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WARGAMING PREFERENCES

How Participating in Educational Wargames Changes Student Preferences on Learning

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Abstract: Educational wargaming has shown its clear value in the classroom, leading to deeper and more long-lasting learning. Yet, it is unclear how students respond to the use of games in the classroom and whether they perceive them to have educational value above and beyond "having fun." This study of the *War at Sea* wargame at the U.S. Naval War College provides evidence that students see wargaming as a valuable learning activity, that they consider it appropriate for the PME environment, and that participating in a wargame makes them more likely to want to learn via wargames in the future. These findings provide evidence in support of the ongoing effort to increase wargaming in professional military education (PME) curriculum, and suggest that early exposure to wargames creates buy-in among students that can be harnessed throughout their careers.

Keywords: wargaming, professional military education, PME, student learning, student perspectives, leader development, *War at Sea*

Wargames are experiencing a renaissance in the educational halls of PME institutions—or as game designer Sebastian J. Bae puts it, they are once again going through a "cycle of rediscovery."[1] During the last 10 years, wargaming has found its way back into

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[1] Sebastian J. Bae, "Put Educational Wargaming in the Hands of the Warfighter," *War on the Rocks*, 13 July 2023.

the curriculum and practice of the major staff and war colleges, and even in the Service academies in the form of a wargaming design course at the U.S. Naval Academy. As Bae outlines, the U.S. Army and Marine Corps have heavily invested in these active learning educational tools, and the creation of new commercial platforms and games like *Operational Wargame System* and *Littoral Commander* are getting widespread play in a variety of educational settings. Strategy and policy concur with this development; *Naval Education Strategy 2023* highlights how wargaming "reinforces active, experiential learning" and recommends that Naval University System institutions "more fully integrate wargaming into education programs and curricula."[2]

This rediscovery is not surprising, given the evidence for gaming's effectiveness as an educational activity. Extensive research on active learning exercises like games, wargames, and simulations consistently supports the finding that gaming leads to gains in content knowledge and skills such as negotiation, decision making, and empathy—the tools of strong leadership.[3] Moreover, studies have shown that these gains are deeper and longer lasting than learning gains from traditional educational approaches such as lecture and discussion.[4] For example, Adam Wunische found that while both lectures and simulations led to immediate learning gains, only students participating in a simulation retained their initial knowledge.[5] While more traditional teaching methodologies persist, the re-

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[2] *Naval Education Strategy 2023* (Washington, DC: Department of the Navy, 2023), 15.

[3] Michael Fowler, "Wargames as Pedagogical Tools: Using Wargames for Higher Education," *Journal of Political Science Education* (May 2024): 1–20, https://doi.org/10.1080/15512169.2024.2349549; Luba Levin-Banchik, "Learning Goals in Simulations," *International Studies Perspectives* (2023), https://doi.org/10.1093/isp/ekad024; Nick Clark and John A. Scherpereel, "Do Political Science Simulations Promote Knowledge, Engagement, Skills, and Empathy?," *Journal of Political Science Education* 20, no. 1 (2024): 133–52, https://doi.org/10.1080/15512169.2023.2204236; and Paula M. Murray, Aviril Sepulveda, and Jennifer Baird, "Longitudinal Impact of a Poverty Simulation on Healthcare Practitioners' Attitudes towards Poverty," *Journal of Pediatric Nursing* 64 (2022): 24–30, https://doi.org/10.1016/j.pedn.2022.01.016.

[4] Katsuo A. Nishikawa and Joseph Jaeger, "A Computer Simulation Comparing the Incentive Structures of Dictatorships and Democracies," *Journal of Political Science Education* 7, no. 2 (2011): 135–42, https://doi.org/10.1080/15512169.2011.564915.

[5] Adam Wunische, "Lecture versus Simulation: Testing the Long-term Effects," *Journal of Political Science Education* 15, no. 1 (2019): 37–48, https://doi.org/10.1080/15512169.2018.1492416.

search is clear that if we value student learning, wargaming should be a highly used tool in the PME professor's toolbox.

At issue then is not the value of wargames, but whether altering curriculum to include wargames is worth the costs and risks. Such costs range from monetary costs in producing and maintaining game materials; the time it takes faculty to create, train on, execute, and debrief wargames; the loss of other content from the curriculum to accommodate a wargame; and the risks of student pushback against what is still seen as an unconventional approach to learning.[6] Many of these costs will vary based on the curricular pressures of a particular program or institution. In some cases, the *Officer Professional Military Education Policy* (OPMEP) may incentivize faculty to prioritize extensive content areas, leaving no room for anything but the quickest learning techniques; in others, a commercial game like *Blitzkrieg!* or *Root* might eliminate the need for extensive training, material development, or support.[7] One universal risk of adoption, though, is the potential student response. Students may enjoy playing games in the classroom, but they do not always see the educational value of playing games as part of a curriculum.[8] This risk is the focus of this article. Will adult, career officer, PME students recognize the value of games in the classroom?

The answer is more mixed than one might expect. Certainly, military officers are familiar with wargaming and are aware that senior military leaders regularly participate in such games, many of which are run by the Naval War College's wargaming department. Such events are of course taken seriously, but their primary purpose is research, not education. If an individual learns something new by participating in a global game, that is a wonderful byproduct, but not the purpose of the event, which is to produce data to analyze and inform. Furthermore, the sophistication of such games

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[6] Rebecca A. Glazier, "Running Simulations without Ruining Your Life: Simple Ways to Incorporate Active Learning into Your Teaching," *Journal of Political Science Education* 7, no. 4 (2011): 375–93; and Amanda M. Rosen, "The Value of Games and Simulations in the Social Sciences," in *Learning from Each Other: Refining the Practice of Teaching in Higher Education*, ed. Michele Lee Kozimor-King and Jeffrey Chin (Oakland: University of California Press, 2018), 215–27.

[7] *Officer Professional Military Education Policy*, CJCSI 1800.01G (Washington, DC: Joint Chiefs of Staff, 2024).

[8] Michael K. Baranowski and Kimberly A. Weir, "Political Simulations: What We Know, What We Think We Know, and What We Still Need to Know," *Journal of Political Science Education* 11, no. 4 (2015): 391–403, https://doi.org/10.1080/15512169.2015.1065748.

can be a far cry from being asked to play a board game in a class. Students used to learning via lecture and discussion may bring a healthy skepticism as to whether playing a game in class will have serious educational value.

Indeed, studies have shown that students do not always recognize the sources of their own learning. In one study of a Harvard physics class, Louis Deslauriers et al. found that students reported learning less during an active learning activity, when objective measures found that they had actually learned more.[9] Likewise, Shana K. Carpenter, Amber E. Witherby, and Sarah K. Tauber argue that students consistently suffer from "illusions of learning," misjudging the sources of their learning.[10] It is possible that even if students are found to learn more from wargames than traditional teaching techniques, that they do not perceive games as an effective approach to learning.[11]

We are left with three questions to answer. First, do students **want to learn** via educational wargaming? We want to understand whether they prefer to learn via games versus other techniques, particularly after they have engaged in an educational wargaming experience. Second, do students **believe they learn** during wargaming? Regardless of whether they like learning via wargaming, do they view it as an educational experience? Finally, do students view educational wargaming as **an appropriate tool** for the PME classroom? In particular, we want to know whether educational wargaming achieves some of the affective or skill-based objectives instructors set for students, such as creating bonds with their peers and developing leadership skills.

The findings of this article suggest that the answer to all three

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[9] Louis Deslauriers et al., "Measuring Actual Learning versus Feeling of Learning in Response to Being Actively Engaged in the Classroom," *Proceedings of the National Academy of Sciences* 116, no. 39 (2019): 19251–57, https://doi.org/10.1073/pnas.1821936116.

[10] Shana K. Carpenter, Amber E. Witherby, and Sarah K. Tauber, "On Students'(Mis)judgments of Learning and Teaching Effectiveness," *Journal of Applied Research in Memory and Cognition* 9, no. 2 (2020): 137–51, https://doi.org/10.1016/j.jarmac.2019.12.009.

[11] In previous work, the authors found that only students who wargamed showed statistically significant increases in knowledge compared to their counterparts who did not wargame. See Amanda M. Rosen and Lisa Kerr, "Wargaming for Learning: How Educational Gaming Supports Student Learning and Perspectives," *Journal of Political Science Education* 20, no. 2 (2024): 318–35, https://doi.org/10.1080/15512169.2024.2304769. The current article is a direct follow-up to this work, which examined objective measures of learning in *War at Sea*.

questions is yes. Through a study of students participating in the Naval War College's *War at Sea* wargame, used in the Joint Military Operations (JMO) Department to teach concepts of operational art, the authors found that students are fully aware of and appreciate the learning value of educational wargaming. This recognition means that faculty may not face student resistance to adopting this learning technique—and also presents the opportunity to create future wargamers who could make enthusiastic contributions to the analytical wargames that are central to naval research and planning.

Methodology

The *War at Sea* game is a fertile ground for exploring these questions on student learning preferences. *War at Sea* is a bespoke game designed to teach maritime operational art. Its use in the JMO classroom dates to 2018, and along with the *Operational Wargame Series* (OWS), is the main platform for educational gaming in the department.[12] It is a turn-based tabletop game adaptable to many scenarios; in the current study, the authors focused on the Battle of Leyte Gulf and Falkland Islands (Malvinas) scenarios that are used during the operational art content block. During the game, students are divided into blue and red teams and charged with designing and carrying out an operational plan to achieve victory for their forces. Each turn, they plan how to move their units, conduct surveillance and reconnaissance, and fire on enemy units. A team of facilitators and umpires adjudicate the moves, reveal the results, and oversee battles, whether planned or due to tripover engagements. Through making decisions based on constantly incoming but incomplete information, students experience firsthand the challenges of enacting an operational plan to achieve strategic objectives. The planning, gameplay, and debriefing for *War at Sea* typically takes two additional seminars (six hours) above and beyond the traditional case study of the conflicts being explored.[13]

The authors' previous publication on *War at Sea* compared student responses to objective test questions on the Leyte Gulf case,

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[12] Students playing OWS were included in this study, but responded in too low numbers to allow for comparison of experiences between OWS and *War at Sea* students.

[13] For more details on *War at Sea*, please see Rosen and Kerr, "Wargaming for Learning."

finding a statistically significant number of students demonstrated higher levels of learning after wargaming compared to both their prewargaming selves and their nonwargaming peers. Building on that, and the issues addressed above, this part of the study focuses less on student knowledge and more on their learning preferences; that is, whether they see wargaming as an appropriate activity that increased their learning and their desire to learn via wargaming. This results in three hypotheses to assess:

> *H1: Students will increase their preference for learning via wargaming after participating in an educational wargame.*
>
> *H2: Students are more likely to recognize the learning value of wargames after participating in* War at Sea *compared to before.*
>
> *H3: After participating in a wargame, students are more likely to view wargaming as an appropriate and valuable educational activity.*

To test these hypotheses, the authors used data gathered during a quasi-experiment at the Naval War College in the JMO Department.[14] In 2021–23, faculty in both the intermediate leader (ILC) and senior leader (SLC) courses were able to choose whether to incorporate a wargame into the content block on operational art. About one-half of the 17 seminars chose to do so, allowing for a natural experiment to compare students in wargaming seminars to those in seminars that relied solely on more traditional methods such as readings, lectures, and seminar discussions.[15] The authors surveyed students on their learning preferences prior to the start of the content block at the beginning of their course, and then again after completing their operational art content block. Some questions about learning preferences were asked on both surveys, allowing a longitudinal comparison, whereas others—mostly those about the impact of the wargame—were

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[14] This study received institutional review board (IRB) approval, NWC.2021.0002-AM02-EM1-A, from the IRB at the Naval Postgraduate School, Monterey, CA.

[15] The inability of the research team to randomly assign students to wargaming and nonwargaming groups keeps the project firmly in the quasi-experimental category. Notably, the success of the wargame prompted the department to require all faculty to use either *War at Sea* or OWS in their courses, removing the ability to conduct further quasi-experiments comparing wargaming and nonwargaming students.

asked only of wargaming students once at the completion of their gaming experience.

Specifically, the authors asked students to rank eight different approaches to learning. These learning modalities included course readings, conducting independent research or writing papers, full class discussions, small group discussions within classroom settings, case studies, exercises and activities like wargames, studying for or taking exams, and individual tutorials with faculty. Using one-way analysis of variance (ANOVA), the authors were able to compare students over time and group to see whether participating in a wargame changed student attitudes toward wargaming. In addition, the authors asked them to respond to a series of five-point Likert scale statements about their learning, measuring whether and how they perceived the game to have educational value.

Results

A total of 98 students completed the pre-course survey. Of these, 63 students were in the courses that did not experience the wargame learning activities, and 35 students experienced the wargame learning activities.[16]

H1: Students will increase their preference for learning via wargaming after participating in an educational wargame

The evidence supports H1. As figure 1 shows, only 21 (33 percent) of the students who were not in the courses that experienced wargaming initially ranked activities like wargaming as one of their top three preferred learning modalities. Similarly, 14 (40 percent) of the students who were in the courses that experienced wargaming ranked activities like wargames as an effective learning modality.

At the completion of the content block, students were invited to complete a post-course survey and rank the same learning modalities previously mentioned. All (35/35) students who completed the pre-course survey that engaged in wargaming in their seminars completed the post-course survey as compared to 43 percent (27/63) of their peers who did not engage in wargaming in

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[16] Like many studies of classroom gaming, the n is relatively small, limiting the authors' ability to generalize from the results.

Figure 1. Students' initial perspectives on the effectiveness of wargaming on learning
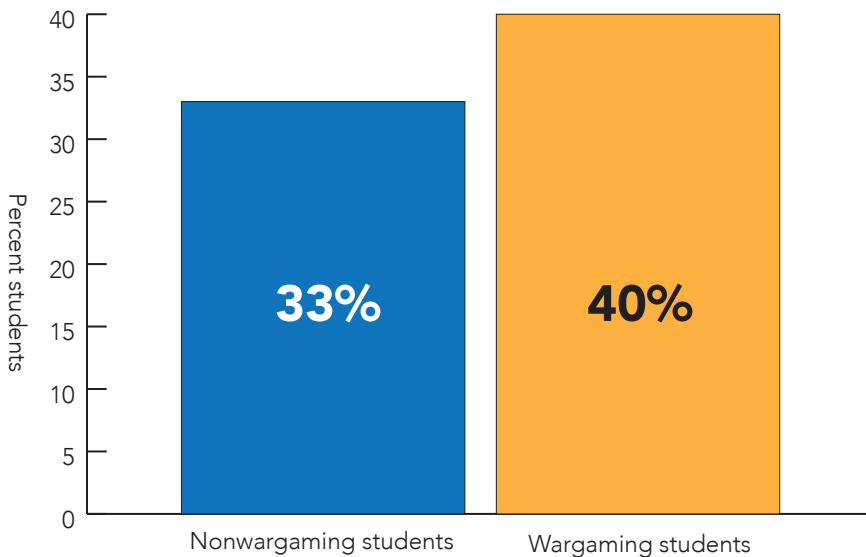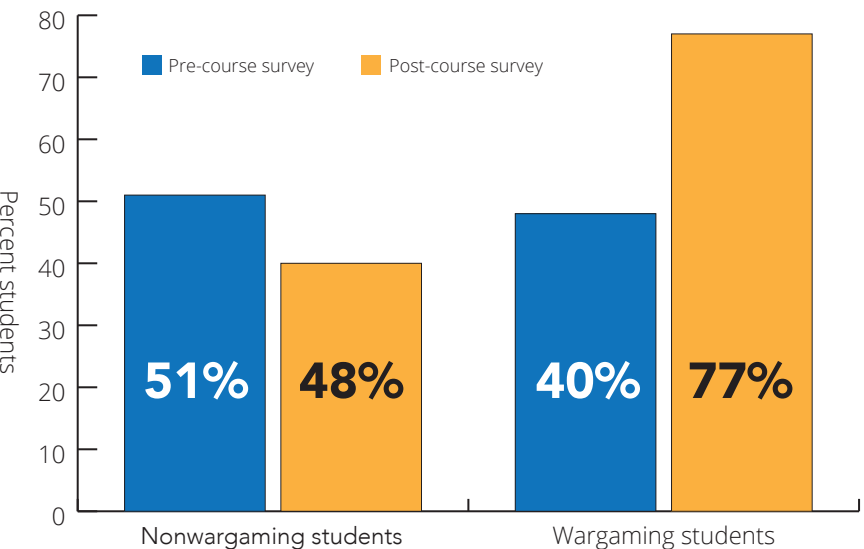

Source: courtesy of the authors, adapted by MCUP.

their seminar.[17] Figure 2 illustrates the differences in how students ranked the perceived effectiveness of wargaming as a learning modality between those who were in a class that incorporated wargaming into the seminar and those whose seminars did not include wargaming.

As figure 2 shows, students who experienced wargaming as a part of their learning activities were more inclined to indicate that they perceive learning activities like wargames as effective learning modalities. While the percentage of students in the classes that did not engage in wargaming did not show much change in their perceptions of the effectiveness of wargames as a learning activity, the percentage of students who experienced wargaming who ranked wargaming as one of the top three most effective learning modal-

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[17] There are not statistically significant or practical differences in how the students in the seminars without wargaming ranked the various learning modalities. Therefore, even though less than half of the students in the seminars without wargaming completed the post-course survey, their pre-course survey responses relating to their preferred learning modalities did not differ from their peers who did not complete the survey. The authors are confident that the students who did not experience wargaming in their seminar and completed the post-course survey were representative of the collective that completed the pre-course survey.

Figure 2. Students' post-content block perspectives on the effectiveness of wargaming

Source: courtesy of the authors, adapted by MCUP.

ities nearly doubled to 77 percent. Practically, the data indicate that when students have opportunities to engage in wargaming, they recognize the effectiveness of the modality and become more willing to learn by that modality in the future.

H2: Students are more likely to recognize the learning value of wargames after participating in War at Sea *compared to before* H2 receives mixed support. Students are able to recognize the overall learning value of wargames. Table 1 outlines the additional questions that wargaming students were asked, in the form of statements they rated from strongly agree (5) to strongly disagree (1) on a 5-point Likert scale. In all cases, the mean and modal responses indicate strong agreement with the items measuring student self-assessment of learning. Students report better understanding of course concepts post-wargame (4.4) as well as improvements in their problem solving, adaptation, and decision making (4.5) and analytical (4.4) skills. Students also report an increased ability to derive operational lessons (4.2) and the importance of having operational plans (4.3). Finally, students reported that the wargame gave them a stronger appreciation for the constraints Japan was

Table 1. Student perspectives about wargaming benefits

Prompt: Please indicate how strongly you agree or disagree with the following statements:

	Mean	Mode
I found the wargame(s) enjoyable and/or engaging.	4.6	5
Overall, I think wargaming is a beneficial tool for learning in this course.	4.5	5
Participating in the wargame has increased the connection I feel with other students in my seminar.	4.4	5
I understand course concepts and theories better after applying them in the wargame setting than I did immediately following the reading, lecture, and seminar on these topics.	4.4	5
My perspectives and my ability to analyze, evaluate, and critique the historical studies of the Philippines campaign and/or Falkland Islands (Malvinas) was enhanced or changed as a direct result of playing the wargame.	4.4	5
My perception on the importance of creating and executing an operational plan to the outcome of the Leyte Gulf battle and/or Falkland Islands (Malvinas) was enhanced or changed as a direct result of playing the wargame.	4.3	5
The tactile nature of a wargame (standing around a physical map, moving and throwing dice) is an essential component to its success.	4.2	5
Participating in the wargame has improved my skills in problem solving, adaptation, and decision making.	4.2	5
My ability to derive operational lessons was enhanced or changed as a direct result of playing the wargame.	4.2	5
My opinion of the strength of Japan's operational plan changed after preparing for and participating in the Leyte Gulf wargame.	4	4
Mistakes and miscalculations made by my team assisted my learning more than our successes.	3.9	5
I have already seen or discussed ways in which the wargame experience of course theories and concepts will have an impact on my working life outside of the NWC.	3.8	4
I prefer a fully digital wargame like OWS than a table-top dice game like War at Sea.	2.3	1
The wargame had little impact on my overall learning of the course concepts and theories we studied in the lesson.	1.6	1
The wargame is not worth the time it takes to learn and play; I'd prefer to spend that time on other content.	1.5	1
Having experienced wargaming at NWC, I would have preferred to learn this material using the more traditional lecture and seminar discussion methods only.	1.5	1

Source: courtesy of the authors, adapted by MCUP.

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Table 2. Students perspectives on the learning value of wargaming experience components

Wargame component	Median	Mode
Wargame preparation (writing plans, pregame planning)	1.9	1
Playing the wargame	1.6	1
Debriefing the wargame	2.5	3

Source: courtesy of the authors, adapted by MCUP.

under during the Philippines campaign (4.0), a nuance that faculty had anecdotally reported had gone overlooked prior to the wargame.

However, while students recognize that wargaming increased their learning, their perceptions on the reasons why they learned does not match expectations. Students were asked to rank in order of how effective each component of the wargaming process—the preparation, gameplay, and debriefing phases—was for their own learning. Table 2 shows that students ranked playing the wargame as the most important for their learning, followed by the preparation and then the debriefing. With most of the literature noting that the debriefing is where the learning actually occurs, by providing the time and space to connect gameplay to course concepts and creating meaning-making, this finding indicates that while students know they learned, they do not always recognize the value of the debriefing in the learning process.[18]

H3: After participating in a wargame, students are more likely to view wargaming as an appropriate and valuable educational activity

H3 is also supported. Overall, the student responses support the conclusion above that students appreciate and enjoy wargaming as a learning activity. Students expressed that they enjoyed the game (4.6) and that they perceived that engaging in wargaming was beneficial to their learning in the course (4.5). Additionally, students reported that they increased their sense of connection with

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[18] As one anonymous reviewer put it, this may be due to students realizing that the learning in the debriefing depends on the preparation and gameplay phases, and that they may not be aware of the debriefing's power to ensure knowledge transfer and deeper learning occur.

their peers (4.4) and their abilities to understand (4.4) and critique (4.4) course concepts as a result of engaging in the wargaming process. Generally, students perceive that the time spent learning and engaging in the wargame was time well spent and enhanced their learning. Most students, in fact, strongly disagreed with the statement that playing the wargame was a waste of time (1.5) or that they would have preferred to learn via other means (1.5).

Discussion

The topline finding is that students who wargame show a marked increase in their desire to learn via wargaming. A single wargaming experience, then, may be sufficient to change student preferences on how they learn, suggesting that they not only see the clear value in a game like *War at Sea* for learning operational art, but that they are more open to experiential learning in the future.[19] Whereas prior to wargaming, students cited lecture and assigned readings as preferred learning methods, both methods decreased in importance to them after wargaming, and wargaming itself rose substantially in the ranks of preferred techniques for students in the post-test.[20] This suggests that providing an early wargaming experience could reduce student resistance to incorporating other experiential and active learning approaches in the classroom. Fears of such resistance can potentially be easily countered, reducing this risk to building wargaming into curriculum.

It is possible that students may be open to a learning methodology that they do not actually see as adding learning value—but that is not the case here. The author's findings show that students do report learning from their wargaming experience, and combined with previous findings in this study, suggest that there is a match between student perceptions and reality of learning. This brings some good news to those concerned by the Deslauriers et al. study's findings that students do not recognize the sources of their learning, and others that suggest students are overconfident

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[19] As with all educational gaming experiences, such an impact is only to be expected if the game is well-aligned with learning objectives, well-executed, and properly debriefed.

[20] Students also cited an increased preference for large and small group discussions, suggesting benefits for the seminar model as well.

of their own learning.[21] However, the authors' findings suggest that students may still misplace the source of their learning, as they were more likely to cite the gameplay and preparation phases than the debrief as the most important parts of their learning. In this case, either the students are incorrect, or scholars should reconsider the value they place on the debrief for experienced graduate students.[22] Regardless, faculty should consider how to improve student awareness of the value of the debrief and ensure their high engagement with that aspect of wargaming, even as institutions work to ensure faculty are prepared to maximize the value of the debrief in connecting gameplay to course concepts and theories.

Finally, those concerned with whether military professionals will see wargaming as an appropriate and valuable way to spend class time should be reassured. Support for gaming as a method of increasing skills, connection with peers, and analyzing decisions all suggest that students see wargaming as a serious activity that can develop their leadership skills. When asked if they would rather learn through other, more accepted techniques, the modal student gave a definitive no.

Conclusion

Combined, these results suggest high levels of student support for the *War at Sea* experience that go beyond the objective learning improvements documented in the authors' previously published work.[23] The results from the quasi-experiment demonstrate that students want to learn through wargames, that they recognize the learning value of such games, and that they see them as appropriate tools for a PME classroom. Most importantly, students participating in a wargame change their preferences for learning via game, developing an increased preference for wargaming as a teaching and learning methodology.

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[21] See, for example, John Dunlosky and Katherine A. Rawson, "Overconfidence Produces Underachievement: Inaccurate Self Evaluations Undermine Students' Learning and Retention," *Learning and Instruction* 22, no. 4 (2012): 271–80, https://doi.org/10.1016/j.learninstruc.2011.08.003.

[22] Notably, none of the phases of the wargame are specifically graded, although their participation is encouraged through a course-long contribution grade. There is no reason to assume, therefore, that students overvalue a graded element more than a nongraded one. It may be valuable to communicate to students the purpose of the debrief and its role in the learning process.

[23] Rosen and Kerr, "Wargaming for Learning."

This suggests three avenues for action and research. First and foremost, the results of this work suggest that PME students should participate in an educational wargame sooner rather than later. As PME institutions add more wargaming to their curriculum in line with educational strategies, student resistance must factor in, and it is clear that an early experience can make students more amenable to learn via wargaming later. Furthermore, developing wargaming skills early may lead to more students choosing this as a focus during their education, setting them up to be experienced and skilled wargamers when they encounter analytical wargames later in their careers. Therefore, PME curricular developers should look for opportunities where wargames can enhance their content, perhaps focusing on low-intensity games that offer many of the benefits of games at lower cost.[24]

Second, researchers should explore the impact of the piece-meal creation and execution of educational wargames in PME. This study suggests that *War at Sea* is successful in its goal to aid student learning—but it was created and executed to meet the needs of a single department at one PME institution. If early educational gaming experiences matter, and officer wargaming skills are valued, then it is incumbent on institutions to create a true ecosystem of wargames that reinforce such learning.[25] Within the Naval War College, even other departments are unfamiliar with wargames used in JMO; across institutions, there is little effort to coordinate educational wargaming either horizontally or vertically. Armed with the knowledge that wargaming is an effective technique supported by students, researchers and curricular developers should consider how to work cross-institutionally to ensure a well-rounded wargaming education for officers throughout their careers.

Third, there is a real need for a greater faculty perspective on wargames. In this article, the authors focused on student preferences and risks, but faculty resistance to wargaming is likely to be as much if not more of a barrier than students. Given that many of the costs of running wargames fall on already-burdened faculty, this is no small risk, and even those faculty who recognize the ed-

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[24] Glazier, "Running Simulations without Ruining Your Life."

[25] The authors are grateful to an anonymous reviewer for this point. For more on the ecosystem of wargames and the achieving greater coordination, see Jeremy Sepinsky, "Is It a Wargame? It Doesn't Matter: Rigorous Wargames versus Effective Wargaming," *War on the Rocks*, 24 February 2021.

ucational benefits of wargames may resist their implementation. Thus, PME needs more research on faculty perspectives and preferences on educational wargaming, but also action by institutions to ease these costs and burdens and invest the resources needed to create faculty allies rather than adversaries during the curriculum revision process.

Moving forward, institutions should balance the various benefits, costs, and risks in increasing educational wargaming in the curriculum, and consider the wider ecosystem and future opportunities of students to wargame. While it is clear that wargames can bring great learning gains, and that initial student resistance can be overcome by a positive gaming experience, these benefits are not without cost and risk. As PME institutions look to expand their educational wargaming offerings, they must invest real resources in creating quality games that are aligned with curriculum, provide career-long skill development, and give faculty the time to develop, train, and execute them properly. *War at Sea* is effective at least in part because of such investments; effort will be required to ensure that other efforts achieve similar success.

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