond 2011].

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