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To Learn or not to Learn: On the Importance of Mode Switching in Educational Wargames

COLLECTION:
WAR GAMING

RESEARCH ARTICLE

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ABSTRACT

Conventional wisdom holds that educational wargames come with certain challenges – factors that can potentially hinder, rather than increase, learning – and that these must be mitigated. In this article, we argue that so-called challenges are unproblematic, even desirable, during the wargame. Underpinning this contention is the premise that learning requires a certain mode, and that in educational wargaming, two distinct modes are necessary: one in the wargame, and one in the debrief. Leaning on the pedagogical theory of John Dewey, we distinguish between the mode of experience during the game, and the mode of reflection after the game. What are traditionally conceived of as challenges are, in our mode-based framework, necessary factors in order to fully enter the mode of experience. What can hinder learning, however, is if students do not switch from the mode of experience to the mode of reflection after the game. Based on previous research, our own experiences conducting wargames, and interviews with students and professionals on learning through educational wargames, we suggest strategies for ensuring the mode switch from wargame to debrief, and draw implications for the development of wargaming as a social science method.

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INTRODUCTION

Traditionally, wargames have been tools for understanding the dynamics of warfare (Jones, 1998; Perla, 1990; Smith, 2010). Today, they are increasingly used as educational tools beyond the military and defense disciplines (Arnseth, 2006; Asal, 2005; Rivera & Simons, 2008). Wargaming for the purpose of learning can be an effective way of engaging students, encouraging critical thinking, enhancing academic understanding and insight – and perhaps even contributing to learning outcomes otherwise hard to come by (Caruson, 2005; Frederking, 2005; Rivera & Simons, 2008; Ruben, 1999; Sadow, 1991, p. 373; Shellman & Turan, 2006).

Wargames also, however, carry certain risks. In the literature on educational wargames, conventional wisdom holds that a risk to learning occurs when students apply the game differently than was intended by the designers (Hays, 2005). Students might be too emotional (Christopher, 1999; D. A. Kolb et al., 1984), too interested in winning (Rieber & Noah, 2008), or might treat the wargame "*only* as a game" (Frank, 2012, p. 120). In other words, learning through wargaming could be undermined if students are in the wrong *mode*. This article explores the concept of modes, seeking to shed new light on the wargaming literature and perhaps provide a fruitful new perspective for designing, conducting, and researching educational wargames.

The paper is structured as follows. In the next section, we describe some of the aforementioned challenges, or risks, to learning, before elaborating on the concept of modes in existing literature on wargaming and in the pedagogical theory of John Dewey (2018). Here, we suggest that some of the established truths of the wargaming literature rest on problematic assumptions, which might be reframed through Dewey's notion of modes. Afterwards, we present our qualitative study of wargaming in Norwegian higher education. Using Dewey's typology as a lens, we combine our findings from the study with the existing wargaming literature, proposing a new way of thinking about modes in educational wargames that supports parts and questions other parts of this literature.

Applying Dewey's typology this way lays the groundwork for a new conceptual framework for understanding modes in educational wargames. This framework suggests that learning through educational wargames requires two consecutive modes: an *experience mode* (for playing) and a *reflection mode* (for debriefing). We argue that risks to learning occurring in the mode of experience might not in fact *be* risks as long as that mode is followed by the mode of reflection. Thus, a *mode switch* from the wargame to the debrief is crucial. Lastly, we summarize some implications for the field of wargaming.

EDUCATIONAL WARGAMES AND LEARNING MODES

A wargame – also called "game," "simulation" or "simulation game" – is a dynamic representation of a conflict or competition in a synthetic environment where people make decisions and then have to deal with the consequences of the decisions and reactions made by oneself and others (Perla, 2019). A wargame concretizes abstract concepts – it simplifies a problem, and makes it come alive (Corbeil & Laveault, 2011, pp. 463, 474). Such a game has certain basic criteria: human players, a setting and a scenario, rules, and consequence-based outcomes, meaning that the outcome will follow from the player's own decisions, and thus not be predetermined by the game design (Lin-Greenberg et al., 2020, p. 4). This is what is meant by "dynamic": two games will never unfold in the exact same manner.

Wargames are used in different contexts and defined by their purpose (Pournelle, 2017, p. 49). They can be used for analyzing military operations, for developing strategy or policy, for team building, or for commercial entertainment. They can also be used for learning. In an educational wargame the educator attempts to bring the syllabus to life with a setting, a scenario, and a rules-based game design for the students to immerse themselves in, often through role-play.[1] The students are given a chance to apply facts and theoretical assumptions taught in the course to a hypothetical real-world situation, where they are supposed to make decisions and respond to other's decisions in a synthetic environment (Pournelle, 2017, p. 48). Such an exercise is often used to teach practical matters, such as diplomacy, international negotiations,

1 The designs of wargames differ, and not all games include role-play, but this is one example of a common game format (Alme, 2020; Corbeil & Laveault, 2011; Curry et al., 2018).

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and strategic thinking – but the teaching of more theoretical content might also benefit from wargaming (Alme, 2020; Asal, 2005; Shellman & Turan, 2006).

Wargames do not simply teach facts and figures. Nor do they simply convey the details of different theoretical paradigms. The wargame is manifold and chaotic – thus perhaps also teaching the student something about the nature of reality and something about the subject matter. Indeed, this is one of the potentials of educational wargaming; ideally, it will illuminate nuances and uncertainties and make room for several interpretations, facilitated by students playing out a number of different perspectives in concert (Corbeil & Laveault, 2011, p. 463). Wargames can be a valuable educational tool in promoting immersion, interaction, cooperation, creativity, and exploration – and simply by being fun (Arnseth, 2006; Asal, 2005; Corbeil & Laveault, 2011; Lin-Greenberg et al., 2020; Shellman & Turan, 2006). Through these attributes, educational wargames can convey information, but they can also create knowledge in a more profound sense, and enhance the student's capacity for critical thinking and independent thought.

Playing the game is usually followed by a *debrief*. A debrief is typically a (more or less) structured conversation between the participants of the game and the moderator. It can also take the form of a presentation, or various written or oral assignments. Whatever the format, the purpose of the debrief is to get the actors to reflect on what they have been part of, why the game unfolded as it did, how it could have turned out differently, how it could have been designed differently, and, in sum, how this all applies to the general course material (Asal, 2005; Christopher, 1999; Perla, 1990).

CHALLENGES OF EDUCATIONAL WARGAMES

Educational wargaming also carries certain risks, or challenges – factors that can hinder, reduce, or distort, rather than promote, learning (Frank, 2012; Rieber & Noah, 2008; Shellman & Turan, 2006; Wong, 2019). Some of these have to do with the fact that not every characteristic of wargaming is necessarily easily coupled with the characteristics of education.

For one, games are supposed to be fun – and while learning can also be fun, learning is serious business. Indeed, educational wargames are sometimes referred to as "serious games" (see, for instance, Linderoth & Sjöblom, 2019; Obikwelu & Read, 2012). Thus, the educational wargame might seem something of a contradiction in terms and a difficult act to balance. Moreover, as educators seek to relay certain theoretical concepts or other aspects of a fixed academic curriculum through the game, the use of wargames introduces the risk of other, unintended lessons – or the risk of no lessons being taught at all. By bringing the student actively into the learning process in an activity that is by definition fluid and open-ended, as opposed to pre-determined, educators necessarily give up some control of what is taught in the classroom.

Yuna Wong (2019) has identified the risks of *overlearning* and *negative learning* in educational wargames. Overlearning occurs when students exaggerate the generalizability of the wargame. Here, students mistakenly infer that context-specific events from the game are representative of the real world. With negative learning, meanwhile, students take from the game the wrong lessons. This can happen, as wargames are dynamic and creative processes and might yield lessons that the professor or the game moderator did not intend. While this is not itself a problem (often quite the reverse is true), "negative learning" describes learning outcomes in which the student draws the wrong lessons.

To some, the challenges involved make wargaming a waste of class time (Shellman & Turan, 2006, p. 2). Others, however, opine that it is possible to mitigate the challenges, and perhaps even turn them into pivot points for learning. One interpretation is that the student's attitudes, or *modes*, are important in wargaming – that some challenges might stem from students being in the wrong mode, and that changing this mode would remedy the challenges. Simply put, a mode designates your attitude towards your surroundings: the object that you are interested in, your fellow human beings, and yourself and your place in the context in question (Dewey, 2018; Skjervheim, 1996). Fundamentally, the mode serves as a frame for seeing and being in the world – a filter for interpretation. As such, it reflects what one views as most important. Those who see a connection between wargaming challenges and modes assume that modes come in different shapes, and that some are helpful to learning, others not.

Anders Frank (2012), one proponent of this school of thought, writes that educational wargaming poses a challenge in requiring students to be in two different modes, "two coexisting attitudes,"

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at the same time. The attitudes are seemingly diametrically opposed to each other. One is a "professional attitude," where the students[2] must be aware both of the reason they are playing the game and their responsibilities as students, and earnestly try to play as if the game were reality; the other is a "lusory attitude" where the students are aware that the game is just that – a game – with made-up rules and a fictitious setting.

If these contradictory attitudes are unbalanced, the result could be that students become more interested in winning than in learning: they "achieve game goals that divert them from the learning objectives. Their attitude becomes one of "gaming the game" instead of nurturing learning goals" (Frank, 2012, pp. 118–119). This constitutes what Frank calls "gamer mode." Such a mode is detrimental to learning, and should be avoided, in his view; it is an "undesirable attitude toward the game" (Frank, 2012, p. 119). Frank goes on to suggest a number of ways to prevent gamer mode, such as designing a game that mirrors reality, providing detailed instructions on how to use the game, reminding participants about the purpose of the activity, and conducting a rigorous and extensive debrief after the game. In the debrief, instances of gamer mode could be pointed out and their sources and implications analyzed (Frank, 2012, pp. 129–130).

Somewhat confusingly, however, Frank (2012, pp. 120, 128) includes the caveat that it is "perhaps too strong" to "argue that the gamer mode is *always* a problem"; indeed, it could promote competition and a winning attitude that could be desirable. Whether or not it presents a problem depends on the context, participants, and purpose of the activity. We can infer from Frank's reasoning that when participants are inexperienced and the purpose is to learn, gamer mode will be detrimental.

DEWEY AND THE TWO MODES OF LEARNING

In this section, we follow the argument that modes are important in educational wargaming while suggesting another conceptualization of the term. The idea that modes are relevant in learning arguably originated in the turn towards giving experience, practice, and participation a central role in learning and in education (Kolb & Kolb, 2005, p. 194). In this paper, we explore the concept of modes from the perspective of John Dewey (1938, 2018), a theorist who advocated for experience-based learning.

Kolb and Kolb (2005) draw on, among others, Dewey's writings on learning and experiential learning when describing how there are different learning modes, meaning modes necessary for learning, or modes through which learning can occur. Dewey (2018) distinguishes between different modes of thought, and most fundamentally between the unconscious, spontaneous thought of fully experiencing the world on the one hand (best illustrated by the way children approach their surroundings), and reflective thought on the other. Reflection of this kind is not merely mature and conscious thinking but, rather, a form of thinking prompted by discovering that something one thought one knew – something one took for granted – is not necessarily true. Such a discovery is necessary for the mode of reflection, in Dewey's view:

> Thinking begins in what may fairly enough be called a forked-road situation, a situation which is ambiguous, which presents a dilemma, which proposes alternatives. As long as our activity glides smoothly along from one thing to another, or as long as we permit our imagination to entertain fancies at pleasure, there is no call for reflection. (Dewey, 2018, p. 154)

The two modes – the spontaneous thinking of a child and "active, persistent, and careful consideration" (Dewey, 2018, p. 89) – are thus closely related. Reflective thought is a mode one enters into because of an experience. The mode of reflection depends on, and is initiated by, "pure experiences" that break with previously held views (Kolb & Kolb, 2017, p. 12). As such, we can distinguish between two dialectically related modes: one for grasping experience, and one for abstract conceptualization (Kolb & Kolb, 2005, p. 194).[3] For learning to occur, both modes are

2 Frank writes of officers, but this insight is most likely applicable to learners in general, including students.

3 Experiential Learning Theory (ELT), they write, is in part the acknowledgement that "learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process. In the process of learning one is called upon to move back and forth between opposing modes of reflection and action for feeling and thinking" (Kolb & Kolb, 2005, p. 194).

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necessary: Experience is necessary for reflection, and the experience must be reflected on "in order to draw out the meaning of it and to use that meaning as a guide in future experiences" (Kolb & Kolb, 2017, p. 12).

In order to make Dewey's dichotomy applicable to wargaming, however, some nuancing is necessary. One might infer from Dewey's writing that students can, to put it somewhat crudely, waltz into a wargame, ready for any experience, and uncritically, perhaps even passively, take in every impression. This is not the case. As we saw in the wargaming literature, one trait of wargaming is that players actively make choices. In other words, passively sensing one's surroundings in the gaming situation is not sufficient. Here we can draw on another theorist, Hans Skjervheim (1996), who has written extensively on the subject of one's approach to the world (what we here call modes). In Skjervheim's view, in order to participate in something, one has to take it seriously; one has to view the proposition in question as relevant, and actively and critically consider its veracity and value. As we will see, taking the game seriously is a recurring theme both in our collected empirical material and in the wargaming literature.

A QUALITATIVE STUDY OF EDUCATIONAL WARGAMES

This paper is part of an ongoing research project on designing educational wargames,[4] where we study the design and use of wargames in higher education in Norway. The findings presented in the following section are from experiences from various educational wargames played with students in the field of political science and from interviews with professionals who themselves use wargaming as a method.

We have conducted six hours of participatory observation of students playing educational wargames with written fieldnotes. After each wargame, students have answered open-ended questionnaires, asking about their experience and their own perceived learning outcomes. We further conducted semi-structured interviews with three students who have participated in the game; here, questions focused on whether or not they have learned anything through the game, how they have learned, what they have learned, and how they themselves evaluate their learning outcome.

We also performed in-depth interviews with three experts on wargaming: one educator with wargaming experience and two wargaming professionals. While students are anonymous, experts have agreed to be named.[5] In interviewing this group, the most important question was how to ensure learning through wargames.

MODES IN EDUCATIONAL WARGAMING: FINDINGS AND DISCUSSION

In this part we apply Dewey's dichotomy (experience and reflection) as a lens for combining our findings with the existing wargaming literature, finding that it both supports and challenges certain aspects. By revisiting some of the basic assumptions of the wargaming field through this perspective, supported by the insights provided by our own research, we propose a new conceptual framework for learning through wargaming that stresses the importance of modes and what we term *mode switch*. The latter is the focus of the last section of the article.

EXPERIENCE MODE: WARGAMING

The first mode in Dewey's dichotomy is experience. This is where the students immerse themselves in the activity of the game; "ideally, wargame participants forget that they are being studied and behave honestly," write Lin-Greenberg and colleagues (2020, p. 8). This is also called *flow*, where "people become so involved in what they are doing that the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing" (Csikszentmihalyi, 1990, quoted in Hays, 2005, p. 14).

In order to achieve such a state of true engagement, it is necessary for the student to take the game seriously (Skjervheim, 1996). This is supported by both our informants and by the wargaming literature. If students do not take the game seriously, they tend not to apply themselves. In his

4 This project, "Designing Educational Wargames," is conducted by the two authors.

5 All handling of personal data involved has been evaluated and approved by the Data Protection Officer at the Norwegian Defence Research Establishment.

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writing on gamer mode, Frank argues that taking the game seriously is necessary for learning to occur, as this is what will ensure that students apply themselves in the game and take time preparing for the game, reading up, and following instructions (Frank, 2012, p. 128).

One of our informants, Professor Tora Skodvin of the Political Science department at the University of Oslo, has several years of experience simulating negotiations with her students. She draws a direct line between students taking the game seriously and their learning outcome, emphasizing the importance of "the students actually entering into a role, daring to play negotiation, daring to take it as seriously as one needs to in order to learn."[6] (T. Skodvin, personal communication, June 16, 2021).

Skodvin describes playing the wargame as a process offering epiphanies to the player. For her, such realizations help the student immerse themselves in the game; they "arrive with preconceived notions about what the other parties feel about stuff, and then they discover, oh, this was a different response than expected. And after a while, they get more and more into their role." Their initial "sense of control," as she puts it, is challenged or even lost during the game, and this helps augment the mode of experience. Referring to her own international negotiations simulation, Skodvin argues that learning through wargames "depends on [students] actually entering into their roles, that they actually experience that they *are* in a negotiation."

This is echoed by some of the students we interviewed. One student said: "I thought [the game] was very instructive, both the preparation beforehand, and that … you almost felt like you participated in something important – for real" (Respondent 2). Another student described the experience of participating in a game: "In advance, you expect it to be difficult to play a role, and then you sit there, and there's this bubble – it is probably what it is like for reality-contestants on TV, that there is this bubble, where it becomes real" (Respondent 3). That "bubble," in the student's words, is exactly the preferred mode for the students, where they are so *in* the game – they experience it so fully – that they zone out everything else and forget to be self-conscious.

So, how might we get students to take the game seriously, to enter into experience mode? According to one of our respondents, Håvard Fridheim, a professional wargamer at the Norwegian Defence Research Establishment (FFI), the game has to ring true for the participants in order for them to take it seriously:

> When developing games, you spend time creating a scenario or a setting for the conflict or competitive situation that the players are meant to be put into. Of course, if the players do not buy the setting, or start fighting the scenario, or find the description to be neither relevant nor realistic, that will have an impact on whether or not they even have a chance to learn from it. (H. Fridheim, personal communication, May 18, 2021)

Whether or not they take it seriously could have to do with the participants' willingness to learn, Fridheim argues; "first … are they willing to learn from [the game], are they willing to try things. Second, are they willing to discuss the dilemmas that [a moderator might] bring up in the game." Not taking the game seriously could also be symptomatic of poor game design. One cannot expect it to yield results as an educational tool if the students are not given sufficient time or information to prepare; if the scenario and player guidelines are difficult to understand; if the link between the course material and the game is weak; or if the wargame is in some way not properly adapted for the goal of learning.

In one observed instance from our own games, the wargame followed a lecture that was supposed to lay the game's academic foundation. This is not unusual when conducting wargames.[7] However, in interviews after the game, students responded that they were not quite clear on the link between the terms and theories presented in the lecture and the events of the game. One student attributed this to a lack of concentration during the lecture. The student was to play a role in the game, and, as such, struggled to focus on anything else before the game: "I was quite nervous that day, since I had never done anything like this before" (Respondent 4). This suggests that giving the lecture earlier, so that students had the time to reflect on it before playing the game, might have bettered any learning outcome.

6 All interviews have been conducted in Norwegian. Quotes have been translated to English by the authors.

7 As Håvard Fridheim notes in his chapter on "Wargaming do's and don'ts."

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In Professor Skodvin's experience, making the wargame both mandatory and the subject of the course's oral exam proved helpful in this regard.

> It can be hard for the students to enter into such a role if they feel awkward in any way. If they are unsure of whether the other players fully engage in their roles, they become very uncertain and self-conscious, and then [the game] does not work. That is why we made it into a mandatory activity. And we made it the subject matter of the exam, so that everyone simply had to apply themselves and really commit to this. And then, it became a whole different story, it became fun, everyone immersed themselves in their roles, dressed the part, and so on. (T. Skodvin, personal communication, June 16, 2021)

The reason why it was necessary to make the game mandatory and to incorporate it into the examination of the course was that students did not expect the game activity to help them learn, Skodvin argues:

> They underestimated the importance of this [game] for their own learning. So that they simply made the wrong choice and said "No I can't participate after all, I have to go to the library to study." And this was completely the wrong way to prioritize, in my view. So, I felt that we had to make it mandatory for the students to help them prioritize correctly. (T. Skodvin, personal communication, June, 16 2021)

Anchoring the wargame in the course by making it into an activity that students are being graded on is a common technique for mitigating challenges in wargaming. Rivera and Simons (2008, pp. 305–306) emphasize the importance of "deliverables" as a way to prevent risks such as free riding (where students fail to prepare or in other ways apply themselves, leaning on other students to do the work) and misunderstandings (where students have taken the wrong lessons from the game). Asal (2005, p. 364) suggests making the game the object of student assignments in order to help the students learn from the game: "Integrating the simulations into written assignments of the students makes the students take them more seriously and allows them to apply a more exacting analytical approach with them." As such, using the wargame as the foundation for course assignments can help facilitate an experience mode while setting the stage for the reflection mode – which we will explore in the next part.

REFLECTION MODE: DEBRIEFING

The other part of Dewey's dichotomy is reflection. For learning to occur, the "state of perplexity, hesitation, doubt" provided by the wargame should be followed by "an act of search or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief" (Dewey, 2018, p. 131). This step is inherent in the classic wargaming design, where a wargame is almost invariably followed by a debrief.

Such reflection requires distance. It requires taking a step away in order to see the full picture of what one has experienced. This also means disengaging from the game and the role one has played in it. The game is now a closed chapter that is to be reflected upon and treated as an object of study; "the key is to move the students to the point where they can productively analyze the simulation using the theoretical tools they have learned" (Asal, 2005, p. 364). With this move, one steps into the mode of reflection.

As it happens, such a step is a natural part of the wargaming design, where the game is followed by a debrief, the function of which is to bridge the gap between the wargame and the curriculum:

> Debriefing provides a link between what is represented in the simulation/gaming experience and the real world. It allows the participant to draw parallels between game events and real-world events. … Debriefing … is a fundamental link between game experiences and learning. (Garris et al., 2002, pp. 454–455)

According to Skodvin, such connections between the wargame and curriculum, and indeed the world, are not possible without the debrief. She argues that after a wargame, students still

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have questions, as they have not been fully apprised as to what really happened and why. This is particularly so if the students were unaware of each other's player guidelines, as was the case with the game she conducted (and as is the case with our games). Still, even in wargames where the players' motives and rationales are clear to all, students might still have questions as to why the game unfolded as it did. Their questions can only be answered through a discussion with the other participants. This allows them to more fully understand their own role as well. According to Prof. Skodvin, the debrief:

> helps the students see their own actions, their own process, in light of how others experienced things and … better understand the full picture. In fact, I think that when you get to the debrief, there might be things that the students still do not understand. … That is an important side of the debrief, that they see their own role in a larger context. (T. Skodvin, personal communication, June 16, 2021)

As such, debriefing constitutes an "acquisition of wisdom" (Christopher, 1999, p. 442). Following the logic of our mode-based approach, such wisdom is not hindered by the occurrence of so-called risks. Quite to the contrary, the occurrence of what is traditionally seen as risks – things such as an exaggerated focus on winning or a tendency to take things personally and become emotionally invested – is conducive to learning. Indeed, the experience mode from the previous section requires students to be present in the moment: to focus on achieving one's goals in the game, to act and react to the decisions of other players, and to think as little as possible of the meta-goals of playing the game – to *immerse* themselves. This elicits competition, an obsession with winning, a state of being driven by emotions, thus inviting what are traditionally seen as risks for learning. Skodvin believes that this is actually one of the values of wargaming as an educational tool: students can experience things they cannot learn through books: psychological factors, irrational reactions, and the dynamic between actors.

In our mode-based approach, such instances do not constitute risks as long as they are addressed in the debrief. Rather, they could serve as pivot points for learning. Frank (2012) also suggests as much when writing that the debrief could be used for pointing out instances of gamer mode during the wargame. Here, moderators and educators can bring up the instances of challenges they have seen in the wargame and turn them into points of reflection, thus mediating their potential for disrupting learning.

Our framework considers what are traditionally seen as challenges to be unproblematic as long as they are addressed in the debrief, through the mode of reflection. This is not necessarily easily done, however. As can be inferred from Frank's writings, students that have been overly interested in winning during the game might be laboring under the misapprehension that they are now done with the activity: they either won or lost, and that is all there is to it. Indeed, Elizabeth Christopher (1999, p. 443) points out that if feelings take over in a game, it might be hard to get the student to focus on anything else: "Some players become so feelings oriented through participation in a simulation game that afterward they do not want to talk about anything else. They cannot get past themselves to contemplate more abstract applications of what happened to them in the game."

These are both instances where students resist leaving the mode of experience and entering into the mode of reflection. What then, could facilitate reflection after the game? One way might be to focus in the debrief on what caused the competitiveness or the emotion, as both Frank and Christopher suggest. The role of the moderator is important here, before, during, and after the game, as this person presumably knows the students, the game, and its learning purpose, and can try to "move players forward into a more reflective and rational mood – to help them make their individual connections between what happened to them in the game and real-world situations" (Christopher, 1999, p. 451). In fact, Christopher (1999, p. 453) concludes that the game leader's presentation is the most important variable for learning in educational wargaming.

Another way to help ensure the reflection mode after the game could also be a matter of the game design and the game experience. Drawing from Dewey's theory, reflective thought is prompted by an experience that challenges one's preconceived notions – "a state of perplexity, hesitation, doubt" following from a "forked-road situation, a situation which is ambiguous, which

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presents a dilemma, which proposes alternatives" (Dewey, 2018, p. 154). Thus, designing and conducting an educational wargame that succeeds in challenging the students' expectations could further trigger reflection mode after the game. This is in line with Professor Skodvin's experience of the wargame as a process of epiphanies for the students. A wargame able to challenge the student's preexisting perceptions might facilitate both the experience mode, and later on, the reflection mode.

Lastly, a measure possibly helpful in ensuring a mode of reflection is viewing the debrief of a wargame as a case study (Asal, 2005).[8] One way to do so is, in essence, what Skodvin and others already do: making the wargame subject to an oral or written assignment. For Asal, case studies produced in this fashion again ensure that the students fully reflect on the wargame they have participated in.

> Many in the literature on simulations … stress the importance of oral debriefing for getting students to analyze and learn from what they have just experienced. In my view, debriefing a simulation should serve the same educational purpose as analyzing a case using typical case methodology. Since, in essence, what the students in the simulation have just done is build a case for the debriefing, an effective approach is to treat it as one. (Asal, 2005, p. 363)

For our purposes, thinking of the game, once it has ended, as a case, and thus also approaching it with the methods associated with a case study, can help get the students into the mode of reflection. As Jones (1998, p. 334) puts it, "basically, a simulation is like a case study – the serious examination of a problem – but with the participants on the inside, not on the outside." With Asal's suggestion, though, the case study approach itself can help the students step outside of the problem after the game has ended.

Such a case study approach, in which student assignments are involved, means extending the debrief beyond the mere semi-structured conversation held shortly after the game known as a "hot wash up" (Dixson et al., 2015, p. 3; Perla, 1987, p. 29)[9] into a more substantial study. Skodvin adopted such an approach in making the oral exam of her course a discussion about the wargame in which the students had participated. In her view, this helped students step outside of their roles and into the mindset of analysts:

> I think [the students] reflect quite a lot on [the game] afterwards, and I think that they in some ways need some time afterwards to actually understand what happened in the game. And we give them that opportunity … through the oral exam that we have. So they sort of have to think about it afterwards as well, and they have to do so a little bit like analysts. Go back and say: "What happened here?" They are supposed to retell what happened, what their strategy was, and how they experienced the process, but they also have to see it from the outside and try to understand in light of an analytical framework. (T. Skodvin, personal communication, June 16, 2021)

What is key in approaching the wargame as a case in the debrief is that the case study approach necessitates and fosters a reflection mode. In studying a case, one steps into a role of analyst, removed from one's subject matter, interested in things such as shedding light on causal mechanisms, investigating similarities and differences and their origins, and exploring the applicability of theoretical assumptions on empirical matter. Such an approach to the game one has played could encourage the kind of attention necessary for entering into a mode of reflection.

8 A case is "an instance of a class of events"; a case study a "detailed examination of an aspect of a historical episode to develop or test historical explanations that may be generalizable to other events" (George & Bennett, 2005, pp. 5, 17).

9 Other ways to conduct the debrief can be so-called "during action reviews," where short debriefs are done after every player decision to evaluate them in real time. A so-called "battle-diary" consists of students' notes explaining the rationale behind their decisions (Perla, 1987, pp. 29–30). While this can be valuable for preventing "hindsighting," it could also undermine the experience mode necessary for learning. This is yet to be explored, however.

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THE MODE SWITCH: A CONCEPTUAL FRAMEWORK FOR EDUCATIONAL WARGAMES

This approach to modes in educational wargames differs from much of the existing literature on wargames. It is at odds with the approach that students can be brought in and out of modes continuously throughout the game, as is suggested by conducting during-action reviews or even keeping battle diaries (Perla, 1987, pp. 29–30), and it differs from Frank's (2012, p. 119) contention that educational wargames require two simultaneous and contradictory attitudes.

Modes represent filters for perceiving, interpreting, and being in the world. As such, a mode is not easily adopted, and getting students into and out of the right mode at the right time is not easily done. Thus, expecting them to enter and exit modes several times throughout a game seems unrealistic and impractical. Moreover, modes capture one's priorities. By definition, then, one cannot be in two different modes at the same time. By applying Dewey's dichotomy of modes to the issue of learning through educational wargames, we have suggested two successive such modes distinguished by a mode switch.

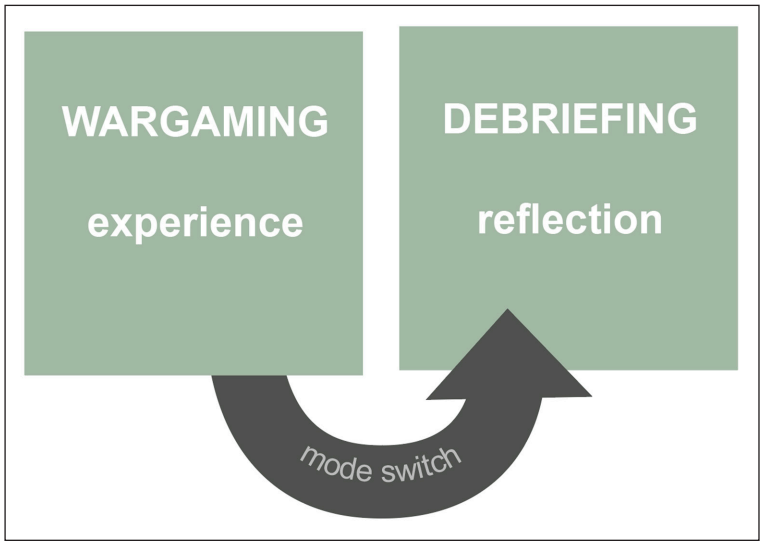

Figure 1 The two modes for wargaming and debriefing.

Our conceptual framework (Figure 1 above) based on Dewey's dichotomy postulates that learning through educational wargames occurs through two modes – experience and reflection. We argue that educational wargames provide unique opportunities for bringing to life both the mode of experience and the mode of reflection: one when playing the game, and one when debriefing the game afterwards. Wargames are naturally poised to include both modes consecutively, as playing the game invites a mode of experience, while the debrief inspires a mode of reflection. In fact, this may well be the very reason why wargames can be effective teaching tools.

The perspective presented in this article reframes existing challenges to educational wargames, allowing for new explorations into the role of modes and mode switching. Further, it provides insight for those who design and conduct educational wargames to maximize their pedagogical potential. With our approach, learning outcomes are not necessarily risked if students execute the wargame differently than was intended by its designers. Being emotional or interested in winning should be compatible with the experience mode. If this is what comes naturally to the student, it could be a means for the students to immerse themselves in the game. After the game, however, the students must step out of their roles and out of the experience mode for the debrief. From this point, a mode of reflection, analysis, and observation is necessary. In this mode, the student is focused on the learning outcome of the game experience. As such, students must enter into one mode when playing and a completely different mode when debriefing.

The challenge to learning through wargames does not necessarily lie in the students using the game differently than was intended while in experience mode but, rather, in students not switching from this mode into reflection mode after the game is over. Ensuring a mode switch, then, is crucial. In Table 1, we have summarized some possible implications that should ideally be tested by future research.

ACTIVITY	WARGAMING	DEBRIEF
Mode	Experience mode	Reflection mode
Success criteria	Taking the game seriously	Stepping out of one's role
	Immersing oneself	Reflecting on the game as an analyst
	Forgetting to be self-conscious	Giving up trying to change the game
	Behaving honestly	Seeking insight into what really went on in the game and how it applies to the course material
Strategies	Making the wargame mandatory	Making the wargame mandatory
	Introducing deliverables into the wargame	Introducing deliverables into the wargame
	Making the wargame the subject of an exam	Making the wargame the subject of an exam
	Making the wargame realistic to the players	Treating the game as case study
		Applying case study methods

Table 1 Findings on modes in educational wargames.

CONCLUSION

Traditionally, the wargaming literature identifies risks related to educational wargaming and makes suggestions for mitigating them. By exploring the concept of modes in learning and in wargaming, we propose a different approach. What are traditionally seen as risks in wargames are seen here as unproblematic, even desirable, as they can be an inextricable part of the students being able to immerse themselves in the game. Moreover, so-called risks can become possibilities for learning if addressed in the reflection mode of debriefing.

What *can* be detrimental to learning, however, is if the students do not switch modes after the game so as to facilitate a proper debrief in which occurrences of challenges during the game can be addressed. Educational wargames, as a two-step process of game and debrief, must be approached with two consecutive modes: that of experience in the game and that of reflection in the debrief. If students are either merely playing or merely analyzing the game, the learning potential of the wargame is not realized. This has important implications for designing, conducting, and researching wargames. While these have been touched upon in this article, ideally this should be tested and explored further by future research.

COMPETING INTERESTS

The authors have no competing interests to declare.

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