

# Gaming the game: A Study of Gamer Mode in Educational Wargaming

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## Abstract

A risk associated with the use of games in training and education is that players “game the game” instead of focusing on their learning goals. The term *gamer mode* is proposed to describe this attitude. A player with a gamer mode attitude strives to achieve goals that are optimal for winning the game but suboptimal with respect to educational objectives. In this study of cadets playing an educational wargame to learn ground warfare tactics, the author examined occurrences of gamer mode. The results show that gamer mode on and off emerged in all analyzed sessions. Cadets’ understanding of the wargame was different from what the instructors expected. This study discusses why it is important to avoid situations where gamer mode emerges and also speculates on the sources that generate this attitude—the game itself, the educational setting, and the participants’ previous experiences.

## Keywords

*Educational games; educational objectives, educational wargame, gamer mode; gamer-mode attitude, ground warfare tactics, learning objectives, military education; understanding of wargame, undesirable effects, wargaming, winning optimizations*

Although educational wargaming is a well-established practice within the military (Perla, 1990; Smith, 2010), sometimes, undesirable effects occur. The overwhelming risk, similar to other uses of educational games, is that players use the game differently from what is intended (Rieber & Noah,

2008). One such risk is that players achieve the game goals in ways that divert them from the learning objectives. Their attitude becomes one of “gaming the game” instead of nurturing learning goals.

In this study, I propose the term *gamer mode* to describe this undesired player attitude toward the game and focus on educational wargaming to know whether gamer mode occurs in this particular domain. Through a detailed analysis of excerpts from video-taped sessions of officer-students playing a wargame, we can present how game mode behaviors unfold in practice. I end by speculating on why this behavior occurs and the potential remedies to the problem.

## **EDUCATIONAL GAMING**

The main question for educational game research is to find evidence on learning outcomes when deploying games as part of the education (O’Neil, Wainess & Baker, 2005; Hays, 2005; Kirriemuir & McFarlane, 2004). The main concern in these studies is the exclusive focus on the artifact (the actual game) and to what extent this artifact in itself provides a better alternative to other teaching media. A problem with such an approach is the belief that games inherently will hold educational qualities (Arnseth, 2006). Studies that separate a game from its actual use will not capture the educational potentials of gaming because these are dependent on many different factors. An alternative approach is to acknowledge and include the specific *use context* for educational games in studies of their effects (Egenfeldt-Nielsen, 2005; Linderoth, 2004). With such an approach, learning is seen emanating from players’ meaning making in the social context in which the gaming takes place. The question becomes how to determine educational achievements during the gaming activity, rather than measuring them afterward (Wideman, Owston, Brown, Kushniruk, Ho, & Pitts, 2007). Studies based on such an approach have found that the interaction with educational games is quite complex. For example, in a literature review, Hays (2005) found that an instructional game “will only be effective if it is designed to meet specific instructional objectives and [is] *used as it was intended.*” No guarantee can be made that the players will follow the mind-set of instructors or designers of educational games, and this can jeopardize the learning.

Rieber and Noah (2008) studied the effects of game-like activities on adult learning. They showed that, although participants’ enjoyment was high, the gaming activity interfered with students’ learning of science

principles. In a qualitative analysis of the study results, Rieber and Noah found that students became “obsessed with improving their score [...] and that the game inhibited all reflection on the underlying science principles.” It seems as if it is the gaming activity itself that interferes with the learning. Similar argument comes from Juul (2005) who states that games can be viewed as *thematical artifacts* where the theme may be exchanged while the rules remain constant. A game is not deeply dependent on the theme to make it playable (or enjoyable) but could create meaning on its own by just enacting the game rules.

These studies indicate that the gaming activity itself sometimes entails a meaning of its own, unfolding in the interaction between the game rules and theme, distorting students’ reflections on and transfer from the game theme to its real-life meaning. As for wargaming, Rubel (2006) mentions a *player artifact* that crops up in wargaming where players tend to be more aggressive than they would in the real world. Rubel points to one of the several reasons why this happens: there is no “tomorrow’ to be provided for by players after the last move.” The US military handbook for training with simulations (NSC, 1994) explicitly warns that players can end up in a “warrior trap,” where a decisive victory over the Opfor (opposing force) becomes a predominant goal regardless of the purpose of the simulation. This attitude may lure participants into overaggressive behavior which could be in conflict with training goals, such as using restrained military force to make diplomatic means possible.

A challenge with educational wargaming is that it requires players to take on two coexisting attitudes toward the activity. First, they must act and think as an officer and take on a *professional attitude* toward the activity to legitimize its use. The wargame is designed to accurately portray certain elements of warfare and should be played as if it were reality. Wargaming aims to train decision making, and by not taking these decisions seriously, pretending to be a commander, the learning gained from the wargame is undermined. Second, because wargaming involves playing a game, the user also must take on a *lusory attitude* (Suits, 2005; Salen & Zimmerman, 2004) toward the activity. A lusory attitude involves committing to play the game in ways defined by the game rules and can be seen as a social contract that articulates the restrictive use between players and the game. Because these two different attitudes have to coexist, tension may occur between them. I call a specific unbalanced attitude *gamer mode* because it is a situation where

players treat the wargame *only* as a game but not as a representation of actual warfare. Ideally, players of wargames will perform actions that are both meaningful and sound, from a game and a military perspective.

Gamer mode and what it represents are not entirely new in military education. It is well known among teachers in officer military education that students may apply faulty military tactics when exposed to wargames or simulators as part of their training. The officers set aside proper military tactical behavior in favor of exploiting in-game rules to win the game. They start “gaming the game” or “letting the game take over,” rather than mapping the game to the real world it is intended to portray. To argue that gamer mode is always a *problem* is perhaps too strong. I believe that it depends on for whom the educational wargame is used and the purpose. As for inexperienced officers, the learning from wargaming is critical to narrow the “knowledge-action” gap (Crookall and Thorngate, 2009). Students narrow this gap by turning their knowledge, that is, theory of military tactics, into action through wargaming. Gamer mode will probably have an influence on inexperienced officers’ learning. In best cases, we find a decreasing effect on students’ learning, but a recurring risk is that, with a negative attitude being detrimental to learning, the participants think this is the proper way to employ military tactics.

Although gamer mode and what it represents are known within the military education, few attempts have been made to document it properly or investigate as to why and where it happens. Wargaming is practiced among many military organizations, where directors and instructors operate by rules of thumb and have learned from previous experiences (Rubel, 2006). As wargaming is a fairly undocumented practice, we lack systematic studies and supporting theories to further our understanding and, possibly, avoid this attitude to emerge. Inspired by these conditions, I conducted a study to investigate occurrences of gamer mode and to better understand what kinds of meaning-making processes arise in playing an educational wargame.

## **METHOD**

The study was conducted among military cadets playing an educational wargame during three days, as part of an eight-week course in war

science. The wargaming part was one of the final stages in the course where they would apply the theories they have learned earlier. The cadets used THE OPERATIONAL ART OF WAR (2005), a commercial strategic computer game to learn the basics of battalion combat. I define gamer mode here as an attitude of the player that can be seen by analyzing choices made relative to the state of the game, the learning objectives, the context of the game use, and the teacher instructions. To be able to comprehend clues, such as when and where a choice is made in a wargame, thereby indicating that a player is more interested in winning the game than reaching the overall objectives, is highly complex. For this reason, we decided to use a qualitative analysis.

I used Jordan and Henderson's (1995) principles of *interaction analysis* because this gave us the tools to reveal associations between participants' actions and activities inside the game. Our study aimed to find occurrences of gamer Mode and provide a richer picture of when and where it arises.

## **STUDY SETUP**

### ***Participants***

A total of 40 military cadets participated in the study, 6 women and 34 men, aged 26 to 30 years. Before the course, the participants had trained in ground battalion combat, so they were already familiar with the theme of the game.



Figure 1. Screen dump taken from the commercial game used in the course. The scenario was specifically created for the cadets. Each hexagon represents  $2.5 \times 2.5$  km. Here, NATO units in blue strive to advance west in the valley to capture Monte Cassino. The Opor units in red attempt to block this advance.

### ***Procedure and Setting***

Before the wargaming session, all participants planned the complete scenario using paper maps, thus familiarizing themselves with the terrain and capacities of the military units. Besides learning basic battalion combat, learning objectives included testing plans in a simulated environment. The game scenario was a head-to-head battle with comparable forces on the blue (NATO) and the red (Opor) sides. The NATO mission was to advance north toward the valley below Monte Cassino in Italy and limit Opor presence there. At later stage in the operation, the NATO forces were to advance further up north to Rome. As such, this NATO mission was regarded as an enabler for later stages. Red side had orders to stop NATO advancements by defending the region

around Monte Cassino. The participants played the game in pairs, two on NATO side against two on Opfor side. As they explored the game, two by two, they naturally commented on their choices, revealing their reasoning and attitudes. The turn-based computer game was played on a hexagon map where each competing side had fifteen minutes to complete a turn. The battle continued for ten full turns, and in the end, the players discussed the state of the game and the whole game session with an instructor (see Figure 1).

### *Measures*

The game sessions were recorded using video cameras, audio recorders, and screen captures to enable interaction analysis of the material. After scanning, a total of three sessions were selected for detailed analysis, spanning data from 12 individuals and a total of 14 hours of video and audio recording.

The participants randomly manned each game station, but each participant was paired with a colleague from the same planning group. By transcribing comments that occurred during the game regarding what had happened between the players and what had happened on the screen, excerpts could then be classified and labeled as demonstrating instances of certain interaction. All names in the excerpts are pseudonyms.

The labeling was done by the author and later validated through a video review process conducted by two independent researchers and a military instructor. I have chosen four to highlight the main findings. The labeling of gamer mode situations grew organically from the analysis of the material, intertwined with our own knowledge of warfare and what constitutes suboptimal military behavior. In particular, it was valuable to have the input of a military instructor, who also led the whole game session.

Considering that gamer mode is manifested in various ways, I mainly searched for actions taken (moves in the game) and utterances from the cadets explaining how they made sense of what they were currently pursuing. It is a challenging task to determine if a player makes a choice based only on their understanding of the game or on their understanding of military tactics. As such, I searched for dialogue that occurred between the players as a means of uncovering their reasoning. More specifically, I was interested in how the cadets treated the military units they were controlling. If players made moves or commented on the units according

to the unit's true representation, I categorized their attitude as professional. However, if they treated the units only to their demonstrated effect in the game, I categorized their attitude to be a gamer mode.

Besides treatment of military units, I searched for interaction and dialogue uncovering how game players made sense of the whole wargaming situation—only as a game or also as a proper representation of warfare. I expected to find indicators for this in the final turns of the game session, as the game itself declared the winning side after the final turn. During analysis of the first session, I searched for different reoccurring interaction patterns that I grouped into separate categories. With these interaction patterns, I iteratively went through the other two sessions, either confirming or extending the categories. By this, I used a ground theory approach to the material.



Figure 2. Cadets playing the NATO side in an educational wargame.



## RESULTS

After analysis of all four game sessions, I found three distinct reoccurring interaction patterns and a fourth more unclear pattern. It was not particularly surprising with the fourth unclear pattern because it is hard to continually determine what is going on during a game being played. Typically, the cadets made moves in this pattern without any reasoning, or I could not distinguish a clever tactical move from a bad one.

The other three patterns were more distinct. In the first, the most common, cadets correctly based their strategy and argued according to what the theme was meant to represent. The actions were based on the cadets' expertise of military units, and the tactics performed were in line with tactical regulations. I labeled the cadets in this pattern to have a professional attitude toward the wargame. Below is an excerpt of a dialogue between the two cadets where one is especially persistent in upholding a professional attitude.

### *Excerpt 1*

Before this excerpt, Andy and Rick on the Opfor side have eliminated a FARP unit (Forward Arming and Refuelling Point) far to the north, leaving other nearby enemy units unable to receive additional supplies. Andy and Rick preferred to target and attack the FARP unit because this would give long-term disadvantages to the enemy NATO units. After successful elimination, Rick and Andy discuss the current situation. Andy is eager to continue attacking the NATO units.

- 
- |         |   |
|---------|---|
| 1. Andy | We have to attack him, we cannot let him sneak pass, we have the orders to delay. |
| <hr/>   |   |
| 2. Rick | But we must also attack him at the right time...                                  |
| <hr/>   |   |
| 3. Andy | Yeah, yeah.   |
| <hr/>   |   |
| 4. Rick | ...so we have a likely chance to succeed.   |
| <hr/>   |   |
| 5. Andy | The odds will probably not be better.   |
| <hr/>   |   |
| 6. Rick | Aah, but... hopefully... one has taken out his FARP anyway.                       |
| <hr/>   |   |
| 7. Andy | I don't think <u>that</u> will have any impact in the game... seriously.          |
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8. Rick	But this game is like...
9. Andy	Well yeah but...if we lose the game, we lose.
10. Rick	Yes, but you might know yourself.

The Opfor tactical move to attack the enemy FARP unit is a wise move because it cuts off the enemy units' ability to recover. Over time, this action will have a decreasing effect on the enemy units' readiness and ability to attack. Both Andy and Rick agree that this is a wise thing to do. However, as the game continues, Andy is not certain that this will have any influence in the game, as seen in 7 from the text. Andy is very eager to attack the enemy forces continuously, although they have an overall mission to delay the incoming NATO advances. Rick is taking on a more careful position toward the current situation because he knows the enemy will suffer in the long term (with elimination of the FARP unit). It is more a question of waiting for the right moment (seen in 2). In a conversation earlier (not visible here), Rick also said, "*we cannot afford to lose all our units... the battle will continue.*"

This explains his carefulness and the fact that the game played is just a small part of the overall military operation. Andy questions Rick's position in 7 with the argument that losing supply units will not matter in the game and also makes clear *what* is important, that is, not losing the game (9). Rick confronts this argument in 10, with references to his own reasoning on proper military tactics, and also frames previous, wise, tactical decisions. His point is that, regardless of how the game ends, they will have at least made the right decisions.

Rick and, to a lesser extent, Andy take on a professional attitude toward the wargaming session. They both argue and make decisions based on their understanding of military tactics and how they intended to frame the game being played. Their move to attack the FARP unit was not beneficial for winning the game as such but would leave the enemy units unable to sustain combat capabilities over a longer period. However, the effect would probably not be noticeable before the final turn of the game. Rick's ability to let military tactics guide his reasoning on what to do in the game and his perception of the game session as a whole are examples of a professional attitude.

***Second pattern: blaming the computer.*** The second pattern is a normal effect of using a digital game that can only be a bleak copy of

limited aspects of a realistic war situation. In this pattern, cadets were surprised, sometimes even annoyed or displeased, with battle outcomes, blaming the computer for being dumb and making invalid or faulty assessments of the activities in the game.

***Third pattern: Gamer mode.*** The third pattern was the gamer mode pattern. Here, I found that the cadets acted upon the game rules, relegating the game theme as irrelevant. In these cases, they made utterances and took actions that only could be explained by the idea that they treated the game as something other than what it was meant to represent—confirming the presence of a gamer mode attitude. gamer mode emerged in all analyzed sessions. Some cadets were less prone to making this mistake; however, typical behavior found cadets drifting in and out of gamer mode, sometimes focusing on the mission or falling into the trap of trying to win at any price. No participant stayed in gamer mode throughout a whole game session. It emerged on an intermittent basis most frequently in the final turns of the session.

I have chosen two different excerpts to illustrate the aspects of gamer mode attitudes. The first concerns treating the military units as something that they are not meant to be; in the second example, we see a total breakdown of any attempt to follow the theme.

### ***Excerpt 2***

In this situation, Opfor have advanced deep into the NATO units, posing a threat to an artillery company that could be attacked by an incoming mechanized infantry platoon. This is considered a serious threat because, under normal conditions, artillery units are operating far from the direct line of fire. Norman is handling the mouse, and Peter is giving instructions on what to do.

1. Norman	Should we stand in their way here?	Indicating a move of a bridge engineering platoon toward a city.
2. Peter	No put it there...one notch up...just below the recon group (reconnaissance group)	Points at an unoccupied hexagon just south of recon group.
3. Norman	There?	
4. Peter	Yes so they can't reach any art bat (artillery battalion)	

5. Norman	Should I pull these forward?	Indicating a move with a supply company. By moving this unit, a wall is formed together with the recon group and the bridge troop in front of the artillery battalion.
6. Peter	Nooo! It's a supply company goddammit!	
7. Norman	Yes?!	
8. Peter	But you can't put <u>that</u> in their way <u>there</u> .	
9. Norman	(silently) But they are still able to fight.	
10. Peter	Just...just...let them stay there.	

In this sequence, Norman in 5 suggests a tactical move that Peter interprets as very nontactical or even foolish, as seen in his response in 6. The “wall” of units that would be formed by moving a supply company in line with the other units seems to be a valid military tactical move, if the supply company had fighting abilities. However, Peter clearly dismisses this tentative move (6) because it is a supply company representing a unit that has little or no combat ability. Instead, a supply company is used for logistics and the well-being of other fighting units. Any move that exposes a supply company to direct fire is foolish and would strongly jeopardize the health and life of the entire supply unit in the long term. Peter understands this and treats the supply unit as a representation of a military supply unit. However, Norman treats the unit as a game unit. As such, the three units would form a wall and protect the artillery against incoming attacking forces. Norman’s tentative move can be justified only if we treat the military units as equal units in terms of attack and defense capabilities, similar to units with only symbolic representations found in abstract games, such as “Chess” or “Go.”

Norman and Peter’s interaction with the game and their disagreement on tactics can be seen as a clear example of two participants interpreting the game interaction differently, depending on their framework of reference—one is in gamer mode, and the other is upholding the game theme. Nothing in the game explicitly demonstrates the effects a supply company has on other units, and thus, Norman treats it as a generic fighting unit. He has thus shifted to a different framework of reference,

where he attaches a different meaning to the supply unit than was intended.

### *Excerpt 3*

The game used in the course declared which side had won after each game session, using a scoring system. The map was divided into subparts—each of a hexagonal shape—that the units could move between. By adding points to certain hexagons on the game map, scores could be calculated based on conquered hexagons. If a unit on one side was residing on, or had passed, these hexagons, the points became theirs. The scores and which hexagons contained points were never made explicit to either side. The cadets also had been explicitly forbidden from turning on the functionality that would allow them to see which hexagons would render points. The following excerpt is an example where the game played has ceased to be a simulation of military tactics and winning the game has taken over entirely.

1. Fred	They are completely immortal goddammit.	Refers to opponent's units
2. Michael	Mmm, I would like to move these around...eh...these (giggles) ...I would like to hit with.	Places mouse over own units far back in own territory.
3. Fred	Ehrrm, here they have nothing and here are quite a few points. Check out the points there you know.	Points first to the valley and then to the button icon to turn on the point view.
4. Fred	There are quite a few points up here (giggles) to get if you know what I mean.	
5. Michael	Mmmm, If you can reach them.	

Just before this excerpt, Fred and Michael have said that they have no chance at all of winning this game. Excerpt 1 is an expression of this situation and their feelings about their competitors' units. The remaining units they have are small with very little firepower; hence, they have very little chance of changing the course of events to their own benefit. What Michael suggests in 2 is to advance their remaining units to the front. Fred understands this and comes up with an alternative plan to place these units. By pointing to a valley which Fred knows is associated with

many points (that can be gained by passing through each hexagon which comprises the valley), he urges Michael to turn on the 'points view' so that they can see how many points each conquered hexagon would give them. In 4, Fred suggests this change of tactics to go after the points, which they end up doing in subsequent turns. They move everything they have to occupy point-rewarding hexagons regardless of the scale of enemy units nearby. Their giggling in 2 and 4 can be interpreted as a lack of concern for sound and proper military tactics; nevertheless, it is a way that they could possibly still win the game. By doing this, they also set aside the goal of the NATO mission because the unit they send to hunt for points would have minimal effect on later NATO advancements to Rome. The excerpt above is taken from turn 8, and in the two subsequent turns before the game ends, the opposing side was not able to get these point hexagons back, although they had realized that their adversary has changed to a point-hunting tactic.

## **DISCUSSIONS OF RESULTS**

I had instructed the cadets that it was important to approach the wargame seriously, that is, to make use of the military theories and tactics they had been taught before this game session. The results show that they did not always comply with this instruction. In the game, I introduced points in certain hexagons to indicate conquered terrain, which I believe correlated well with the military objectives. However, the cadets sometimes overused their resources and tired their troops simply to collect those points. At a later stage, the overall military operation was to advance north, so preserving the resources was vital in planning the operation.

The cadets' attempt to adjust their strategies to win at any cost should not be considered a problem exclusively. The point of playing this game is not only to deepen cadets' familiarity with tactics and the unit capacities but also to promote a 'winning attitude' among the cadets. In real life, the urge to win and take any resources at hand into use creatively is of course crucial. Still, winning at every cost may not be desirable, even when using the resources creatively to advance is promoted.

This study suggests that gamer mode will be detrimental to the cadets' learning processes. Cadets sometimes had different perspectives on what should be regarded as relevant to the situation at hand, showing their lack of understanding of the corresponding real-world possibilities and

problems. Their way of speaking about the wargame and how they made moves in the game at times seemed ill-informed with regard to proper military tactics, occasionally leading to disputes between paired cadets.

## **CONCLUSIONS**

I found occurrences of gamer mode in a study of cadets playing an educational wargame. This validates earlier findings concerning how games can be played disregarding the intended educational perspective. By this, I propose that gamer mode is an important factor that must be considered in educational wargaming. To claim that this is a problem or detrimental to learning is perhaps quite strong; future studies will investigate these implications. However, I argue that gamer mode is a concern for students who do not yet have the experience in performing sound military tactics. If we see that learning occurs from wargaming and the action performed is based on a reasoning that is not in line with proper tactics, we have a difficulty at hand. However, for other purposes than learning of tactics, such as fostering a winning attitude, gamer mode could even be desirable because players then use all available resources creatively to achieve the game goals.

It is probably hard to ensure against this effect when gaming is the preferred method for learning. Gaming is a powerful and engaging activity that we need to address and acknowledge. At this point, I can only speculate on the roots of this problem (and potential remedies). I primarily see three different sources for generating a gamer mode attitude: the game itself, the activity, and the players.

The foremost source is the game itself and the kinds of behaviors it encourages. In our case, it was a commercial game only minimally adapted to an educational situation. Commercial games are designed to optimize a rich and engaging play experience, with clear goals and explicit rules that create meaningful play when put in use. If commercial games, designed for entertainment, are used in educational settings, we should expect players to enter the gamer mode. An obvious solution is to redesign the game to make the game rules and the game world mirror real life more accurately. However, from a cost-benefit perspective, it is seldom the case that instructors and tutors can spend the resources needed to create a game that fulfills all their needs. In many cases, they must choose wisely from available commercial games.

The second potential root of the attitude is the activity itself. Most games are played through competition. In wargaming, this should not generate a problem because warfare itself is a battle of wills. Nevertheless, the competition takes precedence in unexpected ways. A way of avoiding this is to develop detailed instructions on how to use the game. If instructors are present during the game session, they can make sure that the learners follow these instructions, reminding learners about the purpose of the activity (Jones, 1998). Unfortunately, instructors are generally a limited resource. To closely monitor the game being played in our study, and to be able to steer the learning process in the right direction, would require one instructor for every three or four students. This is an unattainable target that few educational organizations can achieve. Educational games often are seen as a complement to a course, rather than the core principle of teaching. Available time generally does not allow a game to be played multiple times, even if this would help students avoid entering the gamer mode.

A third source of the gamer mode attitude consists of the players themselves and their previous experiences and knowledge. Today, gaming is a widespread leisure-time activity, and we see computers and console games in practically every home. Students' understanding of how to approach and use educational games will be colored by their previous game experience—perhaps leading them more easily into a gamer mode attitude. In our next study, we aim to investigate the influence of previous game experiences on officers' educational gaming behaviors. Nonetheless, students with different backgrounds and previous experiences will probably require a diversity of instructional strategies.

I would like to suggest focusing more intently on debriefing after playing the game, apart from designing better educational games, modifying existing games to better fit the educational systems, or putting more instructors into the classroom situation. Poorly designed games (from an educational perspective), and the absence of instructors, require the debriefing session to be more rigorous and extensive. A detailed debriefing where students' game experiences are discussed in detail, specific moves are analyzed and discussed together, and instances of gamer mode are pointed out to the cadets might help them to recognize their game experiences as beneficial in the corresponding real-world



situations. This also could help students to reflect on their own learning strategies, preparing them for future use of educational games.

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## Biography

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