

**REPORT DOCUMENTATION PAGE**

*Form Approved  
OMB No. 0704-0188*

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.  
**PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE (DD-MM-YYYY)</b> 12-05-2021	<b>2. REPORT TYPE</b> Master of Military Studies (MMS) thesis	<b>3. DATES COVERED (From - To)</b> AY 2020-2021
--	--	---

<b>4. TITLE AND SUBTITLE</b> The Defense of the Philippines 1941-1942	<b>5a. CONTRACT NUMBER</b> N/A
	<b>5b. GRANT NUMBER</b> N/A
	<b>5c. PROGRAM ELEMENT NUMBER</b> N/A

<b>6. AUTHOR(S)</b> Maj Melanie N. Clifton	<b>5d. PROJECT NUMBER</b> N/A
	<b>5e. TASK NUMBER</b> N/A
	<b>5f. WORK UNIT NUMBER</b> N/A

<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068	<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b> N/A
--	--

<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> N/A	<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>
	<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b> N/A

**12. DISTRIBUTION/AVAILABILITY STATEMENT**  
Approved for public release, distribution unlimited.

**13. SUPPLEMENTARY NOTES**

**14. ABSTRACT**  
The paper covers the analysis of a basic wargame designed to increase the learning of the logistics warfighting function by abstracting logistics challenges based on the Japanese invasion of Luzon, Philippines, from 1941-1942.

**15. SUBJECT TERMS**  
Logistics; World War II; Philippine campaign

<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b>	<b>b. ABSTRACT</b>	<b>c. THIS PAGE</b>			USMC Command and Staff College
Unclass	Unclass	Unclass	UU		<b>19b. TELEPHONE NUMBER (Include area code)</b> (703) 784-3330 (Admin Office)



*United States Marine Corps  
Command and Staff College  
Marine Corps University  
2076 South Street  
Marine Corps Combat Development Command  
Quantico, VA 22134-5068*

**MASTERS OF MILITARY STUDIES**

**TITLE:**

**Assessment of Student Wargame – The Defense of the Philippines  
1941-1942**

**SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF MILITARY STUDIES**

**AUTHOR:**

Major Melanie N. Clifton, USMC

AY 2020-2021

MMS Mentor Team and Oral Defense Committee Member:

\_\_\_\_\_

Approved: \_\_\_\_\_

Date: \_\_\_\_\_

MMS Mentor Team and Oral Defense Committee Member:

\_\_\_\_\_

Approved: \_\_\_\_\_

Date: \_\_\_\_\_

## **DISCLAIMER**

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

QUOTATION FROM, ABSTRACTION FROM, OR REPRODUCTION OF ALL OR ANY PART OF THIS DOCUMENT IS PERMITTED PROVIDED PROPER ACKNOWLEDGEMENT IS MADE.

## Executive Summary

**Title:** Assessment of Student Wargame – Defense of the Philippines 1941-1942

**Author:** Major Melanie N. Clifton, USMC

**Thesis:** Through playing Defense of the Philippines 1941-1942 wargame, military members will increase their understanding of a historical event and increase their knowledge of the logistics warfighting function, ultimately making the military member more comfortable and confident tactical level decisions.

**Discussion:** This paper will examine the importance of wargaming. The paper will also explore how military members can utilize wargaming as an educational tool to evaluate scenarios across each warfighting function. Wargaming is becoming more prevalent across the Department of Defense. As leaders prepare to address complex scenarios in preparation for the future fight concerning "Great Power Competition," one must be more creative when training the force. Traditional training mechanisms are resources intensive, often exceeding allotted fiscal expenditures, manpower, and time. Wargaming has proven to be a useful educational tool that a diverse group of military officers can utilize to generate innovative strategies in a low-cost and low-risk environment.

**Conclusion:** Despite several circumstances that prevented a robust data set, the playtesters provided several general responses through three assessment tools that displayed the growth in students' learning through playing the wargame. The student wargame Defense of the Philippines 1941-1942 increased basic student understanding of the historical event and their knowledge of the logistics warfighting function.

*Table of Contents*

**Disclaimer..... ii**

**Executive Summary..... iii**

**Table of Contents..... iv**

**List of Appendixes..... v**

**Introduction..... 1**

**Historical Background..... 3**

**Importance of Wargaming ..... 4**

**Game-Based Learning..... 6**

**Assessment Methodology and Tools..... 9**

**Analysis..... 11**

**Discussion..... 16**

**Conclusion..... 17**

**Appendixes..... 18**

**End Notes..... 36**

**Bibliography..... 37**

## **Appendixes**

Appendix A - HRPP Applicability Review Worksheet and Corresponding Email Messages

Appendix B - Game Board Development: Prototypes 1, 2, & 3

Appendix C - Defense of the Philippines 1941-1942 Wargame Rule Book

Appendix D - Assessment Tool 1: DoP 1941-1942: Pre/Post-Test

Appendix E - Assessment Tool 2: DoP 1941-1942: Student Observations Checklist

Appendix F - Assessment Tool 3: DoP 1941-1942: Post-Play Survey

*There is nothing more common than to find considerations of supply affecting the strategic lines of a campaign and a war.*

- Carl von Clausewitz

## **1. Introduction:**

As the Marine Corps implements the Commandant's Planning Guidance, leaders must develop training scenarios that simulate the changing and complex operating environment associated with great power competition and conflict. General David H. Berger, the 38th Commandant of the Marine Corps, emphasizes the essential role of wargaming in training, education, and force design. He states that "wargaming needs to be used more broadly to fill what is arguably our greatest deficiency in the training and education of leaders: practice in decision-making against a thinking enemy."<sup>1</sup> The role of wargaming will become increasingly important as the Marine Corps attempts to create a lethal, agile, and innovative force while reducing the overall end strength and operating within a dwindling budget. An uncomplicated field exercise costs often exceed the gleaned benefits from the days spent in the tree-line. Also, the future fight is increasingly moving towards the technological domain by default, increasing the need for complex field exercises to test tactics, techniques, and procedures. Military members can expand wargaming to enable training by simulating aspects of each warfighting function at the tactical, strategic, or operational levels of war.

In the Defense of the Philippines 1941-1942, the game developers tailored the game design to focus on the tactical level of war, encouraging the playtesters to develop, test, execute and evaluate plans focusing on the logistics warfighting function. Marine Corps Doctrinal Publication (MCDP) 4, *Logistics*, highlights, "Logistics is concerned with the provision and allocation of resources. The conduct of war or military operations other than war normally requires extensive resources. However, the resources available to create and sustain combat power are almost always limited. As a result, demand usually exceeds supply."<sup>2</sup> The game

developers incorporated the limitations of supplies concerning fuel and ammunition to establish a baseline of knowledge and reinforce the military members' understanding of this warfighting function.

Wargames can be developed in a broad range of operational areas, from small office spaces to a large auditorium. Wargames can also be adjusted for manpower and time-constrained environments to provide valuable training on the professional roles, responsibilities, and associated warfighting functions. Incorporating wargaming across the Marine Corps will allow leaders to think about a problem set from a friendly perspective and enable one to see and react to an adversary's action seeing how the adversary actions may evolve and what drives their action across the spectrum of conflict. Capturing how both forces act and react in a future war scenario through wargaming will enable the Marine Corps to develop, test, and exercise best practices.

This paper describes the learning evaluation effort in developing the Defense of the Philippines 1941-1942 game. The paper begins with an overview of the historical episode represented in the wargame. The paper then establishes the significance of wargaming as an adult learning tool in which Marines can test new concepts and equipment in a low-cost and low-risk environment. The paper further explains how the game developers utilized three assessment tools to measure each playtester's growth in understanding the logistics warfighting function. Next, the paper explores measuring the playtesters' achievement of seven learning objectives. Finally, the paper concludes with how wargaming can be applied to today's force as it undergoes significant changes aligned to the Commandant's Planning Guidance. Reinforcing the importance of continuous learning and growth across the warfighting functions, especially in logistics, is critical to the successful employment of Force 2030.

## **2. Historical Background:**

The home to over 19 million people in 1941, the Philippine Islands were a strategic location for both U.S. and Japanese forces during World War II. The Philippines campaign began in December of 1941 and ended in May of 1942. The campaign's key actors were the Imperial Japanese Army and the Allied forces comprised of troops from a coalition of American and Filipino forces. Controlling the Philippines was of extreme importance for both forces. For the Imperial Japanese Army, the Philippines provided a forward staging base for operations in World War II.<sup>3</sup> The Allied force on the islands proved to be a threat to the Japanese supply lines.<sup>4</sup>

The Allied force, U.S. Army Forces in the Far East (USAFE), headed by General Douglas MacArthur, was charged with carrying out a portion of War Plan Orange to defend the Philippines. However, over 85 percent of the 135,000-man army were poorly equipped and untrained Filipino soldiers.<sup>5</sup> Consequently, these allied forces concentrated their defensive positions on the island of Luzon. The Far East Air Force (FEAF), led by Major General Brereton and the U.S. Navy's Asiatic Fleet lead by Admiral Hart, supported General MacArthur on the ground.<sup>6</sup>

The Japanese Imperial Army landed on Luzon's island on Dec 12, 1941. On Dec 22, 1941, the Japanese Imperial Army conducted three subsequent landings on Luzon's island with an additional 43 thousand troops.<sup>7</sup> 14th Army lead by General Homma, the Imperial Japanese Third Fleet lead by Vice Admiral Takahashi, and the 11th Air Fleet lead by Vice Admiral Tsukahara comprised the Japanese Forces in this campaign. Several limitations surrounding the lines of communication forced the U.S. force to generate the terms of surrender on May 06, 1942.<sup>8</sup> Unable to resupply via aerial or sea-based lines of communication resulted in constrained

supplies. The lack of supplies combined with the Filipino military personnel's lack of training was significant in the failure to defend the island.

### **3. Importance of Wargaming**

Currently, wargaming is increasing in popularity across the Department of Defense. Members of each service can use wargaming to explore future fights as the services' primary missions are no longer concerned with counter-insurgency operations in Afghanistan and Iraq. As the Marine Corps begins to align with "Force Design 2030" guidance, wargaming can play an essential factor in understanding the future problem set by exploring new concepts and equipment. In "Force Design 2030," the Commandant of the Marine Corps addresses how the Marine Corps will "return to our historic role in the Navy and a reaffirmation of that strategic partnership."<sup>9</sup> He also states that "with the shift in our primary focus to great power competition and a renewed focus on the Indo-Pacific region, the current force has shortfalls in capabilities needed to support emerging joint, naval, and Marine Corps operating concepts."<sup>10</sup> Wargaming is a method in which Marines can explore the capability shortfalls in a low-cost, low-risk environment. The ability to test strategies and tactics through wargaming will allow the Marine Corps to consider various situations from multiple perspectives before investing in costly resources, including manpower and materials.

After completing several studies, leaders from the Department of Defense have realized the importance of wargaming. Retired Army Lieutenant Colonels McConnel and Gerges reiterate that board games provide "players with ways to approach planning and problem-solving."<sup>11</sup> In the article "Seeing the Elephant," they discuss the cognitive planning domain. The cognitive planning domain includes an area labeled the "factory," where planners are concerned with synchronization, integration, and execution. The "factory" is the most often utilized domain

because most military members are constrained by time while planning. A second area highlighted is the "laboratory," where planners are concerned with validation, relevance, and feasibility. The final area expressed is most time-consuming for planners.<sup>12</sup> In the area of the "art institute," planners are concerned with foresight, innovation, and imagination. Wargaming is an activity that combines these aspects of planning and problem-solving. The game designers took into account each of these cognitive planning domains to create a game that focused on the outputs and focused on how the gameplay could increase the understanding of the logistics warfighting function.

Wargaming is an experiential method to analyze challenges and problems. It also can serve as an effective method for training and education. Through wargaming, military members can increase their skill within the cognitive domain, gaining a more complex understanding of a problem set, ultimately making them more comfortable and confident in their decision making. The game designers selected this historical event to highlight logistics' importance in military operations. Utilizing a wargame that focuses on logistics will enable the game players to challenge their current understanding and prepare for future planning and execution of logistics to support subsequent operations. No longer able to depend on long sea or ground lines of communication (LOCs) or stockpiles of equipment previously seen in Iraq and Afghanistan, the Marine Corps' future force must be optimized for the perceived fight in 2030. This force must be light enough to be agile and mobile and robust enough to accomplish a wide array of missions assigned to the Marine Littoral Regiment (MLR). Additionally, with the future operating concept of Expeditionary Advanced Base Operations (EABO), the importance of logistics will be heightened as the MLR must be highly mobile, moving from island to island providing an additional fires capability to Naval Forces.

General Berger emphasizes the importance of wargaming in the Commandant's Planning Guidance (CPG) and the Force Design 2030. Within the CPG, he states that wargaming is "essential to charting our course in an era of strategic fluidity and rapid change."<sup>13</sup> In Phase 1 and II of the Force Design 2030 document, General Berger directs The Marine Corps Warfighting Laboratory (MCWL) to lead efforts of "concept refinement, wargaming, analysis and simulation, and experimentation."<sup>14</sup> He encourages the force to emphasize an adversary or "pacing threat" currently modernizing and expanding its reach.<sup>15</sup> The Marine Corps will dedicate substantial financial resources ensuring the force has a facility to run realistic simulations that support the development and testing of new tactics and strategies. The emphasis on wargaming will allow decision-makers to test and produced refined outcomes that support addressing complex and fluid problems associated with the future fight. While wargames serve an analytical purpose, they can also augment the service's continued learning and educational demands.

MCDP-7, *Learning*, stresses the importance of continuous learning, stating, Marines must recognize that "learning has a direct impact on warfighting." Marines who understand the fundamental learning principles and continuously seek opportunities to develop knowledge, skills, and the proper attitudes throughout their careers will develop wisdom that enables success in battle."<sup>16</sup> Creating learning opportunities through the development and playing of wargames enables leaders to ensure their Marines gain the necessary experience to overcome complex challenges.

#### **4. Games-Based Learning:**

By participating in the Defense of the Philippines 1941-1942 wargame, players will utilize observation and modeling to refine their capabilities. Specifically, the wargame is

designed to enable students to achieve learning objectives focused on the logistics warfighting function. To facilitate the kind of experiential learning that wargames can provide, the game developers incorporated a constructivist approach through problem-based learning where learners "actively construct or create their own subjective representation of objective reality."<sup>17</sup> The further refinement of the game's problem set creates an authentic representation of the logistics warfighting function. Learning within games can occur in multiple ways. However, in this game, we take a problem-based learning approach, putting players into situations that they must resolve by managing logistics problems. This emphasis on problem-based learning reinforces the transfer of professional knowledge enabled by playing the wargame.

Wargames can serve as ideal vehicles for adult learning. In his article, "Commercial Wargames and Experiential Learning," Roger Mason discusses how wargames can introduce learning and spur discussion amongst military members. He argues that wargaming is an effective tool for andragogy, or "the art and science of adult learning." To make the case for learning through wargames, Mason cites Brown, Collins, and Duguid's situation cognition theory which emphasizes that knowledge "comes through doing."<sup>18</sup> Situation cognition theory states that learning is a social and not isolated event. Learning through an introductory wargame like Philippines 1941-1942 enables players to discuss, share knowledge, and problem solve throughout the game. This social interaction enables players to share their thoughts and ideas about gameplay. The wargame also allows the players to learn from one another's experience. Are the players well versed in operational logistics? Do the players have deployment experiences in which logistics were robust or scarce? Wargaming provides a platform in which the military can capitalize on the experience, knowledge, and skills that several leaders already possess to

support novice learning and apply this foundational knowledge to aid in learning new content and skills.

Wargaming also engages the VARK model of learning styles, including visual, kinesthetic, auditory and read/write.<sup>19</sup> Dunn, Beaudry, and Klavas define learning style as "a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others."<sup>20</sup> Wargaming can be effective for a diverse military population, because it can accommodate the different learning styles of those who require training. A wargame that encompasses each of the four learning styles enables the playtesters to hone in on their strengths to devise and execute a plan that will lead to victory conditions. Philippines 1941-1942 game design fulfills a least one preference from each of the learning styles. Playing a wargame can involve different *stages* of learning. D.A. Kolb's research on the learning cycle identified four stages: "concrete experience, reflective observation, abstract conceptualization, and active experimentation."<sup>21</sup> The Philippines 1941-1942 was designed as an educational wargame, to enable playtesters to play the game, reflect on gameplay, add those lessons learned through the gameplay to their storehouse of knowledge, and finally employ what they have learned in future situations.<sup>22</sup>

The playtesters gather, process, interpret and organize the information in the wargame through each phase of gameplay. The multiple layers of the game experience create opportunities for the player to complete this cycle numerous times throughout the average gameplay length of an hour. Also, the Philippine 1941-1942 design allows the players to fail, correct mistakes, revise their strategy, and continue playing. As learning is occurring, playtesters can overcome mistakes during single gameplay and still meet victory conditions. Further refinement of this learning cycle can occur if the playtesters elect to play the wargame more than once. The playtesters can

utilize experience gained through reiterations of the gameplay to develop a foundation for active problem-solving. This kind of learning is important for military professional development. The ability to actively problem solve in a combat scenario may positively impact a life-or-death scenario.

The Appendix within noted wargame designer, Peter Perla's "Art of Wargaming" lists several questions that the game developers consider during the prototype phase of game development and testing.<sup>23</sup> Developers of the Philippines 1941-1942 game utilized a sampling of these questions to ensure the game's style and structure encouraged players to make decisions that allowed them to learn about logistics' function. The designers needed both a playable game and a game that focused on facilitating the learning objectives. The game developers focused on gameplay, followed by wargame mechanics, subject of the game, principal areas of reality represented in the game, and each player's roles to ensure the design supported increasing the player's knowledge of the historical event without being overly complicated.<sup>24</sup> Initial post-game interview questions focused on the players' evaluation of the mechanics and the game process during playtesting. The post-game interviews provided opportunities for refinements of the board game, ultimately increasing its ability to reach the student learning objectives. Further refinement of the game design and assessment tool to include the interview questions allowed the game developers to evaluate student learning and further discuss the logistics warfighting function. The later post-game interviews also expanded the discussion on how logistics can impact the playtesters in their desired future jobs.

## **5. Assessment Methodology and Tools:**

In order to evaluate the educational impact of the wargame, the game developers utilized several tools that assessed the growth in each playtester's understanding of the logistics

warfighting function. The target population for the war game is company-grade Marine Corps Officers. However, due to COVID-19 restrictions and the limited population outside of Command and Staff College, the game was played by students at the United States Naval Academy (USNA) and field grade officers associated with Command and Staff College. A company-grade officer was the targeted player to enhance their basic knowledge of the logistics warfighting function. As a field-grade officer, most, if not all, have been involved in deployments and large-scale exercises that have increased their knowledge of the logistics warfighting function. The students at the USNA, however, lacked the experience that the game developers hoped to see in the playtesters. Despite not recruiting the ideal target population of playtesters, the game developers were still able to test their wargame thesis and produce limited measurable outcomes for both learning and game refinement.

The evaluating strategy drew upon established practices in assessment and measurement. Mislevy, Behrens, Dicerbo, Frezzo, and West argue that there are three items that game designers need to understand about game assessment. These include the following:

1. The principles of assessment design are compatible with the principles of game design.
2. Assessment is not really about numbers; it is about the structure of the reasoning.
3. The key constraints of assessment design and game design need to be addressed from the very beginning of the design process.<sup>25</sup>

By creating multiple victory conditions within the wargame, the game developers aimed to achieve learning in the targeted domain, reflecting how real conditions might enable different "win" conditions and to avoid bias towards a single strategy for victory. Mislevy, et al stress the importance of game edits focused on content and interaction. Active playtesting and player assessments will permit the game developers to create suitable content and player interactions.

This linkage between game design and assessment is vital for the production of a game that encourages engagement with the scenario and that can enable learning.

Throughout the gameplay, we expect that the students will achieve the following learning objectives:

1. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to develop a defensive plan of action to achieve victory conditions.
2. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to devise an offensive plan of action to achieve victory conditions.
3. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will recognize combat service support's vulnerabilities in a resource-constrained conflict to prioritize actions during each play turn.
4. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting operations in a logistically constrained environment.
5. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting offensive operations in a logistically constrained environment.
6. Utilizing the war game, *The Defense of the Philippines 1941-1942*, a military officer will interpret the challenges and vulnerabilities of aviation, sea, and ground lines of communication to provide adequate logistical service support to multi-domain operations in austere environments.
7. Warfighting Function – Logistics: What unique challenges are associated with the logistics warfighting function?

As part of the design process to build a game that incorporates all of these learning objectives, the game developers created multiple prototypes of the Defense of the Philippines 1941-1942, changing game mechanics to ensure the game's outcomes resulted in the playtesters achieving the student learning objectives. After the game developers completed several rounds of internal playtesting, the game developers changed the initial game design. Game developers created and refined assessment tools. The game developers further refined the board game and the associated assessment tools from subsequent playtests at the USNA.

## 6. Analysis:

The game developers utilized three different methods to evaluate student's learning. The first method evaluated learning through the administration of pre and post-tests. The second method for assessing student learning was post-game surveys. The tertiary method utilized was an observations checklist completed by the game developers. As a result of a limited testing population, the game designers understand that the data elements collected yielded a minimal sample size that may have produced skewed results.

The most helpful assessment tool for The Defense of the Philippines 1941-1942 wargame was the Post-Test Survey. The Post-Test Survey focused on three areas of the wargame: the learning objectives, the actual gameplay, and the post-game discussion. The playtesters ranked thirteen questions from "1," equating to "strongly disagree" to "5," strongly agree. Chart 1.1 represents the outcomes of the Post-Test survey.

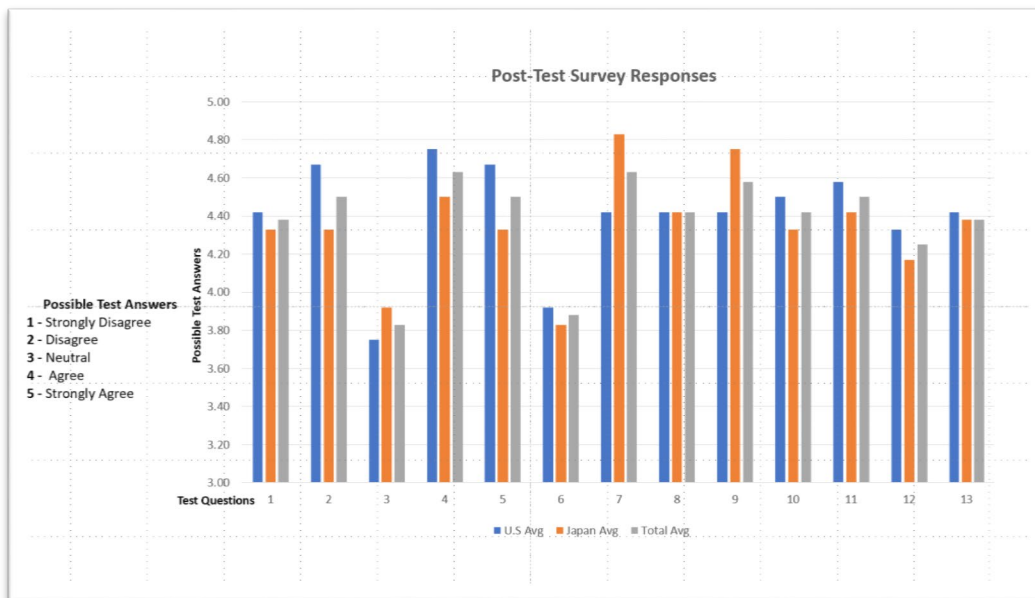


Chart 1.1

Results of the self-report Post-Test Survey revealed that gameplay supported the testers in achieving the learning objectives. The survey also revealed that the playtesters could develop strategies that supported success in a logistically constrained environment. There were two questions in which the allied, axis and combined responses average under "4. The questions that elicited lower responses were concerning preparatory materials, including the rule book. The rule book was emailed to the playtesters the day before playtesting. However, the game developers realized that most playtesters did not read the rule book leaving the game facilitators to set up the game board and complete a gameplay overview, including a deep dive into the rules.

Although a learning objective was not tied to the game teach a historical event, the Pre-Test revealed that most of the playtesters were not familiar with the historical event with an average play tester score of 1.71 utilizing a scale of scores ranging from 1 to 5 with "1" representing "Not at all Knowledgeable" to "5" representing "Very Knowledgeable." The Post-Test showed an increase of average play tester understanding of just over one point, totaling an average of 2.92. Chart 1.2 displays the increase in overall scores from each of the playtesters. The results do not display a drastic growth of knowledge of the historical event but do demonstrate an increased understanding of the basic scenario. After completing three playtests, the game developers realized that reviewing the historical background located on page one of the rulebook and giving a brief verbal overview at the start of the game increased the player's interest in the game. The scenario-based on the defense of an island created a familiarity with the challenges associated with the historical event. The additional discussion concerning the historical scenario made the information relatable to new employment concepts with the MLR and any new formations focused on an island area of operations and concerned with SLOCs.

The playtesters can utilize this increased understanding of the historical event to prepare for similar operations concerning EABO or Littoral Operations in a Contested Environment (LOCE). The EABO Handbook discusses both EABO and LOCE as future naval operational concepts..." that are expanding through "innovation, wargaming, and force experimentation."<sup>26</sup> By playing The Defense of the Philippines 1941-1942, playtesters also recognized the salience of logistics in relation to the other warfighting functions. The centrality of logistics is apparent in the shortcomings of General MacArthur. The players were given the opportunity to not repeat those mistakes of the past in the context of the historical wargame.

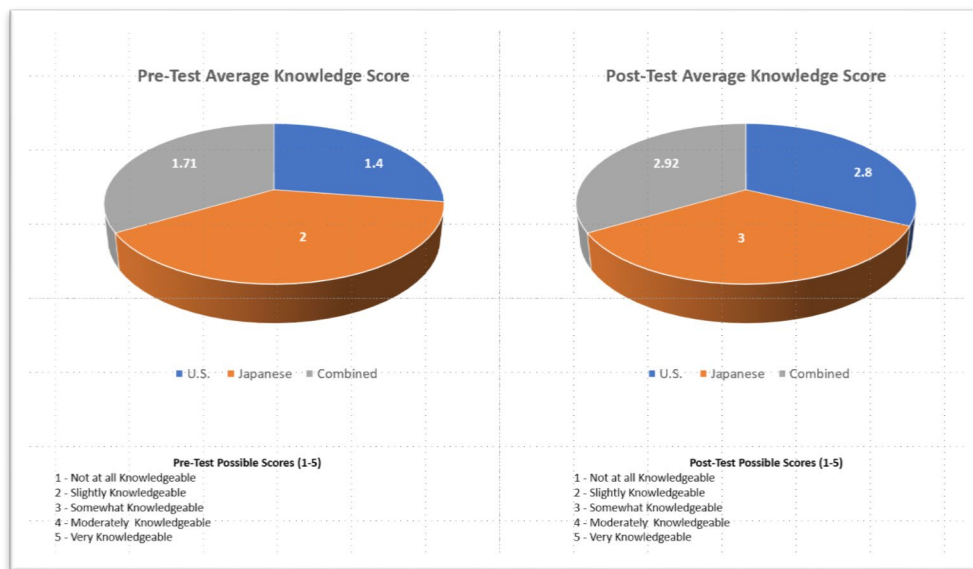


Chart 1.2

The Pre-Test and Post-Test Several remarks written in both the Pre-Test and Post-Test revealed the self-reported and objectively demonstrated growth of student knowledge of the logistics warfighting function. One player noted that, "logistics failure can preclude victory for otherwise sound maneuver planning." Another player observed, "the constraints in the game, plus the forces allocated, along with the terrain, help you grasp the difficulties and uncertainty associated with operational logistics." A third player notes the importance of supply lines by

saying they learned that "the supply network has to be protected to facilitate the rapid resupply of those forces." Their opponent also realized "how difficult it was to move supplies over long distances." These statements demonstrate that the playtesters identified the logistics restraints associated with both defense and offensive operations. They were also able to interpret the challenges associated with the gameplay and adjust their scheme of maneuver to complete actions on the island of Luzon with limited fuel and ammunition.

Having physical pieces represented on the game board ensured they could visualize their logistics and maneuver capabilities. The physical gameboard and associated players tools allowed the players to complete gameplay with a physical representation of the fuel and ammunition assets. These silver and gold squares kept the play testers from exaggerating their capabilities or hand waving their requirements for logistics needed in order to facilitate maneuver and battle. The game pieces also allowed both playtesters to develop and change their game plans with knowledge of their opponent's assets.

Some of the following notes were provided as general feedback:

- "Great, simple game that doesn't take too long to pick up but effectively highlights the logistics warfighting function and its place as both a capability and something that can be targeted."
- "The vulnerabilities of supply lines were very evident in the game and definitely led to making certain risk decisions."
- "Once I got the hang of it, the game was also really fun and thought-provoking."
- "The game was interesting, challenging, and there were enough elements of chance to not get complacent."

The general feedback annotated on the post-test highlighted the portions of the game that the playtesters felt were the most effective and least practical. The playtesters also documented how different phases of the gameplay enabled them to accomplish the learning objectives. Not only

did the game developers receive positive written comments, but one hundred percent of the playtesters stated that they would be interested in playing the wargame a second time.

The third assessment tool used during playtesting was the "Student Observation Checklist." This checklist covered the following portions: Preparatory, Phase 1, Player Turns, Players Response to Opponents Turns, Player Response to Game Injects, and Subsequent Gameplay. This assessment tool was the least useful due to the evaluators' amount of time and attention required. Most of the playtests occurred with one evaluator, so it was difficult to facilitate the gameplay, clarify any gameplay questions of the playtesters, and accurately annotate the checklist. The game developers could see specific events quickly by a simple check in the corresponding box, but it was increasingly challenging to annotate each time that event happened during gameplay. Unable to accurately check the frequency of the actions that occurred resulted in the checklist providing a less robust data set for evaluation. The game developers utilized this tool to reshape the game mechanics to facilitate the student learning objectives better. During the first three playtests, the game developers observed that the Japanese player did not identify the limitation of fuel and ammunition during each round of gameplay. The game developers also observed that the Japanese player did not acknowledge the need to adjust gameplay based on the lack or perceived lack of logistics. As a result of this observation, the game designers removed two "Supply" event cards from the game box. The student observation checklist also showed the game developers the complexity of the initial design of both the landing and defensive position cards used to establish the game board in the first phase of gameplay. As a result of seeing this during the first two playtests, the game developers changed the layout of the cards, the titles of the columns and included additional details concerning this phase in the rule book.

## **7. Discussion Concerning the Assessment Tools and Application to Today's Force:**

Each of the assessment tools, along with the play testers' verbal comments during gameplay, revealed not only a playable game but that through gameplay, each of the playtesters made substantial improvements to their understanding of how to employ actions in a logistically constrained environment. The simplicity of the rules and mechanics gave way to an overall simplistic game design. The simplicity of the wargame did not take away from the immersion of the military member in the scenario, but rather focused attention on the issues central to the learning objectives. The game's simplicity also enables the game to be accessible to new officers and military members with time constraints. Each of the two-player games lasted an average of fifty-seven minutes. Even though the game captured some abstract concepts like terrain and detailed force structure, the game provided enough detail to replicate a real-world historical event accurately. The Defense of the Philippines 1941-1942 allowed the playtesters to enter a complex situation where they could make decisions and explore both offensive and defense operations procedurally. The operational scenario ranged from beach landing and establishing beach support areas to establishing defensive positions in vicinity ground and sea lines of communication.

As the Marine Corps is shaping the future battlefield and adopting new concepts like EABO and LOCE, training the force will be vital for force survival while conducting a wide range of complex operations across multiple domains. As leaders rewrite doctrine, it is important for Marines to wargame these fundamental principles to ensure their applicability. MCDP-7 *Learning* states, "[d]eveloping warfighting skills and competencies requires time, deliberate practice, and repetition in operationally relevant contexts."<sup>27</sup> Wargame enables leaders to facilitate multiple "practice" rounds in a low-cost but realistic environment even as fiscal resources are dwindling.

Also, many wargames are designed in a matter that a component can be changed easily to adjust to testing a separate challenge without significant time, money, or manpower. As the Marine Corps makes significant adjustments to the force, the need for continuous learning and professional growth is becoming increasingly important. A quickly developed wargame that can test one or more of the facets of these new concepts will enable rapid testing, learning, and adaptation without the cost of manpower, finances, and time.

## **8. Conclusion:**

The Marine Corps must continue to evolve to serve the nation best. As the force trains to execute a variety of possible mission sets, leadership must explore creative solutions to be ready "to fight tonight" and be prepared to dominate in the era of great power competition, resolving complex problems across multiple domains.<sup>28</sup> General Berger has emphasized the importance of wargaming in both his planning guidance and his plan for the Force 2030.

Military members can utilize wargames to provide effective training and educational content for a wide range of scenarios. The Commandant has dedicated personnel and facilities to address both strategic and operational problem sets. Wargaming can also be implemented at lower unit levels to address tactical scenarios. By developing The Defense of the Philippines 1941-1942, three field grade officers demonstrated that wargaming produced positive outcomes to two unique concepts. However limited, the dataset revealed that the playtesting resulted in increased historical knowledge of the Philippines Campaign and increased knowledge of the logistics warfighting function.

## Appendix A

# HRPP Applicability Review Worksheet

---

**1. Title of Project / Study:** Command & Staff College, Gray Scholars Program - Educational Wargaming DEFENSE OF THE PHILIPPINES 1941-942

**2. Planned Inclusive Dates of Study:** Mar 01, 2021- May 15, 2021

**3. Background:** The purpose of the Gray Scholars - Education Wargaming course is to design a wargame based upon a specific historical incident. Our group (consisting of International Military Officer Major John Paul Jacla, Major Melanie Clifton, and Major Alan Thompson) will design a wargame based upon the Battle of the Philippines 1941-1942. During the initial stages of World War II, the Battle of the Philippines began with the Japanese invasion of the Philippines in December of 1941. It ended with the surrender of Allied Forces to the Japanese in May of 1942. In addition to researching the historical case study, our group will also examine wargame design and adult education theory to best craft a wargame approach to serve as an educational tool for Marine officers.

**4. Objective:**

- a. Our group intends to design a wargame based upon the Battle of the Philippines scenario to serve as an educational tool for Marine, Joint service, and International military officers.
- b. The risks of this project are low. The predominant method of acquiring data from human "subjects" will be consensual interviews. Similarly, playtest or blind test data will be anonymous. Furthermore, the value of this project is potentially high as an educational tool for Marine and Joint service officer Professional Military Education (PME).

**5. Study Subjects:**

- a. **Playtest / Blind Play Subjects:** During the Educational Wargaming class, other groups and students will playtest our wargame in order to identify strengths, weaknesses, and needed areas for improvement. Similarly, we hope to gain volunteers from Command & Staff College or other Marine Corps University programs to play the wargame without members of our design group present. Our group will coordinate with the professors of the Educational Wargaming program to solicit participants for the Blind Play evolution. Our group may also solicit students from the Naval Academy if Marine Corps University cannot generate a sufficient amount of playtesters.

**6. Methodology / Administration:**

- a. **Data Acquisition:** There will be three primary methods of data acquisition.
  - i. **Playtest Subjects:** One or more members of our design group will be present during playtests and will record various strengths, weaknesses, and necessary improvements. No subject information (e.g., name, rank, etc.) will be retained during this evolution.
  - ii. **Blind Play:** Blind play subjects will play the game outside of the presence of members of our design group. Data will be acquired subsequent to play and will use theories/models of student learning to guide questions about the effectiveness of our wargame as an educational tool. Our group has more research to do, but we intend to develop a short questionnaire based upon student learning theory/models. Students will also complete both a pre-and post-test. All documentation will be anonymous.

- b. The Group Members identified above (Major John Paul Jacla, Major Melanie Clifton, and Major Alan Thompson) will analyze the data collected.

**7. Security:**

- a. All subjects (Playtest/Blind Play) will remain anonymous.
- b. **Data File Storage:**
  - i. Data files will be stored on each design group members' MCU associated with Google Drive. Each such drive is accessible via Common Access Card (CAC) certificate. Additionally, access to the respective file locations may be shared with other design group members and Gray Scholars Program professors as needed.
  - ii. Subsequent to submitting the wargame and researching these to Gray Scholars program professors, Command & Staff student theses may be retained on the Marine Corps University (MCU) website. This location is on a publicly accessible web domain.

**8. Dissemination:**

- a. Data from interview subjects may be cited on an individual level as necessary to support Gray Scholars Program theses/research papers to accompany our group's wargame. All other data from Playtest and Blind Play sessions will be reported in the aggregate.
- b. The data will be used to support the wargame design/refinement and accompanying research papers (M.M.S. theses). Our design group may seek publication of the wargame and accompanying research theses with approval from and assistance of the Gray Scholars program professors.
- c. Only interview subjects will be identifiable by citation in the accompanying research theses. Playtest and Blind Play subjects will remain anonymous, and our design group does not intend to collect or retain personal information on these subjects.

**9. Survey Questions:** Specific questionnaires will be provided upon development and request.

**10. Principal Investigator Contact Information:** There are three researchers for this project.

- a. Major Melanie Clifton: [melanie.clifton@usmcu.edu](mailto:melanie.clifton@usmcu.edu)
- b. Major John Paul Jacla: [johnpaul.jacla.ph@usmcu.edu](mailto:johnpaul.jacla.ph@usmcu.edu)
- c. Major Alan Thompson: [alan.thompson@usmcu.edu](mailto:alan.thompson@usmcu.edu)

**11. Principal Investigator Research Acknowledgement.** By signing this document, you acknowledge that you will not conduct research with human subjects until the Institutional Review Board (IRB) and the Institutional Official have approved your full research protocol. You further understand that your immediate resource for clarification of any issues related to the protection of research volunteers is the Marine Corps IRB. Further information may be found in MCO 3900.18. Please contact the appropriate Marine Corps HRP POC to answer questions or assist in the completion of this form.

Please double-click on the signature line below to apply your electronic signature.

X \_\_\_\_\_

Principal Investigator

## Privacy Act Statement

**Authority:** 5 U.S.C. 301, Department Regulations.

**Purpose:** Information is collected in support of academic research. Your name may be used in connection with citation and/or references in academic research papers, which may be publicly accessible on Marine Corps web domains.

**Use to be made of your Name:** Your name may be used in connection with citation and/or references in academic research papers, which may be publicly accessible on Marine Corps web domains. Should you desire, any written publications will be provided to you for review and consent prior to publication in professional journals or the Marine Corps University publicly accessible web domain.

**Disclosure / Participation:** Your participation in this interview, and use of your name in connection with resulting research theses is entirely voluntary, and will be only with your consent.

---

**Interviewee (Date)**

---

**Interviewer (Date)**

**Kuehn, Kathleen**

to me ▾

Major Clifton,

The IRB has reviewed your applicability submission and determined that your proposed research for the Gray Scholar's Program **does not meet** the definition of human subjects research. No further action or submissions to the IRB are required.

Although this is not human subjects research, as you plan your data collection please keep in mind the same ethical principles that underly the HSR process apply to all research, particularly obtaining informed consent and taking any privacy or confidentiality protections. Ensuring individuals know why information is being collected and how it will be used is essential. Best of luck to you with your research.

Kind regards,

Kate

...

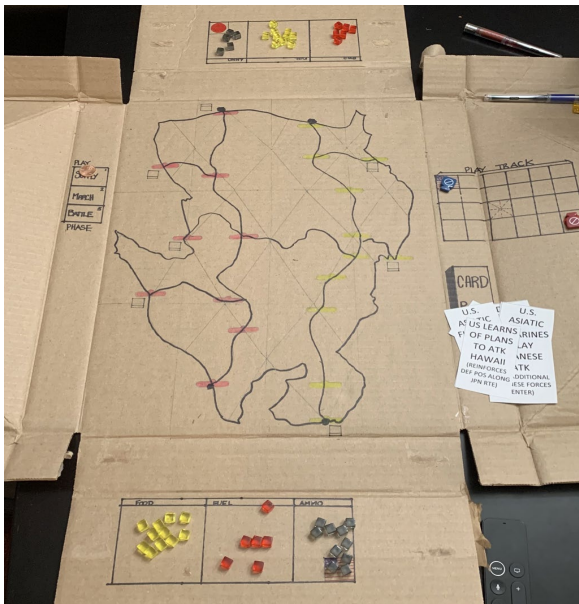
Wed, Apr 7, 3:08 PM (13 days ago)



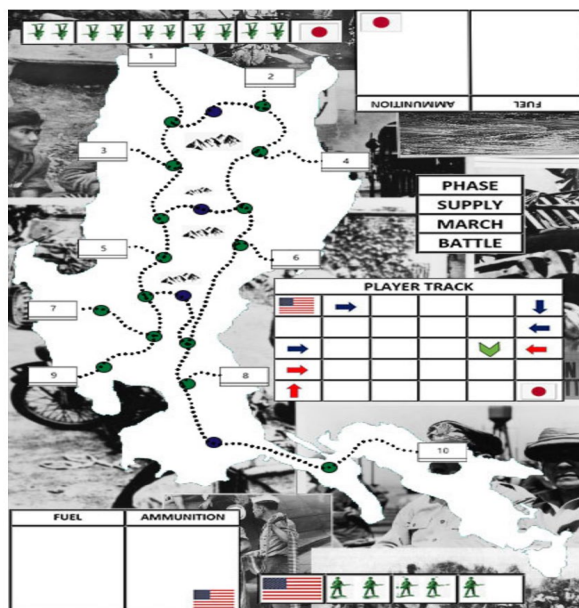
## Appendix B

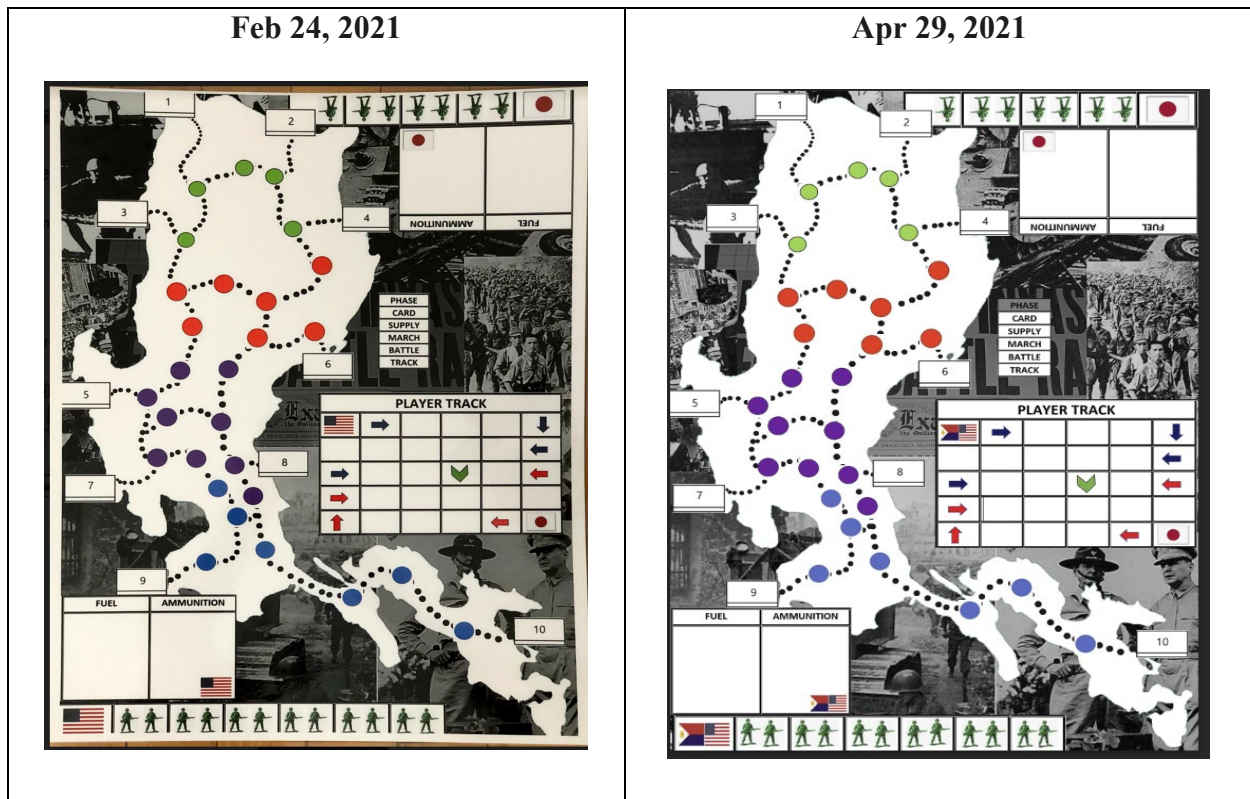
### Game Board Prototypes

Dec 22, 2020



Jan 23, 2021





## Appendix C

### Wargame Rule Book

#### Introduction

Japan has just bombed Pearl Harbor. General MacArthur learns of the attack only hours after. His forces are not prepared. His intelligence predicting Japanese offensive operations in the Pacific is off by months. General MacArthur's only advantage is his defense. As a result of the U.S. Oil Embargo, Japan must race to the Dutch Indies to gain oil and other resources vital for its industrial base. Now that the U.S. Navy fleet is crippled at Pearl Harbor, the Imperial Japanese Navy's only threat in its quest for resources is the Philippines.

The game is based on historical events of the Battle of Luzon from December 1941 to April 1942. Two players in the roles of Japan and U.S. Commanders participate. Can the Japanese Army make it to the Bataan Peninsula before they run out of supplies? Can the U.S. and Philippine defense forces hold off the advancing Imperial Japanese Army? Time is of the essence; Japan must secure the Philippines if it wants to protect its eastern flank, ensuring access to the resource-rich Dutch Indies. Can you rewrite history?

Each player controls the movement of forces and supplies on the map in turns. During each turn, players move supplies and forces. Each position needs fuel to march and ammunition to fight the adversary.

The main focus is not about battle, but as a logistician effectively employing the resources. Use too much, and you cannot advance; too little, and you run the risk of leaving soldiers stranded, unable to

fight, immobile, and starving. Each Army may find supplies along the way in either abandoned fuel depots left in the wake of the retreating defenders or supply from the Philippine population.

Each side must remain in contact with a supply station or risk being unable to take on resupply. In doing so, forces, especially defending forces, are vulnerable to attack. The game is played using a point-to-point map of the Island of Luzon. The spaces illustrated on the game board have different meanings and values based on gameplay. Each side has starting areas where they stage troops, event cards, and supplies by type. This staging area is where players move supplies and troops during their turn.

The game comes with the following:

1 board game of the Island of Luzon

1 rule book

A turn tracker is used to pace the game. 1 green circle (U.S. player) 1 red circle (Japanese player)

Event cards: 20 Japan event cards and 20 U.S. event cards

4 ships: 2 black (U.S. player) 2 red (Japanese player)

Landing / Defensive Position Cards

Troop markers are depicted as small plastic figures. 12 U.S. troop markers and 7 Japanese troop markers

12 dice, 6 red (Japanese player), and 6 blue (U.S. player)

8 trucks to indicate which player controls points along ground lines of communication. 4 white (Japanese player) and 4 green (U.S. player)

Phase maker (1 troop marker in low crawl position)

**The Turn Tracker:** keeps up with the number of turns during gameplay. Both sides have victory conditions marked on the turn tracker. If the Japan player has not occupied 3 of 4 zones **OR** has not defeated the U.S. Player by the time the turn marker is on the green victory square, the Japanese player loses the game. After the **THIRD** turn, or upon completing the landing/defense position card, each player utilizes the turn tracker.

**Landing/Defensive Cards:** Players choose to move their troops from the staging area to a landing area on the map. Both players will select landing/defensive points based on their preference. Each landing/defensive point is different according to the capacity the landing point can handle. Each landing point has a unique number of supplies and personnel a player can place there.

**Mines:** The U.S. player has three minelayers while the Japanese player has two mine detectors. The U.S. player may select three of the ten defensive locations to mine; conversely, the Japanese player may use its mine detectors on any two of their ten proposed landing sites. These locations are not revealed to the other player until the landing sequence of gameplay.

**Ammunition:** The battle phase of gameplay requires the use of ammunition squares. A force must have at least one ammunition square to battle another player.

**Fuel:** During the march phase of a turn, each troop maker must expend one fuel square per colored node.

Each side starts with their respective forces and supplies.

Japan:

19 Event Cards

7 troop markers

15 fuel squares, 15 ammunition squares

2 mine detectors

1 landing card

2 ships

U.S.

20 Event Cards

12 Troop Markers

15 fuel squares, 15 ammunition

3 mines

1 defensive position card

2 ships

Each turn contains five phases of play: (1) Card phase; (2) Supply phase; (3) March phase, (4) Battle phase; (5) Inter-check/Player track phase. Each phase is labeled to control the turn sequence by a player.

Each turn begins with the U.S. player. The U.S. players are the defending force. Their defensive posture, cultural understanding, and Philippine resources allow them to know both the terrain and environment over the invading adversary.

#### **Victory Conditions:**

Japanese Player: Victory Track: The Japanese player must control at least one node in three of four zones, designated by colored nodes when their marker has reached the victory chevron on the victory track.

U.S. Player: Victory Track: If the U.S. player has reached the victory chevron on the victory track. No other conditions are needed. The U.S. player has prevented the Japanese player from completing a rapid seizure of Luzon.

#### **Gameboard Setup:**

Each player begins the game with the allotted game pieces placed within their respective table on the board. The fuel and ammunition supplies -represented by tiles (gold and silver squares)- are placed in the fuel and ammunition box located on the player's respective side of the gameboard. The Army pieces-represented by small soldier figures- placed one per square on the troop grid at the bottom of each player's gameboard. Each player will shuffle their event cards, placing their deck to the left of the game board and their respective turn marker placed on the player track. See the image below:



**Game Play:**

The U.S. player always goes first, placing supplies and troops up to, but no more than, the allowed size of the landing location and two supplies (1 fuel & 1 ammunition) of their choosing for each troop.

**Example:** The first defensive position the U.S. player has on their landing card is location 7. The U.S. player may land up to three troop pieces and no more than six supplies.

**Phase 1:** Landing/Defensive Position Cards are filled out before the game starts. These are used for players to decide on specific landing/defensive sites to stage forces. A player chooses a landing/defensive site depicting how the defender (U.S.) will counter the offensive (Japan) action and so forth. If a player's landing/defensive position has already been occupied on a previous turn, the player has (2) options:

1. bump to the next landing/defensive position on their card and occupy that space.
2. Battle for the location: The occupying force in that location has a 3:1 ratio in dice rolls. The occupying force has 3 dice rolls for each troop marker in location. The raiding force has only 1 die roll for each troop marker. A player may not place forces on an occupied landing force.

To resemble the deployment of offensive and defensive forces, each player must decide how to deploy their forces on the game map. There are ten landing/defense locations on the map. Each player fills out their respective landing card for every location on the map. The landing/defense locations are weighted based on how many troops a player may choose to place at that location.

The U.S. player may choose three landing locations to mine while selecting their landing locations. The U.S. player prevents the Japanese player from landing their respective troop pieces on that landing location by mining a landing location. Conversely, the Japanese player may designate two landing locations they intend to land on with their minesweeping capability. The player's locations choosing to employ their respective mining/mine detecting capabilities are not revealed unless the Japanese player lands on a mined location.

Once the U.S. player has completed their first **(3)** troop and supply placement at their defensive position(s), their turn is over. The Japanese player then places their troops at the landing locations on the map corresponding to their first **(3)** selection on their landing card that is not already occupied.

Placing troop markers on the gameboard continues until all of both players' troop pieces are deployed on the game map. Subsequent turns will only allow for one position to be occupied.

**Example:** The Japanese player's next choice on their landing card is location 7. Since the U.S. player has already occupied this location, the Japanese player chooses the next location on their landing card. In this case, location 6 now becomes their first turn landing location. Once the Japanese player has landed their two troop pieces and respective supplies at location six, their turn is over, and the U.S. player can place their troop pieces on their landing location chosen for turn two.

**Mine and Mine Detectors:** During Landing Turns: As stated earlier, if the Japanese player's landing location for their turn is designated as a minelayer by the U.S. player, the Japanese player loses the troops intended for this location and loses a turn. Suppose the Japanese player designates their landing location with a mine detector that the U.S. player mines. In that case, the mines do not affect, and the Japanese player may place troops and supplies according to their landing card for this location.

**Example:** For turn two, the Japanese player has location 1, which the U.S. player mines. Since the Japanese player does not have a mine detector at location 1, the Japanese player loses their turn and the troop pieces and supplies they chose to land at this location. Thus, for turn three, the U.S. player also mined location five; however, the Japanese player used their mine detector at this location.

ALLIED FORCE DEFENSIVE POSITION CARD			
Location	Size	Turn	Mine Layer (3)
7	3	1	
10	2	1	
8	1	1	
5	3	2	X
10	1	3	
9	2	4	X
6	2	5	
5	2	6	
2	3	7	
1	2	8	X

AXIS LANDING CARD			
Location	Size	Turn	Mine Detector (2)
7	2	1	
6	2	1	
9	2	1	
1	2	2	
5	2	3	X
9	1	4	
4	1	5	X
8	1	6	
6	3	7	
2	3	8	

## **Phases 2: Player Turns: Card / Supply / March / Battle / Turn Tracker**

**Gameplay will be initiated with a (5) card draw.** Phase 2 of gameplay will occur at the start of the turn (3) or upon the completion of the landing of all forces (Japanese) or the establishment of all defensive positions (U.S. ). Players will also begin to mark movement on the player track after the turn (3).

**Cards:** Both players have event cards consisting of four different actions: decision point, movement, battle, and supply. Before the game begins, each player shuffles their card deck. Both players draw **five cards** during the **third** turn of gameplay. Each player maintains no more than five cards, drawing and playing a card each turn of game play.

**Decision Point Cards:** Decision point cards require a player to decide on how to play an event based on the card's scenario. These cards are based on a dice roll value and can have unfavorable or favorable outcomes for both players.

**Movement Cards:** Movement cards allow a player to move troops or supplies without expending a player's fuel supply. Movement cards are not the same as the movement turn phase giving the player an added movement option. They are independent portions of the game.

**Battle Cards:** Provide marked advantages or disadvantages.

**Supply Cards:** Supply cards reward a player with supplies from the game. Supply cards allow a player to add additional supplies to the troop positions of their choice. Supply cards add supplies in conjunction with the player's supply phase and do not replace the supply phase during turns.

**Supply:** Players will utilize the supply phase to take (3) supplies of their choice from their supply storage square to troops located in a supply node (rectangles labeled 1-10). If troops are not in a supply node, resupply from players' storage squares in the bottom of each side of the gameboard cannot be completed. Supplies can travel throughout the game board. Each troop marker can carry (6) supply squares. Each node (outside of the numbered supply nodes) can hold 10 supply squares. Supply squares can travel from troop markers within the game board as long as the troop markers are within one colored node. If there is a gap of more than one colored node, a truck must be utilized to extend the lines of communication.

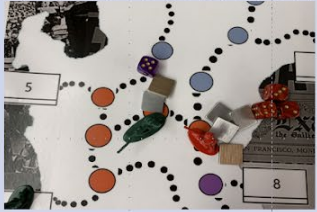

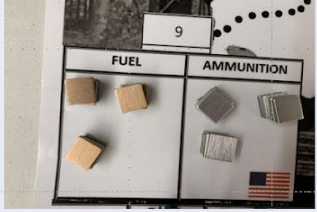

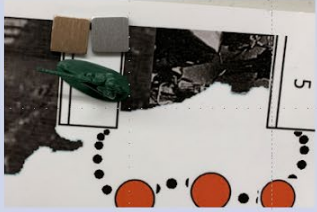
**Trucks:** Trucks will enable extended ground lines of communication. Players can only move supplies with forces that are located in adjacent nodes; however, having a truck placed in between troops will allow one node to be gapped on one or both sides of troop makers.

**Ships:** Ships can be utilized to move troops and supplies along the coast. Ships can be utilized during the landing or supply phase; however, they may only be used once. Ships are limited to travel along the same coast line (along the even or odd supply nodes (numbered rectangles 1, 3, 5, 7, & 9 or 2, 4, 6, 8, & 10)).

**March:** Players can march to connected colored nodes by utilizing a fuel square for each troop/node moved.

**Battle:** Players will utilize ammunition squares to exchange for dice rolls. Each player must have one ammunition square to battle. If a player does not have ammunition, victory automatically goes to the attacking force. If there is a tie during the dice roll, victory is awarded to the defending player (player already occupying the disputed node). Dice rolls will be conducted with 6-sided dice. The winner will be the highest score of (1) dice roll. Chances of a higher die roll will increase with the exchange of ammunition squares for dice rolls. If the losing player does not utilize all ammunition squares in battle and/or has fuel co-located with the defeated troop marker, the winning player will place recovered supplies in their supply storage square.

**Turn-tracker:** Colored circles mark a player's position on the turn-tracker. At the end of each player's turn, they will advance their circle following the turn tracker's directional arrows. A troop in a low-crawl position will be moved as the players move throughout each phase of their turn.

Event	Photo	Event	Photo
Battle: (1) die per ammunition square		Victory Conditions: Axis forces in 3 of 4 zones upon landing on victory square; Axis forces defeat all Allied Forces; Allied forces reach victory square on player track.	
Supply Storage Areas: each player begins the game with (15) fuel squares and (15) ammunition squares.		Game Play: Card / Supply / March / Battle / Turn Tracker marker	
Landing Location / Defensive Position / Supply Node: Initial play will start with (1) of each supply per force marker. Each player will resupply through a numbered Supply node.			

### Student Learning Objectives:

1. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to develop a defensive plan of action to achieve victory conditions.
2. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to devise an offensive plan of action to achieve victory conditions.
3. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will recognize combat service support's vulnerabilities in a resource-constrained conflict to prioritize actions during each play turn.
4. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting operations in a logistically constrained environment.
5. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting offensive operations in a logistically constrained environment.
6. Utilizing the war game, *The Defense of the Philippines 1941-1942*, a military officer will interpret the challenges and vulnerabilities of aviation, sea, and ground lines of communication to provide adequate logistical service support to multi-domain operations in austere environments.
7. Warfighting Function – Logistics: What unique challenges are associated with the logistics warfighting function?

### Appendix D

## Pre/Post-Test

### Learning Objectives

**1. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to develop a defensive plan of action to achieve victory conditions.**

a. How does the integration of logistics shape the planning for defensive actions to achieve operational objectives?

b. **Post-Test Only:** Did/How you change your defensive actions during gameplay due to limited fuel or ammunition?

c. **Post-Test Only:** How did your visibility of the adversary's logistics shape your actions?

Response:

---

---

**2. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will identify logistics restraints to devise an offensive plan of action to achieve victory conditions.**

a. How does the integration of logistics shape the planning for offensive actions to achieve operational objectives?

b. **Post-Test Only:** Did/How you change your offensive actions during gameplay due to limited fuel or ammunition?

c. **Post-Test Only:** How did your visibility of the adversary's logistics shape your actions?

Response:

---

---

**3. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will recognize combat service support's vulnerabilities in a resource-constrained conflict to prioritize actions during each play turn.**

a. How does/did the physical infrastructure and terrain shape the logistics support plan?

b. **Post-Test Only:** Was this apparent to you before game play?

c. **Post-Test Only:** How did the assumptions that were made prior to start change during game play?

Response:

---

---

---

**4. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting operations in a logistically constrained environment.**

a. Discuss the principles of logistics support (simplicity, flexibility, adaptability, economy)

b. **Post-Test Only:** How did the principles of logistics shape the support to Allied forces conducting defensive operations.

c. **Post-Test Only:** How did the principles of logistics shape the support to Axis forces conducting defensive operations.

Response:

---

---

**5. Utilizing the wargame, *The Defense of the Philippines 1941-1942*, a military officer will complete gameplay actions supporting offensive operations in a logistically constrained environment.**

a. Analyze logistics capability options to be applied by Axis commanders and their associated components to achieve operational objectives during both offensive and defensive operations.

b. Analyze logistics capability options to be applied by Allied commanders and their associated components to achieve operational objectives during both offensive and defensive operations.

c. **Post Test Only:** How did the logistics requirements allow you to posture correctly for the defense or offensive actions?

Response:

---

---

**6. Utilizing the war game, *The Defense of the Philippines 1941-1942*, a military officer will interpret the challenges and vulnerabilities of aviation, sea, and ground lines of communication to provide adequate logistical service support to multi-domain operations in austere environments.**

a. How do GLOCS and SLOCs shape the conduct of offensive operations?

b. How do GLOCS and SLOCs shape the conduct of defensive operations?

c. **Post Test Only: (Axis):** How did landing locations help or hinder your follow-on ability to support follow-on movement sea and ground lines of communication?

d. **Post Test Only: (Allied):** How did your defense locations help or hinder your follow-on ability to support follow-on movement sea and ground lines of communication?

Response:

---

---

**7. Warfighting Function – Logistics:**

Players will understand the unique challenges associated with logistics warfighting function?

a. How can logistics shape the next fight?

b. What relevant actors might there be in the logistics environment?

c. How can logistics have unintended or unforeseen consequences for strategic decision-making?

d. **Post-Test Only:** Has student wargame DP 41'-42' improved your understanding of logistics **Resource allocation / align capacity (manpower, firepower, transportation)**? How?

e. **Post-Test Only:** If you were to replay the game, what actions would you complete differently? Why?

Response:

---

---

**8. Game Play:**

a. Prior to game play: Knowledge of the Philippines Campaign from 1941-1942: (circle one)

Not at all Knowledgeable	Slightly Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable
--------------------------	------------------------	------------------------	--------------------------	--------------------

b. **Post-game play:** Knowledge of the Philippines Campaign from 1941-1942: (circle one)

Not at all Knowledgeable	Slightly Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable
--------------------------	------------------------	------------------------	--------------------------	--------------------

c. Would you be interested in playing again? Y: \_\_\_\_\_ / N: \_\_\_\_\_

d. Did you accomplish the learning objectives? (highlighted in yellow): Y: \_\_\_\_\_ / N: \_\_\_\_\_

1. If **yes**, what aspect of the game was most effective?

---

---

2. If **no**, what aspects of the game were the least effective?

---

---

**9. Post-Test: Please provide general feedback:**

---

---

---

---

---

---

## Appendix E

### Student Observation Checklist

#### Student Wargame DEFENSE OF THE PHILIPPINES 1941-1942

<u>Preparatory</u>	<u>Allied</u>	<u>Frequency</u>	<u>Axis</u>	<u>Frequency</u>
<ul style="list-style-type: none"> <li>• Player reads / understands rules and learning objectives</li> </ul>				
<ul style="list-style-type: none"> <li>• Player sets up game board appropriately</li> </ul>				
<ul style="list-style-type: none"> <li>• Players utilize game board appropriately for consecutive turns (play phase chart, supply holding areas, supply nodes)</li> </ul>				
<b><u>Phase 1: Landing / Defensive Positions</u></b>				
<ul style="list-style-type: none"> <li>• Players fills out landing / defensive card completely</li> </ul>				
<ul style="list-style-type: none"> <li>• Players land / defend in appropriate locations</li> </ul>				
<b><u>Player Turns</u></b>				
<ul style="list-style-type: none"> <li>• Player allocates resources to enable actions/actors (1 fuel &amp; ammo sq per)</li> </ul>				
<ul style="list-style-type: none"> <li>• Player identifies preconditions necessary for certain actions/actors (log requirements)</li> </ul>				
<b><u>Player Response to Opponent Turns</u></b>				
<ul style="list-style-type: none"> <li>• Player identifies unanticipated effects on opponent (move towards battle / stagnant defensive pos)</li> </ul>				
<ul style="list-style-type: none"> <li>• Player identifies limitations of fuel and ammunition in each round</li> </ul>				

<ul style="list-style-type: none"> <li>• Player acknowledges need to adjust gameplay based on lack / perceived lack of logistics</li> </ul>				
<ul style="list-style-type: none"> <li>• Player adjusts gameplay based upon opponent actions &amp; availability of supplies</li> </ul>				
<b><u>Player Response to Game Injects / Events</u></b>				
<ul style="list-style-type: none"> <li>• Player identifies changes to conditions/strategy from card play</li> </ul>				
<ul style="list-style-type: none"> <li>• Player adjusts gameplay based upon card play</li> </ul>				
<b><u>Subsequent (or later) gameplay</u></b>				
<ul style="list-style-type: none"> <li>• Player establishes game board quickly</li> </ul>				
<ul style="list-style-type: none"> <li>• Player fills out landing / defensive position card appropriately</li> </ul>				
<ul style="list-style-type: none"> <li>• Axis player identifies need for "speed / initiative" in movement to achieve winning conditions</li> </ul>				
<ul style="list-style-type: none"> <li>• Allied player identifies need for "calculated moves/ establishing a defensive line" reducing movement (reserving supplies to only conduct critical actions) to achieve winning conditions</li> </ul>				
<ul style="list-style-type: none"> <li>• Player forces opponent to battle often overusing supplies constraining large movements on game board</li> </ul>				
<ul style="list-style-type: none"> <li>• Player identifies how own logistics use will impact opponent's actions</li> </ul>				

**Appendix F**

**Post Play Survey**

**Wargame DEFENSE OF THE PHILIPPINES 1941-1942**

**Learning Objective Focused (Provided in read-ahead materials)**

Please indicate to what degree you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The activity had clear learning outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The activity supported learning outcome achievement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preparatory materials supported gameplay and learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Game products (e.g., rules, game board, game pieces) reinforced the learning outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The game context and scenario contributed to the learning objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Activity / Gameplay Focused**

Please indicate whether you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The amount of time spent learning the rules was appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Game complexity was sufficient to challenge my decision-making.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The game was sufficiently intuitive or playable, so as not to get "bogged down."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Game play was intuitive once I was familiar with the rules.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Game inputs encouraged me to adapt my strategy or style of play to achieve my goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Game inputs encouraged the me to adapt my strategy or style of play to prevent my opponent from achieving his/her goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
--	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

**After Action / Group Discussion Focused**

Please indicate whether you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The group discussion / AAR contributed to a greater understanding of the learning objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The group discussion/AAR provided greater context to player moves and game events.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## End Notes

- 
- <sup>1</sup> Berger, Gen David H. “38th Commandant’s Planning Guidance.” 19.
- <sup>2</sup> Headquarter United States Marine Corps. *MCDP 4 Logistics*. 1-7.
- <sup>3</sup> Morton, Louis. *The Fall of the Philippines*. 162.
- <sup>4</sup> Morton, Louis. *The Fall of the Philippines*. 154.
- <sup>5</sup> Morelock, J., 2021. *MacArthur's Defense of the Philippines, 1941-42*. HistoryNet. <https://www.historynet.com/macarthurs-defense-philippines-1941-42.htm>>
- <sup>6</sup> Morelock, J., 2021. *MacArthur's Defense of the Philippines, 1941-42*. HistoryNet. <https://www.historynet.com/macarthurs-defense-philippines-1941-42.htm>>
- <sup>7</sup> Morton, Louis. *The Fall of the Philippines*. 162.
- <sup>8</sup> Morton, Louis. *The Fall of the Philippines*. 561
- <sup>9</sup> Berger, General David H. “CMC38 Force Design 2030 Report Phase I and II.” 2.
- <sup>10</sup> Ibid.
- <sup>11</sup> Richard A. McConnell and Mark T. Gerges, “Seeing the Elephant Improving Leader Visualization Skills through Simple War Games,” *Army University Press*, October 2018, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/July-August-2019/McConnell-War-Games/>.
- <sup>12</sup> Richard A. McConnell and Mark T. Gerges, “Seeing the Elephant Improving Leader Visualization Skills through Simple War Games,” *Army University Press*, October 2018, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/July-August-2019/McConnell-War-Games/>. 110-111
- <sup>13</sup> Berger, Gen David H. “38th Commandant’s Planning Guidance.” 18.
- <sup>14</sup> Berger, General David H. “CMC38 Force Design 2030 Report Phase I and II.” 11.
- <sup>15</sup> Eckstein, Megan. 2021. “Berger: Marines Focused On China In Developing New Way To Fight In The Pacific - USNI News”. *USNI News*. <https://news.usni.org/2019/10/02/berger-marines-focused-on-china-in-developing-new-way-to-fight-in-the-pacific>.
- <sup>16</sup> *Learning* Washington, D.C: U. S. Marine Corps, 2020. Pg 1-3.
- <sup>17</sup> Wu, W.H., Hsiao, H.C., Wu, P.L., Lin, C.H. and Huang, S.H. (2012), Investigating the learning-theory foundations of game-based learning: a meta-analysis. *Journal of Computer Assisted Learning*, 28: 265-279. <https://doi.org/10.1111/j.1365-2729.2011.00437.x>
- <sup>18</sup> Mason, Roger. “Commercial Wargames and Experiential Learning ” *LEC Management*.” *Commercial Wargames and Experiential Learning*. *LEC Management*, February 12, 2021.
- <sup>19</sup> Marcy, Vanessa. (2001) *Adult Learning Styles: How the VARK Learning Style Inventory Can Be Used to Improve Student Learning*. *Journal of the Association of Physician Assistant Programs*, 1-5.
- <sup>20</sup> Dunn, Rita, Jeffrey S. Beaudry, and Angela Klavas. “Survey of Research on Learning Styles.” *California Journal of Science Education* II, no. 2 (2002): 75–98.
- <sup>21</sup> Mason, Roger. “Commercial Wargames and Experiential Learning ” *LEC Management*.” *Commercial Wargames and Experiential Learning*. *LEC Management*, February 12, 2021.
- <sup>22</sup> Ibid.
- <sup>23</sup> Perla, Peter P. *The Art of Wargaming: A Guide for Professionals and Hobbyists*. 323-326.
- <sup>24</sup> Perla, Peter P. *The Art of Wargaming: A Guide for Professionals and Hobbyists*. 1990. 265
- <sup>25</sup> Mislevy, Robert J., John T. Behrens, Kristen E. Dicerbo, Dennis C. Frezzo, and Patti West. “Three Things Game Designers Need to Know About Assessment.” In *Assessment in Game-Based Learning*, edited by Dirk Ifenthaler, Deniz Eseryel, and Xun Ge, 59–81. New York, NY: Springer New York, 2012. [https://doi.org/10.1007/978-1-4614-3546-4\\_5](https://doi.org/10.1007/978-1-4614-3546-4_5).
- <sup>26</sup> Headquarters, United States Marine Corps, “Tentative Manual for Expeditionary Advanced Based Operations” 4.
- <sup>27</sup> *Learning* Washington, D.C: U. S. Marine Corps, 2020. Pg 3-4.
- <sup>28</sup> Ignatius, David. “Opinion | The Marines' New Commandant Has Set the Bar for Real Military Reform.” *The Washington Post*. WP Company, August 10, 2019. [https://www.washingtonpost.com/opinions/the-marines-have-set-the-bar-for-reform-can-the-rest-of-the-military-follow/2019/08/08/21b47d5e-ba1c-11e9-b3b4-2bb69e8c4e39\\_story.html](https://www.washingtonpost.com/opinions/the-marines-have-set-the-bar-for-reform-can-the-rest-of-the-military-follow/2019/08/08/21b47d5e-ba1c-11e9-b3b4-2bb69e8c4e39_story.html).

---

## Bibliography

- Berger, Gen David H. "38th Commandant's Planning Guidance." Washington, DC, 2019.
- Berger, General David H. "CMC38 Force Design 2030 Report Phase I and II." Washington, D.C. 2020. <https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460>.
- Berger, General David H. "CMC38 Force Design 2030 Report Annual Update April 2021" Washington, D.C. <https://www.marines.mil/Portals/1/Docs/2021%20Force%20Design%20Annual%20Update.pdf?ver=D8ZSD8j66Pci2kEsR4BYDw%3D%3D&timestamp=1619455504887>
- Dunn, Rita, Jeffrey S. Beaudry, and Angela Klavas. "Survey of Research on Learning Styles." *California Journal of Science Education II*, no. 2 (2002): 75–98. [https://doi.org/http://marric.us/files/CSTA\\_learnjournal.pdf#page=76](https://doi.org/http://marric.us/files/CSTA_learnjournal.pdf#page=76).
- Eckstein, Megan. 2021. "Berger: Marines Focused On China In Developing New Way To Fight In The Pacific – USNI News". *USNI News*. <https://news.usni.org/2019/10/02/berger-marines-focused-on-china-in-developing-new-way-to-fight-in-the-pacific>.
- Headquarters, United States Marine Corps. MCDP 4 *Logistics*. Washington, DC, 2018.
- Headquarters, United States Marine Corps. MCDP 7 *Learning*. Washington, DC, 2020.
- Headquarters, United States Marine Corps, "Tentative Manual for Expeditionary Advanced Based Operations" Washington, DC, 2018
- Ignatius, David. "Opinion | The Marines' New Commandant Has Set the Bar for Real Military Reform." *The Washington Post*. WP Company, August 10, 2019. [https://www.washingtonpost.com/opinions/the-marines-have-set-the-bar-for-reform-can-the-rest-of-the-military-follow/2019/08/08/21b47d5e-ba1c-11e9-b3b4-2bb69e8c4e39\\_story.html](https://www.washingtonpost.com/opinions/the-marines-have-set-the-bar-for-reform-can-the-rest-of-the-military-follow/2019/08/08/21b47d5e-ba1c-11e9-b3b4-2bb69e8c4e39_story.html).
- Marcy, Vanessa. (2001) Adult Learning Styles: How the VARK Learning Style Inventory Can Be Used to Improve Student Learning. *Journal of the Association of Physician Assistant Programs*, 1-5. <http://vark-learn.com/wp-content/uploads/2014/08/VanessaMarcy.pdf>
- Mason, Roger. "Commercial Wargames and Experiential Learning " *LEC Management*." *Commercial Wargames and Experiential Learning*. LEC Management, February 12, 2021. <https://www.lecmgt.com/blog/commercial-wargames-and-experiential-learning/>.
- McConnel, Richard A. and Gerges, Mark T., "Seeing the Elephant Improving Leader

---

Visualization Skills through Simple War Games,” *Army University Press*, October 2018, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/July-August-2019/McConnell-War-Games/>.

- Mislevy, Robert J., John T. Behrens, Kristen E. Dicerbo, Dennis C. Frezzo, and Patti West. “Three Things Game Designers Need to Know About Assessment.” In *Assessment in Game-Based Learning*, edited by Dirk Ifenthaler, Deniz Eseryel, and Xun Ge, 59–81. New York, NY: Springer New York, 2012. [https://doi.org/10.1007/978-1-4614-3546-4\\_5](https://doi.org/10.1007/978-1-4614-3546-4_5)
- Morton, Louis. *The Fall of the Philippines*. Washington, D.C: Center of Military History, United States Army, 1993. 162, 561,
- Morelock, J., 2021. *MacArthur's Defense of the Philippines, 1941-42*. HistoryNet. <https://www.historynet.com/macarthurs-defense-philippines-1941-42.htm>> [Accessed 20 December 2020].
- Perla, Peter P. *The Art of Wargaming: A Guide for Professionals and Hobbyists*. Annapolis, Md: Naval Institute Press, 1990.
- Wu, W. H., Hsiao, H.C., Wu, P.L., Lin, C. H. and Huang, S. H. (2012), Investigating the learning-theory foundations of game-based learning: a meta-analysis. *Journal of Computer Assisted Learning*, 28: 265-279. <https://doi.org/10.1111/j.1365-2729.2011.00437.x>