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Wargaming in Military Education for Army Officers and Officer Cadets

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Wargaming in Military Education for Army Officers and Officer Cadets

Johan Elg

Thesis Submitted for the Degree of Doctor of Philosophy in War Studies

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King's College London

Table of Contents

Abstract	6
Acknowledgments	7
Acronyms.....	8
1. Introduction.....	10
1.1 A practice without theory.....	10
1.2 The research question	11
1.3 The wargaming literature	13
1.4 Methodology	17
1.5 The five case studies.....	22
1.6 The sources.....	27
1.7 The structure	30
2. Wargaming theory.....	31
2.1 The essence of wargaming	31
2.2 Educational games and military wargaming	46
Summary	56
3. Sweden	57
Introduction.....	57
3.1 Lower level: the Officer Programme	58
3.2 Intermediate level: the Land Warfare Centre	71
3.3 Higher level: the Swedish Defence University (SEDU)	82
Conclusion: military educational wargaming in Sweden	95
4. Concerns and strategies: an analytical model grounded in data	97
Introduction.....	97
4.1 The core category and its supporting core categories	98
4.2 Three theoretical concepts (conceptual categories).....	103
4.3 An analytical model: properties and indicators	108
Summary	111
5. Germany	112
Introduction.....	112
5.1 Die Offiziersschule des Heeres	113
5.2 Das Gefechtssimulationzentrum des Heeres	125
5.3 Die Führungsakademie der Bundeswehr	132
Conclusion	143

6. United Kingdom.....	145
Introduction.....	145
Royal Military Academy Sandhurst (RMAS)	147
Land Warfare Centre	158
Joint Services Command and Staff College	169
Conclusion	182
7. United States	186
Introduction.....	186
United States Military Academy (West Point).....	188
Maneuver Center of Excellence (Fort Benning)	198
Command and General Staff College (Leavenworth).....	208
Conclusion	219
8. Japan.....	221
Introduction.....	221
National Defense Academy (<i>Boueidaigakkou</i> , 防衛大学校)	222
Fuji school (<i>Fujigakkou</i> , 富士学校)	226
Staff College (<i>Kanbugakkou</i> , 幹部学校)	239
Conclusion	245
9. Conclusion	248
Reflection: the four initial conjectures.....	248
The core category and the three methods.....	254
The substantive field of army educational wargaming	262
Concluding remarks.....	270
Bibliography.....	271

Photographs, tables and illustrations

Illustration no. 1: a spectrum of wargaming, for analysis and education.....	32
Illustration no. 2: interaction (actions and reactions) within a wargame.....	40
Photograph no. 1: the components of the Swedish Army's coastal defence wargame, early 20 th century (author, the Defence Museum in Boden, 2015).	41
Photograph no. 2: military computer-based educational wargaming (author, 2007).....	44
Illustration no. 3: the learning cycle: a model by David A. Kolb.....	50
Table A: overview of wargaming for Swedish officer cadets (armour/infantry) 2014-15.	58
Illustration no. 4: The hybrid map/board game BMBat created by the author.....	59
Photograph no. 3: an overview of the central tactical map with hexes (150 and 1,500 m) and contour lines (5 m) in BMBat.	60
Photograph no. 4: the StriSim-PC facility in Kvarn (<i>Markstridsskolan</i> , 2014).	61
Photograph no. 5: 'the reasoning wargame' (<i>Markstridsskolan</i> , 2014).	62
Photograph no. 6: officer cadets at Karlberg practise tactics with the COTS board game <i>Battle for the Ardennes</i> in 2004.	66
Table B: overview of wargaming at the Land Warfare Centre in 2014-15.....	71
Photograph no. 7: the game director's master map: an ordinary map (1:100 000) with a printed hexagon overlay.	72
Screenshot no. 1: the overhead map-view (2D) in CATS at the LTA.	74
Table C: overview of wargaming during the staff courses at the SEDU in 2013-16.....	82
Photograph no. 8: the computer-based SSM-Land (left), and the hybrid map/board game BMBrig (right).....	84
Photograph no. 9: the board game in HSU 4 as a 'one-room wargame' (Author, 2015).....	85
Screenshot no. 2: the blue team's (divisional headquarters) view in the COTS computer wargame <i>Operational Art of War III</i> for HSU 8 (2014).	87
Illustration no. 5: the Coat of Arms of the disbanded Swedish 'Wargaming Centre' (Eng.: 'War Case Centre').....	88
Table D: variables of wargaming forms in Sweden in 2013-16.....	95
Illustration no. 6: student feedback of the board game in HSU 4 (2015 and 2016).	101
Table E: concepts, properties and indicators.	109
Illustration no. 7: the use of SIRA at the German Army's Officer School.....	115
Photograph no. 10: the use of SiTA.....	117
Illustration no. 8: the Coat of Arms of <i>Das Gefechtssimulationzentrum des Heeres</i>	130
Photograph no. 11: COA-wargaming at <i>Die Führungsakademie</i> (in 2003).	133
Photograph no. 12: COTS-games in use at <i>Die Führungsakademie</i>	136
Illustration no. 9: traditional German military wargaming.	138
Photograph no. 13: The British Army Wargaming Symposium in 2014.....	146
Photograph no. 14: the 'Coy Ops Room Exercise'. Visible on the back wall are the two computer screens (VBS) for UAV and ISTAR.	148
Photograph no. 15: a player aid card in <i>Exercise Aldershot Skirmish</i>	150
Photograph no. 16: the use of <i>Sandhurst Free Kriegsspiel</i> at RMAS.....	151
Illustration no. 10: overview of the Combined Staff Tactical Training Exercise (CSTTX).	161
Photograph no. 17: the prototype of the <i>Camberley Kriegsspiel</i> in 2015.....	163
Photograph no. 18: 'COA-wargaming' during CAST.	166

Photograph no. 19: the ‘informal wargame’ at ICSC (L) in 2015.....	171
Illustration no. 11: the use of RCAT and ABACUS in a British Army Exercise (2014).	174
Photograph no. 20: RCAT in process (OA estimate) at a British Army Exercise (2014).	175
Photograph no. 21: integration of JOCASTS and RCAT.	177
Photograph no. 22: officer cadets and the West Point Simulation Center.....	189
Photograph no. 23: Battle of Neumarkt, 1809, POINTCON XXXIV, 9 April 2011.....	191
Photograph no. 24: a classroom terrain model of a ‘formal wargame’. The Maneuver Captains Career Course (Fort Benning, 2016) provided the photograph.....	200
Illustration no. 12: the Close Combat Tactical Trainer (CCTT).	202
Photograph no. 25: the Joint Conflict and Tactical Simulation JCATS (2012).	203
Photograph no. 26: <i>Decisive Action</i> at the CGSC.....	209
Photograph no. 27: <i>Kriegsspiel 1824</i> at DLDC, CGSC.	212
Illustration no. 13: the simulation matrix at the CGSC.....	215
Illustration no. 14: perception and definition of wargaming in the GSDF.	223
Photograph no. 28: military history (left) and tactics (right), GSDF Officer Candidate School.....	224
Photograph no. 29: leader exercise with sand board (<i>saban</i> , 砂盤) at the Fuji School.	226
Photograph no. 30: sand board exercise with miniatures for the Basic Officer Course.	227
Illustration no. 15: participants’ positions and tasks around the wargaming table.	233
Photograph no. 31: infantry officers at the Advanced Officer Course conducting wargaming (<i>zujiyouenshuu</i>) at the Fuji school, possibly in 2003.	233
Illustration no. 16: map exercises (<i>zujiyouenshuu</i> , 図上演習), a Japanese traditional form of wargaming, according to the MSDF Staff College.....	240
Photograph no. 32: staff officers exercising with ‘ <i>heigienshuu</i> ’ in 1979.	243
Table F. wargaming forms in the five countries (2013-2016).	250
Table G: numbered indicators of the three conceptual categories.	255
Table H: the five countries, the wargaming forms and the three conceptual categories.	257
Illustration no. 17: the substantive field and the three methods (concepts).	262
Illustration no. 18: the substantive field and instructor buy-in (attitudes).	265
Illustration no. 19: the substantive field and the risks of singular adherence.....	268

Abstract

Wargaming has been part of military curricula for about 200 years since the introduction of *Kriegsspiel*, but it is still something of an art form. This thesis attempts to theorise the practice of military educational wargaming, and specifically to explore why such wargaming takes the form it does.

The thesis is limited to army educational wargaming for officers and officer cadets. Wargaming for analytical purposes, and political and strategic gaming, are excluded. Instead, the focus is on army educational wargaming at the tactical level, which is arguably more comparable between countries. The research method combines an exploratory approach influenced by grounded theory with a comparative case study approach encompassing three successive levels of army officer education in five countries: Sweden, Germany, the United Kingdom, the United States and Japan.

The research indicates the central importance of individual game directors. This is particularly evident when wargaming forms evolve. The main concern of the individual game director is how to achieve **instructor buy-in**. This core category encompasses control, credibility and comfort. Three methods, or strategies, were discovered regarding how to achieve **instructor buy-in**. Those three strategies are: innovative active learning, simple standardising and control & veiling. This discovery contributes to new substantive theory, as it explains how specific army educational wargaming forms commence, evolve and are discontinued.

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Acronyms

ABACUS	Advanced Battlefield Computer Simulation
ACSC	Advanced Command and Staff Course
AAR	After-action review
BC2T	Battlegroup Command and Control Training
CAST	Command and Staff Training
CATS	Computer Assisted Training System
CATT	Combined Arms Tactical Training
CCTT	Close Combat Tactical Trainer
CGSC	The United States Army Command and General Staff College
CGSOC	Command and General Staff Officer Course
CHACR	British Army's Centre for Historical Analysis and Conflict Research
COA	Course of Action
COPD	Comprehensive Operations Planning Directive
COTS	Commercial off-the-shelf
Coy	Company
CPX	Command Post Exercise
CSTTX	Combined Staff Tactical Training Exercise
CWC	Captains Warfare Course
BA	Bachelor in Art
BMBat	Board Game Mechanized Battalion
BMBrig	Board Game Mechanized Brigade
Bn	Battalion
FA57	Functional Area 57: Simulation Operations
GSDF	Ground Self-Defense Force
HICON	Higher Command
HQ	Headquarters
ICSC (L)	Intermediate Command and Staff Course (Land)
ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance

JCATS	Joint Conflict and Tactical Simulation
JOCASTS	Joint Operations Command and Staff Training System
JSCSC	Joint Services Command and Staff College
KORA	<i>Korpsrahmen Simulationsmodell zur Offizierausbildung</i> (Eng.: Corps-level simulation for officer education)
LOCON	Lower Control
LTA	Ledningsträningsanläggning (Eng.: command training facility)
LTÖ	Ledningsträningsövning (Eng.: command training exercise)
MA	Master of Art
MCWAR	US Marine Corps War College
MM	Map Maneuver (in Japan)
NATO	North Atlantic Treaty Organisation
NDA	National Defense Academy
OPFOR	Opposing Force
OT	Observer-trainer
PBEM	Play by Email
PDI	Purpose, Decisions and Interactions
PUT	Planering under tidspress (Eng.: planning during time constraints)
RCAT	Rapid Campaign Analysis Toolset
RMAS	Royal Military Academy Sandhurst
ROTC	Reserve Officer Training Corps
SEDU	Swedish Defence University (Swe.: <i>Försvarshögskolan</i>)
SIRA	Simulationssystem zur Unterstützung von Rahmenübungen (Eng.: simulation system in support of exercises)
SiTA	Simulation-based Training for Military Academies
TESS	Tactical Education Support System
TEWT	Tactical Exercise Without Troops
UAV	Unmanned Aerial Vehicle
USMA	United States Military Academy
VBS	Virtual Battlespace

1. Introduction

1.1 A practice without theory

Wargaming – *Kriegsspiel* – was introduced in the curriculum in the 19th century as a method to simulate warfare in order to improve the military profession (officers). However, despite a long tradition, wargaming remains elusive even though arguments are made to increase the use of wargaming.¹ This thesis looks at wargaming – ‘to wargame’ – as an interactive activity in various forms by human participants who simulate warfare for a specific purpose. To shed light on this phenomenon this thesis endeavours to theorise the practice of military educational wargaming by the development of an applicable substantive theory that is of relevance for the practice.

Wargaming has sometimes been described as a practice without theory.² Military doctrine generally states that wargaming is necessary but seldom provides examples or instructions on how to conduct wargaming. This is not a new dichotomy: the chief traditional user of military wargaming, Germany, did not provide official military instructions due to a belief that such written manuals might reduce the educational value of wargaming by transforming it into a repeatable exercise; i.e. *regimentation*.³ The lack of official handbooks on methods of *how* to conduct military educational wargaming indicates that the practice is imprecise. Moreover, wargaming suffers from a tremendous disagreement about its definition, and hence different perceptions of what wargaming entails. The issue of wargaming is further accentuated by the development of more and more advanced computer-based simulations. Accordingly, while wargaming today is an activity that is highly relevant for the military profession, it remains ambiguous because of a lack of understanding of the actual practice.

The experience of the author has significance for this thesis. Since 2007, the author has worked as a game director, designer and instructor of military educational wargaming at the Swedish Defence University. This practical experience is the primary reason why the author developed an interest to explore the practice of military educational wargaming. This personal experience, however, has both possibilities and drawbacks. As someone very familiar with military educational wargaming, the author brings pre-conceived ideas about likely explanatory variables. The drawback of such pre-knowledge is the high probability that such variables are conjectures, i.e. the author’s own biased opinions. To decrease the impact of this drawback, the thesis aims for transparency.

¹ UK Connections Wargaming Conference (2013, 2014, 2015 and 2016).

² Rubel (2006), and, Frank (2014), p. 37.

³ Hofmann (1952), p. ix.

1.2 The research question

Theory of the actual practice of wargaming is arguably needed for both professionals and laymen to understand military educational wargaming. Hence, the aim of this thesis is to investigate the phenomenon of military educational wargaming and explore its various wargaming forms. The research question is as follows: **Why does military educational wargaming take the forms it does?** The research question combines an *exploratory* approach to actual contemporary forms of wargaming with an *explanatory* approach that theorises the practice of military educational wargaming.

Since military wargaming is a wide definition of a phenomenon, four major limitations are used. First, the investigation is limited to **educational wargaming**. Consequently, wargaming for analytical purposes is not included unless such wargaming is used primarily for an educational purpose. Second, the focus is on **officers and officer cadets**. Hence, wargaming for other ranks and non-commissioned officers is excluded since the focus is on the officer profession, which involves a traditional use of wargaming. Third, the analysis includes only **army wargaming** since this is the military branch which has the highest proportion of all officers and which carries a long tradition of wargaming. Fourth, political and strategic gaming is excluded since this level is arguably different in different countries. Instead, the **focus is on tactics**, which is a more comparable level of analysis of different countries. For example, all of the involved countries have tactical brigade level formations.

Personal experience, reasoning (deductive and inductive) and empirical research are overlapping means to understand a certain phenomenon.⁴ Based on the author's experience of military educational wargaming, there are several potential explanatory factors that are likely to influence the choice of a particular form of wargaming. The four supporting questions below clarify the author's conjectures and also serve as the starting point for this exploratory study.

1. Are the forms influenced by foreign concepts or national traditions? One of the most famous and successful wargaming forms for military education was designed and introduced by a young Prussian officer, Lieutenant von Reisswitz, in 1824. This form was further developed and soon spread to other countries. For example, the rules from 1824 were translated into Swedish already in 1830.⁵ There is every reason to believe that contemporary military wargaming practices likewise are spreading between countries today and in particular between co-operating nations. On the other hand, it is also conceivable that national contemporary doctrine has a large-scale influence on the current use of military educational wargaming. Historically, this was the case during the 20th century interwar years in Germany when wargaming was arguably implemented at a more thorough level than *ever* before in

⁴ Cohen & Manion (1994), pp. 1-5.

⁵ Hörberg (1830).

any military organisation. The military doctrine and military leadership of that time (*Reichswehr* and General Hans von Seeckt) promoted this high level of use. Military doctrine and educational/training manuals should provide a clear indication of how wargaming should be used. If there is a lack of a strong national tradition in military wargaming, foreign influences may arguably play a significant role in the choice of specific wargaming forms.

2. Are the forms influenced by the availability of commercial off-the-shelf (COTS) wargames? A large number of 'wargames' exist outside the military. Usually, such wargames are developed from a hobby-perspective and hence the common reference to 'hobby-wargaming', which includes a wide range of purposes such as exploration and encouragement of interest in history with the help of a challenging 'fun' factor. It is not unreasonable to believe that such hobby wargames of various military battles, historical military campaigns and wars, offer insight for military education. Thus, the availability of such wargames may be a more appealing option than developing an expensive military-procured wargame. Recent use of modified commercial wargames in military curriculums, such as the *Virtual Battlespace* (VBS) by Bohemia Interactive Simulations (BISim), indicates a potential influence from the commercial gaming industry. There are thus reasons to consider the prevalence of COTS in military educational wargaming including possible influence from COTS on the military instructors themselves.

3. Are the forms connected to an established process? At the centre of this question is a general distinction between two different and principal purposes in military wargaming: 'classroom planning' and 'classroom warfighting'. The former is a wargame for plan development in the **military planning process** while the latter is a wargame for execution-training, i.e. when the developed plan is actually executed by orders, a process which is connected to a **military decision-making process**. Both 'classroom planning' and 'classroom warfighting' are in this thesis considered as military educational wargaming albeit with a difference in purpose. It is therefore not inconceivable to believe that each purpose utilises a different form of wargaming.

4. Are the forms influenced by the individual instructors? This variable specifically accounts for any explicit concerns of the instructors that are not applicable to the other three supporting questions. Hence, the fourth and last conjecture is about the possible influence of certain individuals. This suggests tangible connections between key personnel and certain wargaming forms. This question specifically covers the role of individual 'enthusiasts', i.e. wargame designers as well as wargame directors and classroom teachers.

1.3 The wargaming literature

The literature on wargaming is vast, diverse and multi-disciplinary. Generally speaking, the literature can be divided into four main areas. Of these four, literature on military wargaming is deemed most relevant for this thesis. Literature on hobby wargaming is considered to have the least relevance.

- 1) Literature on military wargaming
- 2) Literature on wargaming in general
- 3) Academic literature on wargaming
- 4) Literature on hobby wargaming

Literature on military wargaming is specific about certain forms of wargaming and is usually written from an inside perspective. Focus is either on 1) how wargaming is conducted at a certain establishment, or 2) on the usefulness of wargaming for the military profession. The former focal area is generally written by experienced individuals (rather than scholars) while the latter focal area is typically authored by official military institutions and published as handbooks or doctrinal texts. Examples of the former sub-category are the American keystone handbook on wargaming: *Fundamentals of War Gaming* by Francis McHugh from 1966; the German General von Cochenhausen's *Anleitung für Planübungen und Kriegsspiele im kleinen und großen Rahmen* from 1942; and a Swedish educational and training handbook by Baudin et al, *Handbok i taktikutbildning, mark* from 2012.⁶ Examples of the latter category are the Swedish Defence Forces' *Pedagogiska grunder* from 2006, the *US Army Field Manual 34-130 IPB* from 1994 and NATO's *Allied Command Operations Comprehensive Operations Planning Directive COPD Interim v1.0* from 2010.⁷ The focal area on *how* wargaming is conducted is typically specific regarding forms and methods of wargaming. The second focal area regarding the *usefulness* of wargaming is specific regarding purposes – *why* it should be done – while relatively vague about specific forms of wargaming. Basically, it forwards the argument that 'you just have to do it'. Recent developments in computer technologies and interactive media have led to more emphasis on the usefulness of computer wargames. Much of this literature is, however, typically referred to as military simulation rather than wargaming. One example is *Military Simulations and Serious Games* from 2009.⁸ This specific and growing sub-area of military wargaming literature is connected to the academic literature on wargaming since it connects with theories outside the military domain.⁹ In comparison, the contribution of this thesis is the construction and exploration of new, and relevant, theory for the literature on military wargaming.

⁶ McHugh (2013), von Cochenhausen (1942), and, Baudin ed. (2012).

⁷ Försvarmakten (2006), US Army (1994), and, NATO (2010).

⁸ Smith (2009).

⁹ Mead (2013).

The literature on wargaming in general consists of a few noteworthy and, in wargaming circles, well-known sources. Peter Perla's *The Art of Wargaming* from 1990 is a good example in this category. Other examples are Martin van Creveld's *Wargames* (2013), Thomas Allen's *War Games* (1987) and Andrew Wilson's *The Bomb and the Computer* (1968).¹⁰ Included in this field of literature is also wargaming history, such as von Hilger's *War Games: A History of War on Paper*.¹¹ The common denominator of this rather diverse collection is the focus on the general usefulness of wargaming connected to the historical usage. This focus is thus broader than literature on military wargaming. The sources primarily concern wargaming for planning and analysis but also contemplate, on a deeper level, wargaming as a methodology in order to 'understand the true nature of war'.¹² Nevertheless, details are becoming dated and the focus is overwhelmingly on the USA. This thesis's contribution puts emphasis on contemporary wargaming in military education, rather than the customary focus on analytical and historical wargaming.

Academic literature on wargaming problematises the use of wargaming to a larger degree than the previous two categories of literature. For example, certain dichotomies such as 'accuracy vs simplicity' and 'manual vs computer wargames' are discussed in Professor Philip Sabin's book *Simulating War*.¹³ Furthermore, the educational usefulness of wargaming, in most cases designated with terms such as 'games' or 'simulations', is directly connected to rapidly emerging theoretical contexts, for example, 'game-impact theory', which promotes the adoption of game technology by diverse industries.¹⁴ Another concept, 'serious games', is the topic for an entire academic discourse, manifested, for example, in the bimonthly academic journal *Simulation & Gaming* and also on specific sites such as the PAXsims blog run by Professor Rex Brynen.¹⁵ In this category fault lines are identified and links are made to adjacent but non-wargaming activities, such as modelling of warfare, simulations with no humans in the loop, operational research/analysis, and *game theory*. Notably, *game theory* is well-established in political science as a theoretical model on how to explain difficult and important choices in high-level decision-making. Overall, this field of literature is of particular use in a description of the current status of theory within the vast field of games (rather than just wargames). For example, the concept of *gamification* in the use of game-based mechanics to engage people and promote learning is applicable to all types of games and not just wargames in particular.¹⁶ The literature on 'gaming' is immense and gradually increasing. However, only a tiny proportion concerns military wargaming. In

¹⁰ Perla (1990), van Creveld (2013), Allen (2009), and, Wilson (1968).

¹¹ von Hilgers (2012).

¹² van Creveld (2013), p. 8.

¹³ Sabin (2012), pp. 19-30.

¹⁴ Smith (2009), pp. 308-314.

¹⁵ PAXsims blog (2014).

¹⁶ Kapp (2012), pp. 19-23.

addition, literature on *game theory* tends to be somewhat derisive of other categories of games, such as, for example, 'recreational board games', which are often referred to as an 'unserious activity' which may dilute the definition of 'serious games' occupied with *game theory*.¹⁷ While this thesis will add to academic literature, the focus is to construct new substantive theory relevant for the practice of military educational wargaming rather than to utilise existing (and non-applicable) theories such as *game theory*.

The literature on hobby wargaming covers a vast area of different fields of interest and thus differs from other sources. Compared to the literature on academic wargaming, this category is much more about 'wargaming'. Hobby wargaming tends to acknowledge that one crucial element in wargaming is the factor of fun and/or challenge. James F. Dunnigan, a notable wargame designer in the USA, argues that it is the chance to personally experience genuine history – military history – that makes people want to play a wargame.¹⁸ The majority of hobby wargames includes a historical aspect while others are focused on fantasy and science fiction. A central feature is to control warfare.¹⁹ Hence, hobby wargaming is closely linked to military history, especially how to fight a historical battle as realistically as possible. This connection has been suggested to constitute a separate 'wargame theory' in how to re-create a historical battlefield.²⁰ A well-known designer of hobby wargaming in the United Kingdom, Donald Featherstone, has written that most hobby wargames aim to have the greatest possible realism in their rules, i.e. to get the historical details correct.²¹ While the connection to traditional military wargaming is strong for this category in literature, one latent issue in every hobby wargame is 'playability' versus 'realism'. One view is that if 'realism interferes with enjoyment then out goes realism!'.²² This is not to say that hobby wargaming generally consists of simple games for fun – in many cases it is rather the opposite: they display a deep understanding of the modelling of certain factors, such as logistics in a specific war/battle. One example is the commercial wargame *Operational Art of War III*, which is also played by officers. Such wargames are realistic but also include obvious game mechanisms, such as victory points. Another aspect of hobby wargaming is the focus on role-playing, which is connected to academic literature on wargaming, such as studies in how to create narratives for education in history.²³ Factors like these are relevant for military education and raise the question to what extent hobby wargaming influences military instructors involved in wargaming. The contribution of this thesis is to investigate such possible influence.

¹⁷ Goffman (1969), p. 90.

¹⁸ Dunnigan (2000), pp. 1, 107, 217.

¹⁹ Harrigan & Kirschenbaum (2016), p. 31.

²⁰ Hall (2011), pp. 7-8.

²¹ Featherstone (2009), p. 21.

²² Peterson (2012), p. 299.

²³ Karlsson (2014).

In summary, the literature on wargaming is either very general or very specific. The first case can be exemplified by Martin van Creveld and his book *Wargames: from Gladiators to Gigabytes*. While a recent (2013) addition in the literature on wargaming, almost the entire length of the book covers historical wargaming rather than contemporary wargaming. In this context, van Creveld claims that 'each armed force and service seems to have developed its own [wargaming] methods.'²⁴ Here a critical piece of information emerges: there is a lack of contemporary sources that either describe or problematise different armed forces' use of wargaming. Historically, there are few sources that have attempted to give an overview of wargaming. One example is Francis Sayre's *Map Manoeuvres and Tactical Rides*.²⁵ However, it is from 1910 and completely outdated. A somewhat similar source, although with a very distinct emphasis on naval military wargaming in the USA, is Francis J. McHugh's *Fundamentals of Wargaming*, from 1966. It is published in the form of a handbook and covers the use of different forms of wargaming. However, it is focused on a descriptive overview of the U.S. Navy's wargaming at one facility: the Naval Warfare College in Rhode Island. In general, the military literature on wargaming tends to concentrate on wargaming's usefulness as an instrument to validate plans, or as a research and analytical tool. There are few sources, almost no contemporary ones, which focus on wargaming in military education.

The thesis's main contribution to this vast and diverse field of literature is to theorise the sub-class of military educational wargaming as part of the general phenomenon of wargaming. This kind of approach is sometimes referred to as the construction of 'middle-range theory' since it involves an effort 'to explain various subclasses of general phenomena [and] provide better guidance when various strategies will be effective' in order to bridge the ubiquitous 'gap between theory and practice'.²⁶ For this reason, the contribution of this thesis is the construction of theory primarily for the practitioners of military educational wargaming.

²⁴ van Creveld (2013), p. 314.

²⁵ Sayre (1910).

²⁶ George & Bennett (2005), pp. 78, 265-266.

1.4 Methodology

The chosen research design of this thesis balances the author's pre-conceived notion of what influences various forms of wargaming, with an openness to include the possibility of unknown factors. The author's preconceived notions of military wargaming stem from years of experience with professional military educational wargaming in Sweden. In order to contribute to the research on military wargaming it is, however, necessary to look beyond mere descriptive forms, anecdotes and conjectures. Pre-conceived notions, such as the selection of supporting questions and the possible inclusion of established theories such as organisational theory, enable theory-testing rather than theory-generating. However, the result may put more focus on testing existing (and probably peripheral) theories rather than theorising the phenomenon. A partially inductive approach counters this risk, and puts the focus on theory development relevant for the phenomenon by taking into account the main concerns of individual instructors. In comparison, a common deductive approach proposes hypotheses at the initial stage for verification rather than for discovery.²⁷

Grounded theory

The inclusion of an inductive approach should not be seen as an attempt to pursue a methodology of *grounded theory* to the fullest extent possible. The aim is nonetheless similar to *grounded theory*: to enable theory development rather than to pursue theory verification.²⁸ Since there is a lack of present-day theory on the actual practice of contemporary educational military wargaming, the ambition is to build a theory grounded in data rather than import a chosen theory of social science deemed suitable and apply it – for verification or falsification – to the practice of wargaming. Hence, while theory testing may contribute more to the understanding of how a chosen social theory fits into the field of wargaming, the selected alternative of theory development contributes to the development of a **theory that is relevant for the practice** of contemporary military educational wargaming.

One reason why the methodology of *grounded theory* cannot be fully implemented in this thesis is the author's preconceived views. It is important to reflect on such preconceptions.²⁹ Therefore there are several pre-conceived supporting questions inferred from the author's own experience in the field of professional military wargaming. These can, within a common deductive approach, be considered explanatory variables regarding why wargaming takes the form it does. However, there is a risk that these selected and considered independent variables on proposed factors of influence on the form of

²⁷ Hartman (2011), pp. 68-69.

²⁸ Glaser & Strauss (2008), pp. 28-30.

²⁹ Charmaz (2014), p. 155.

wargaming will instead 'force data' into pre-established categories.³⁰ On the other hand, it is also important to acknowledge that the experience of the author does constitute an integral part of the theoretical construction of a research design.³¹ This is also the reason why this thesis initially brings forward supporting questions.

Of the four selected supporting questions on what influences the forms of wargaming, the last question on individual instructors is specifically open for inductive reasoning. The research design is influenced by the methodology of *grounded theory*, which is a mixture of deduction and induction. Furthermore, *grounded theory* emphasises the development of *substantive theory* rather than *grand*, or *general*, *theory*. Substantive theory covers practical situations that can apply to similar situations at other locations. Substantive theory constructed from data may later lead to formal theory (albeit not general or 'grand theory' such as Marxism) for a certain conceptual area such as 'stigma' or 'organisations'.³² Since military educational wargaming arguably suffers from a lack of theory, a reasonable approach for this thesis is to construct a substantive rather than a formal theory. Substantive theory can be exemplified by how nurses communicate to a dying patient that he is indeed dying.³³ In comparison, formal theory applies this substantive theory, the *awareness context*, generally and to any case. For example, regarding how the umpire influences players' behaviour in a game.³⁴

The construction of theory means that the analysis of collected data must adhere to a sound methodological method. This risk of forcing data can be mitigated by a *grounded theory* approach with a mixture of induction and deduction through an interactive, simultaneous and repeated undertaking in the selection, collection and analysis of data. This interactive method is named *constant comparison* and is used in order to ascertain what is relevant in the collected data and to build, and grow a theory that is grounded in data.³⁵ This is done by constructing codes from the data. This in turn generates tensions between analytic insights and described events, which leads to further interpretation of the views and actions by the wargaming instructors. This is a form of active coding that sees repeated interaction between the author and the collected data.³⁶ Accordingly, while the overall method is a comparative multi-case study, *grounded theory* is used in order to discover unknown facts and to reduce the risk of forcing data to suit pre-conceived notions on what influences the forms of wargaming.

³⁰ Hartman (2011), p. 60.

³¹ Håkansson, (2005), p. 156.

³² Glaser (2009), pp. 3-4.

³³ Glaser & Strauss (2005), pp. 10-11.

³⁴ Fine (1983), p. 117.

³⁵ Hartman (2011), pp. 35-36.

³⁶ Charmaz (2014), pp. 114-115.

Case study

The analytical method selected for this thesis is the comparative case study. Case studies are well-suited to accommodate an explanatory approach since a case study focuses on a certain phenomenon in order to investigate conditions or processes more thoroughly.³⁷ Case studies emphasise the real-world context in which the phenomena occur.³⁸ Case studies include several empirical sources such as interviews and study of documents and are accordingly frequently used in contemporary and comparative studies. Another factor that favours a case study approach is when there is little possibility to control or manipulate events. Such events are, for example, a wargaming exercise which the author merely observes rather than organises. Furthermore, an inductive approach that encompasses cases with rich empirical data is likely to produce theory that is 'accurate, interesting and testable'.³⁹

The data collection method for the cases is interpretative. This coupling of a comparative case study with a methodological interpretative approach allows the method of induction and reduces the risk of 'forcing data'. Hence, the data is the centre of analysis rather than the supporting questions or any hypothesis. While the deductive method entails observation and measurement of data to verify/falsify hypotheses made at the very beginning of the research process the method of induction does the opposite: data is first collected and then hypotheses are generated.⁴⁰ In short: the deductive method is closely related to the positivist scientific tradition, which strives to make things observable and measurable, and therefore scientific. In comparison, the method of induction is related to the hermeneutic tradition, which aims to interpret the meaning people ascribe to reality. Since individual instructors are likely to play an important role in military wargaming, their views and concerns are included by the use of induction. This regards especially how the instructors perceive wargaming and what they believe is most important in their practice.

The choice was made to include various countries as different cases. The reason for this choice was that a multi-case study with several countries can establish empirical generalisation. Other countries can thus support a single case by offering insights into things that are not apparent in, for example, a Swedish-only context. It is considered very likely that comparative cases will support each other, forcing a second look at things or stimulating a return to collect additional data.⁴¹ Furthermore, it may as well be possible to infer *invariant structures*, meaning objects or functions which are constant

³⁷ Yin (2014), p. 9.

³⁸ Eisenhardt & Graebner (2007), p. 25.

³⁹ Eisenhardt & Graebner (2007), pp. 25-26.

⁴⁰ Easterby-Smith, Thorpe & Lowe (2002), pp. 46-57.

⁴¹ Glaser & Strauss (2008), pp. 24-25.

throughout a certain range of conditions.⁴² Invariant structure may also be expressed as *analytically equivalent phenomena*. In order to discover such phenomena a consideration of contextual factors is needed. Case studies are deemed to be a good method of looking at contextual factors in order to find and measure such phenomena.⁴³ This method is also supported by the selected *grounded theory* approach as it aims to discover regularities, i.e. the identification and categorisation of elements and the exploration of their connections.⁴⁴

In order to test and refine a research design a pilot case is usually needed.⁴⁵ In this thesis, the initial case study of Sweden replaced the concept of a pilot case. Sweden is the case where the level of access is the best in comparison to other countries. Access in the case of Sweden was supported by: geographic proximity, existing access due to the author's work at the Swedish Defence University (SEDU), pre-established personal relationships and trust, pre-acquired knowledge of wargaming activities and the reduction of language inaccuracies since the author and all participants speak the local language (Swedish). This initial case allowed testing of the research design by identifying and connecting with the principal individuals, and the application of a case study with embedded units of analysis with an analysis of the collected data. The initial case also provided the ability to conduct observations of actual wargaming sessions – this was more problematic in other countries due to difficulties in securing access. Thus, the initial case of Sweden provided insights into the forms of wargaming and the individuals involved in this practice.

The scope of this thesis is limited to military educational wargaming conducted with army officers and officer cadets. The main reason for having an army focus only is that the army branch is any country's largest service in terms of personnel, usually consisting of between 50-80 percent of the total personnel pool of a defence force. Traditionally, wargaming was also first and foremost an army (land) activity. Currently, at least in the USA, some believe that army 'gaming', rather than simulation, is ahead of the navy and air force.⁴⁶ The differences between wargaming and simulation is discussed in Chapter 2. While the focus of this thesis is on army wargaming, many staff colleges and some officer schools are nevertheless joint establishments. Therefore, the thesis cannot claim to have an exclusive focus on army or land. In practice, however, the analysis is restricted to wargaming forms either exclusively with a land focus or with a tilt toward land operations.

⁴² Simon (1996), pp. 100, 177.

⁴³ George & Bennett (2005), p. 19.

⁴⁴ Tesch (1990), pp. 63-73.

⁴⁵ Yin (2014), pp. 96-97.

⁴⁶ Mead (2013), p. 6.

The four supporting questions are likely to be found lacking (which was indeed also the case). Such incongruity is, however, in accordance to *grounded theory*, which argues that theory should be constructed from real data in order to create relevant and useful theory for a specific field of practice.⁴⁷ Consequently, in Chapter 4, an enhanced methodological discussion includes an analytical framework centred on categories developed from the data from the initial case of Sweden. This analytical framework is further explored, rather than tested, by data from the remaining four case studies. Consequently, the research design constitutes four integrated parts:

1. Analysis of supporting questions (conjectures) by coding of data from the initial case study,
2. Construction of an analytical model (categories) by an emphasis on the main concern of the participants and how they handle that,
3. Exploration of the analytical model through the other four case studies,
4. Generation of a synthesis in the form of substantive theory.

⁴⁷ Glaser (2010), p. 36.

1.5 The five case studies

A total of five countries were selected to be included in this international multi-case study. The approach was to use cases that are rather similar, rather than as different as possible.⁴⁸ A non-similar selection of countries would arguably include countries such as Russia, China, Israel, Turkey and India. The five selected countries – Sweden, Germany, the UK, the USA and Japan – are instead quite similar as they are all developed democracies with modern defence forces and co-operate with the USA. However, there are differences between the selected countries. The USA, as the most militarily involved country in the world, and as the dominating nation of NATO, has considerable influence on contemporary military developments and doctrines. The USA has also developed a robust and multifaceted wargaming, simulation and modelling tradition since the Second World War.

The main difference between the selected countries – besides the unique cultural aspect of Japan – is the traditional and contextual background concerning the development of military wargaming. Germany and Japan were considered world-leading users of wargaming before the Second World War. Post-war, both were forced to demilitarise and ostensibly lost their edge in military wargaming. Those constraints may still linger in combination with newer ones. For example, Japan is constrained by training restrictions due to land congestion and environmental issues and would presumably rely heavily on wargaming for education and training instead of field manoeuvres. Since all five countries are unique, with their own national traditions of wargaming, it is not unreasonable that wargaming forms may differ. Alternatively, influence from the USA may be overwhelming.

Sweden

Already in 1830, six years after the publication of the rules of the *Kriegsspiel* in Prussia, the rules were translated and published in Sweden.⁴⁹ Military educational wargaming in Sweden was well established in the early 20th century, with discussions in wargaming literature on how to use different wargaming forms by translated German sources.⁵⁰ Specific adaption to the Swedish climate and terrain was seen in the widely distributed *Vinterkrigsspelet* in 1909 (the ‘Winter Wargame’). Today, military educational wargaming is, however, primarily considered a doctrinally-supported method to validate and improve military planning. With its historical wargaming tradition, especially influenced by Germany, the minor country of Sweden constitutes an interesting example. It has contemporary good military relations to the USA, the UK and Germany, albeit not as a formal member of a military alliance.

⁴⁸ George & Bennett (2005), pp. 83-84.

⁴⁹ Hörberg (1830).

⁵⁰ Immanuel (1904), pp. 13-16.

Germany

Military educational wargaming began in Prussia as *Kriegsspiel*, the German word for wargaming. Its widespread use in military education started in 1824 with an introduction by the Chief of the General Staff, General von Müffling. Before the Second World War, the top military leadership, such as General von Seeckt, promoted extensive use of wargaming. Germany was demilitarised after losing the Second World War and the use of *Kriegsspiel* was terminated. Today, Germany has a modern military force and is a key member of NATO in regards to geographic location and military capability. The use of wargaming in the contemporary German Armed Forces, *die Bundeswehr*, are indicated by several sources. One of them is referred to as 'the NATO handbook on wargaming'.⁵¹ This text was published in 2004-2006 by the Command and Staff College, *die Führungsakademie der Bundeswehr*. It explicitly re-connects with previous German experiences of military wargaming, which, it is claimed, 'were lost' in the post-war period, and thus offer detailed instructions on how to organise and conduct a course of action (COA) wargame.⁵² This raises questions about what traditions, if any, have survived or developed. A second indication of conceivable contemporary usage is the recent general popularity of commercial hobby board games in Germany. Examples of such games are *Puerto Rico* and *Carcassonne*. It is likely that such board games are present in conjunction with game-based learning in German civil education. It is conceivable that this use of gamification in civil education also has found its way to military education. A couple of examples indicate that this occurs. One is the educational role-playing game POL&IS (*Politik und Internationale Sicherheit*), which are actually run by German officers (*Jugendoffizier*) in order to give high school students an understanding of team work, conflict resolution and world affairs.⁵³ Another example is a 'Planspiel', a game that simulates diplomacy within the United Nations (MUN: Model United Nations). This game is used at the *Bundeswehr* University in München.⁵⁴ Whether or not these examples indicate a widespread use of similar games within the professional military education of army officers and officer cadets in Germany is something this thesis will investigate.

⁵¹ Interview: Nilsson, 2014-10-07.

⁵² Führungsakademie der Bundeswehr (2006).

⁵³ Bundeswehr Jugendoffiziere (2015).

⁵⁴ Bundeswehr (2013).

United Kingdom

The United Kingdom (UK) saw the development of what was called the first naval wargame by John Clerk in 1782. After the 1870-71 war between France and Prussia, educational wargaming found its way to the UK. Ample historical examples can be found, especially in high level wargaming prior to the start of the Great War in 1914. The expansion of civilian hobby wargaming was particularly developed in the UK in the early 20th century as evidenced by the designs of H.G. Wells and Fred T. Jane. In a related development, Frederick W. Lanchester entered the path towards operational research methods with his combat models of attrition. Recently, initiative in the UK to invigorate military wargaming is evident in the conferences (UK Connections) on wargaming that have been held annually since 2013. The author's active participation in this annual wargaming conference has provided opportunities to meet people connected to military wargaming in the UK as well as other countries. Individuals from the UK, for example Major General (ret.) Andrew Sharpe, Lieutenant Colonel Ivor Gardiner, Major Tom Mouat and Major (reserve) Graham Longley-Brown, are outspoken proponents of an increased use of professional educational military wargaming within the British Army.⁵⁵ With both historical and contemporary developments the UK is an essential case.

United States

As the strongest contemporary military power, the United States of America (USA) is in a league of its own and any comprehensive case study on wargaming consequently has to include it. William R. Livermore, Captain in the US Army Engineers, introduced military wargaming in the USA in 1872 in the form of translated wargaming rules from Prussia.⁵⁶ Wargaming was developed in conjunction with 'staff rides', which were conducted on the many accessible battlefields of the Civil War.⁵⁷ Naval wargaming, centred at the U.S. Naval Academy in Rhode Island, developed into an enduring wargaming tradition. After the Second World War, wargaming became interrelated with scientific approaches such as system analysis and operational research. Furthermore, civilian hobby wargaming, such as the board game *Tactics* from 1954 by Avalon Hill, also became established post-war. Besides traditions in both military and hobby wargaming, developments in civilian education in the form of game-based learning since the 1970s, as well as recent military promotional computer wargames such as *America's Army*, may have significantly influenced contemporary military educational wargaming in the USA.

⁵⁵ UK Connections (2013-2016).

⁵⁶ Peterson (2012), p. 247.

⁵⁷ Robertson (1987).

Japan

As a primarily non-western culture, Japan is an interesting case in itself. Wargaming was adopted for military use in the late 19th century, following the country's path of rapid modernisation. Military influences from the 'west' were strong: Germany assisted in the creation of a modern army while the UK similarly assisted in the creation of a modern navy. The use of wargaming was particularly noteworthy during the Second World War. Indeed, one of the most famous, or rather infamous, examples of the use of military wargaming is the wargaming conducted during Japanese planning conferences before the decisive naval battle of Midway in 1942.⁵⁸ Similar to Germany, Japan was demilitarised after the end of the war and the use of military wargaming was subsequently terminated. Today, Japan is a very close ally with the USA and has, compared to most countries, relatively sophisticated military forces, albeit with a restricted self-defence role. Japan is culturally different from the other four cases and this may influence educational practice. Another aspect is that since the 1980s Japanese hobby wargaming has benefitted from the development of innovative game consoles and card games. This raises questions if such contemporary developments have influence on Japan's military educational wargaming. One specific benefit related to this case is that the author has knowledge of the Japanese language and culture.

Embedded units of analysis

Each country is represented as one case study. Each case study is further divided into three minor case studies, i.e. embedded units of analysis. These units represent three general levels of officer education. This differentiation is applied because of the need of *space triangulation*, which takes into account the effects of educational processes as a cross-sectional study. This lessens the problem of validation regarding single observations and is particularly suited for case studies of complex educational phenomena.⁵⁹

The three different levels were selected based on the following reasoning. Logically, every country has an officer school where officer cadets learn the basics in the officer profession before receiving their commission and becoming an officer. At the level of officer cadet, it is particularly likely that wargaming is conducted. If it is not then there should be reasons why. The other logical educational level is staff colleges/schools where officers obtain qualification for staff positions. This is part of the higher level education for officers. In those educational establishments it is highly likely that wargaming is conducted. In contrast to the officer cadet schools the students at this higher level have acquired

⁵⁸ Elg (2008).

⁵⁹ Cohen & Manion (1994), pp. 233-241.

between 10 to 20 years of professional experience which may entail different educational methods and hence different forms of wargaming. Situated between the formal educational levels are training establishments such as a 'Land Warfare Centre', which includes officer education. Here, wargaming is likely to occur, albeit potentially with a focus on specialised training rather than on general education. Accordingly, the three embedded units of analysis in each selected country are:

- **Level I (lower level): Army Cadet Academy or Joint Officer Training Academy:** This is where officer cadets are initially introduced to tactics as well as military educational methods. In some places parts of the education are organisationally divided between a 'defence college' and an 'army cadet training school'. This is, for example, the case in Sweden and Japan.
- **Level II (intermediate level): Land Warfare Centre or Tactical School:** here, developments and further education in tactics are conducted. Education is usually provided for the rank of captain and for specific tasks such as Company Commander or battalion staff member.
- **Level III (higher level): Army Staff College or Joint War College:** This is generally the last level of education of an army officer. Typically, the military students enter this level with the rank of captain or major and graduate as major or lieutenant colonel.

An alternative selection would include every major garrison in each country. However, it would be too costly and too time consuming to visit them all in order to cover everything. The other extreme alternative would be to concentrate on a single country study. As a consequence, this would create a dilemma whether a discovered problem is general in character or only applies to a single country or facility. One middle ground alternative could be to include a few military units, i.e. pairing a Joint War College with a Joint HQ, and a service school with a brigade HQ etc. However, the question could be raised if there really are such clear connections between levels of education and levels of command in terms of wargaming. Furthermore, not all countries have the same structure regarding levels of command which will create complications in comparisons. Finally, this alternative would still create difficulties regarding accessibility due to the need for additional admission into facilities.

1.6 The sources

The thesis utilised three primary sources: interviews with the instructors, observation of wargaming activities, and documents including doctrinal publications, manuals, presentations and instructions. Of these primary sources, the far most important one is the individuals involved in wargaming. This emphasis is influenced by *grounded theory*, which is focused on theory development by interpretative findings of empirical concerns from individuals at the very core of a practice. In addition, military educational wargaming has historically been associated with a few individuals who were crucial for the development of certain forms of usage. Lieutenant von Reisswitz in early 19th century Prussia represents a good example of this kind of individual. Moreover, some individuals were senior decision makers who decided to use their influence to help promote and implement the use of wargaming. Such an individual can be exemplified by von Muffling, the Prussian Chief of Staff in the early 19th century.

The interviews of the instructors covered individuals organising and running the wargaming sessions. Some individuals were additionally in charge of a course with wargaming while a few individuals belonged to the educational establishment. In contemporary education, a ‘facilitator’ is seen as an individual who uses the art of leading and guiding people through a process toward agreed-upon learning and teaching objectives.⁶⁰ When such individuals are directly involved in teaching they may influence the specific form of a wargame. The interviews were focused on ‘lower-level officials’, i.e. instructors, as those often work in direct contact with wargaming. Such persons probably provided better insight into the actual use of wargaming. On the other hand, it should be noted that a potential drawback is that individuals at this lower level may not provide the complete picture.⁶¹ Furthermore, reliance on individuals may lead to false verification rather than exploration and reconsideration.⁶² Embedded units of analysis, however, allowed *space triangulation* by the collection of data from interviews from three physical locations per case.⁶³ Furthermore, the interviews were conducted as semi-structured interviews in order to let the interviewees themselves tell their story, which is important for an approach influenced by *grounded theory*.⁶⁴ General background information was, however, sent out beforehand to each respondent to ensure that relevant data was gathered. This was sent in addition to the formal ethical approval of the research and the individual information and approval sheet for each interviewee. All interviews after the Swedish case were done without audio-recording in order to let the interviewees speak more freely. Notes were taken by the author and

⁶⁰ Sibbet (2002), pp. 0-2.

⁶¹ George & Bennett (2005), p. 103.

⁶² Lantz (2013), pp. 14-15.

⁶³ Cohen & Manion (1994), pp. 233-241.

⁶⁴ Glaser (2010), pp. 132-133, Corbin & Strauss (2008), pp. 27-18., and, Birks & Mills (2015), p. 73.

coded no later than a few days after each interview. Transcribing the written notes into a digital word-format enabled the data to be coded regarding themes and emerging categories. This process included the writing down of reflections and provisional conclusions as memos shortly after the occasion of the interview.

Observation of wargaming activities complemented data from the interviews by allowing the exact wargaming forms to be corroborated. However, observation is a data collection method that is highly dependent on accessibility and is also time-consuming. Therefore, the proportion of observations is largely concentrated to the initial case of Sweden. While the case of Sweden enabled several observations the opposite situation occurred in Japan. On the other hand, the case of Sweden is arguably the most important case because the analytical model (Chapter 4) is constructed from data on the Swedish case.

Besides interviews and observation, documents were the other primary source. Official doctrinal publications and manuals, presentations and instructions provided a context for interviews and for comparison between the cases. However, many documents that would provide additional information were restricted and/or classified. This was to some degree compensated by books and articles written by experienced individuals, who had previously worked at the establishments or were in fact still employed. Such sources were useful, albeit scarce. Further written material, such as non-official, and/or non-published guides to military educational/training wargaming methods were collected when accessible.

Efforts were made to collect as much data as possible before the physical visit of each establishment and interviews. However, in many cases, documents such as presentations etc. were provided by the interviewees on site, and were then used for analysis *after* a visit. Each visit consisted of a long process that included the task of personally searching for relevant persons at each establishment. Initial contacts were necessary well in advance before the actual visits to properly inform potential interviewees about the research project in order to give them reasonable time to contemplate their voluntary participation. Included in this process was the reception on site of documentation on wargaming, something which would have been difficult to achieve without the actual physical visits. In several cases, documents were received *after* the visits by email, which in turn contributed to additional post-visit follow-up questions.

A major challenge during the research process was identifying individual instructors willing to participate. There were, for example, variations regarding a person's public profile on social media and previous exposure to studies and articles. Some individuals were very public about their wargaming activities and were thus relatively easy to locate and contact. Others needed to be introduced on site

by a local point of contact. One measurement of success was to have established a point of contact well in advance of a visit. The point of contact selected relevant personnel to interview based on information from the author. This included research information and an intentionally inclusive list of wargaming activities, including sand table and staff exercises. This list enabled the 'gatekeepers' at the educational establishments to consider a wide selection of 'wargaming activities'. For that reason, access was provided to activities beyond the gatekeepers' more narrow perceptions of 'wargaming'. The inclusive list of wargaming activities was essential since the author was regularly told during the initial efforts of communicating that 'there is no wargaming here' even though a simple search on the internet provided indication of the opposite.

The author's own role carries significant implications as there are negative aspects of a pre-understanding of the research field. First, there is a possibility that respondents thought that they knew the author's preferences of wargaming forms. The author has, for example, designed and implemented a manual hybrid map/board wargame for use in military education and has presented this at the wargaming conference UK Connections in 2013. Second, there is a risk that the reader of this thesis may be susceptible to possible biases. On the other hand, there are positive aspects attributable to the author's acquired experience in planning, directing and designing wargaming activities for the Swedish Defence College/University since 2007. Thus, interviews with instructors on *how* wargaming is conducted were covered more thoroughly than would otherwise have been the case if little pre-understanding had existed. Focus was thus directed on *why wargaming is done* rather than on *what wargaming is done*. To decrease possible bias, interviewees were allowed to speak freely without interference from the author.

1.7 The structure

The thesis is divided into two major parts. Initially a theory overview is presented followed by an exploratory analysis of the case of Sweden. The initial part concludes with reflections on the initial supporting questions, a review of interpreted findings and the construction of an analytical model informed by grounded theory. The second part consists of four case studies where the analytical model is further explored.

The initial part consists of four chapters: the introductory chapter, the chapter on wargaming theory, the chapter on Sweden and the fourth chapter reflecting on initial results. The introduction is centred on methodological concerns while the chapter on wargaming theory provides a framework for the case studies by a definition of wargaming grounded in social sciences. Notably, this chapter on wargaming theory indicates that while there is much literature on wargaming, there is little or no theory that attempts to explain *why* wargaming takes the form it does. The initial case of Sweden is structured in accordance with the initial supporting research questions while data collection is influenced by *grounded theory*. The fourth chapter provides an analytical framework for the second part. This chapter is an important part of the thesis and is a reappraisal of the initial supporting questions with an approach influenced by *grounded theory*. The main contribution of this chapter is the construction of an analytical framework based on inferred findings in the form of categories that emerged from the explored case of Sweden. From this exploration the core category – the main concerns of the instructors – is revealed. The chapter discusses how this core category can be achieved by the use of transcendent conceptual categories grounded in data. The core category, the conceptual categories and their properties and indicators constitute an analytical framework for exploration of data in the remaining four case studies.

The second part consists of the additional four country cases (Chapters 5 to 8) as well as the final concluding chapter. The overall structure of the country cases is similar to the Swedish case as each country is divided into three parts in accordance to its three embedded units of analysis. The subparts are, however, different as the three conceptual categories are made explicit to increase the transparency of the findings. Each chapter ends with a short conclusion of the main findings. The final analysis (Chapter 9) presents a developed substantive theory on the practice of wargaming in military education that offers an explanation for why military wargaming takes the form it does.

2. Wargaming theory

2.1 The essence of wargaming

Part 1: The grey zone of wargaming

Wargaming is defined in the Swedish Armed Forces abbreviation handbook as ‘the orchestration of a played war or combat situation with at least two antagonistic sides where the output is affected by actions from those sides’.⁶⁵ This emphasis on antagonism and actions from different sides seems important. Furthermore, the Swedish Armed Forces’ book on educational pedagogy defines a ‘game’, since ‘wargame’ is not mentioned, as ‘an exercise with no troops’. A ‘game’ is conducted to arouse the participants’ ‘imagination’ in order for them to learn and practise tactics and combat methods. A ‘game’ is thus directly connected to decision-making, albeit contextualised within a framework. This framework includes participants’ roles, their mission, and their task to produce an order, i.e. the solution to the problem.⁶⁶

An important military definition is NATO’s definition of wargaming. This international definition by a military alliance, which encompasses such countries like the USA, the UK and Germany, defines a ‘war game’ as ‘a simulation, by whatever means, of a military operation involving two or more opposing forces, using rules, data, and procedures designed to depict an actual or assumed real life situation.’⁶⁷ In comparison, the Swedish definition is more explicit, stating that it is the participants’ actions that affect the output. While both the NATO and the Swedish definitions are general there are also additional delimited definitions of wargaming. For example, the UK-NATO doctrine of Joint Operational Planning defines ‘war gaming’ as ‘a flexible instrument to develop, compare and improve COAs [courses of action].’ The real value of wargaming is ‘to visualise the conduct of operations and gain insight into opposing capability and action, as well as conditions in the operational environment.’⁶⁸

Beyond the military definitions of wargaming there are well-known general definitions of wargaming. One of the most quoted, and accepted, definition of wargaming is offered by Peter Perla in his book *The Art of Wargaming* from 1990. Perla states that ‘a wargame is a warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decisions made by players representing the opposing sides.’⁶⁹ In

⁶⁵ Försvarsmakten (1999).

⁶⁶ Försvarsmakten (2006a), pp. 431-432.

⁶⁷ LBS Consulting (2017), and, NATO (2010).

⁶⁸ Ministry of Defence (2013a).

⁶⁹ Perla (1990), p. 164.

comparison to the Swedish definitions above there are several similarities which can be described as three fundamentals of wargaming:

1. **Real actions by real military units are not included,**
2. **The players shall represent opposing sides,**
3. **A wargame is an exercise in human interaction.** Therefore, according to Perla, each and every wargame is unique since actions by the players affect the opposing players, whose actions further affect the ongoing development of actions.⁷⁰

Wargaming is centred on simulation with different purposes. The initial point above acknowledges that a wargame is a simulation, something which is also included in the previous military definitions. The second point connects to the initial presentation of the Swedish military definition regarding the antagonistic interactional aspect. The third point explicitly refers to the interaction between players. This particular aspect of role-play is what makes wargames better than any other intellectual activity to simulate the dynamics in war, according to Perla. For this reason, Perla argues, role-playing and the development of what happens between the players and the different sides are the reasons why wargaming is such an effective tool for learning.⁷¹ However, wargaming is not only for learning. Wargaming is a tool with two purposes: to simulate the dynamic in war for analysis and to enable learning. Analysis (including planning) and education (including training) are often described as two different purpose of wargaming.⁷²

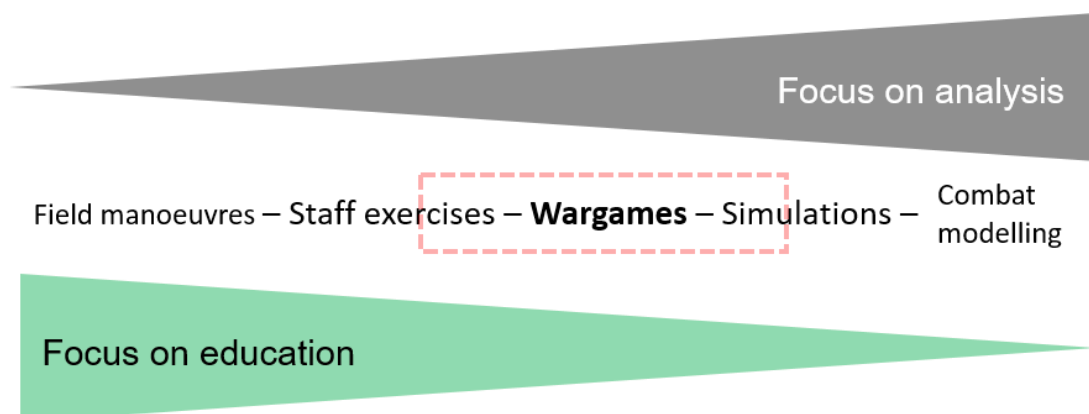


Illustration no. 1: a spectrum of wargaming, for analysis and education.

⁷⁰ Perla (1990), p. 164.

⁷¹ Perla (1990), p. 181, pp.247-252.

⁷² LBS Consulting (2017).

Wargaming is not exclusively a tool for analysis or for education. The illustration shows the range of the term 'wargame'. To the left of wargaming are field manoeuvres, which involve real troops in real terrain. While such exercises are hardly ever perceived as wargaming, staff exercises, which includes Command Post Exercises (CPX), on the other hand, are different. Such activities, if they are not centred on basic tasks such as learning to use communication equipment, can be akin to a wargame since no real units are involved. When a wargame ends and a staff exercise commences constitutes a grey zone. The same can be said of what is to the right side of wargaming. This concerns simulations and models. Generally, every simulation includes one or several models, which are representations of reality. When humans are included in the simulation the simulation is called a 'playable simulation'.⁷³ This means that there must be humans that make the decisions. Such a simulation constitutes a wargame, in accordance with Perla's definition. To further complicate the grey area of wargaming, the purposes of education and analysis are intermingled. While a wargame may have a sole analytical purpose, there is also almost certainly an educational (learning) aspect. The same for vice versa. The dotted box in the illustration constitutes the applicable area of Perla's definition, which is a balance between education and analysis.

The terms simulation or (combat) modelling are in many ways more prevalent than the term wargaming. For example, consider the journal *Simulation Modelling Practice and Theory*.⁷⁴ While some simulations can be said to constitute wargaming, far from every simulation is a wargame. Wargaming is therefore both delimited by, and constituted by, simulations and models. A model is a representation of reality. Such representations can be physical (a globe representing the earth), conceptual (*game theory*), or mathematical (Lancaster's attritional combat model). A simulation includes at least one model operationalised by the application of time. With humans in the loop the simulation becomes playable and subsequently a wargame according to Perla. Hence, a wargame is a playable simulation.

Simulations are usually divided into three different types: live, virtual and constructive.⁷⁵ A live simulation includes the use of real equipment, such as combat vehicles equipped with laser-based systems to determine if the vehicle is hit and damaged. However, when a live simulation is placed in the spectrum of wargaming, it is in essence a form of field maneuver. A field maneuver is not a wargame according to Perla's definition. Even so, field maneuvers are often described by the media as 'war games'. In comparison to field maneuvers, in particular live fire exercises, a live simulation does not include the use of real ammunition. More distinctly, in a virtual simulation no real vehicles or systems are included. Such are instead represented by symbols, such as computer-generated images.

⁷³ Dunnigan (2000).

⁷⁴ *Simulation Modelling Practice and Theory* (2017).

⁷⁵ LBS Consulting (2017).

The symbols, however, depict each and every object. This is in contrast to a constructive simulation, where one symbol can comprise hundreds of vehicles and individuals. A constructive simulation is thus more abstract. Accordingly, while a virtual simulation often utilises 3D visualisation a constructive simulation usually only depicts a 2D map. The general applicable rule is that constructive simulation is the less costly form of simulation while a live simulation is the most expensive form. However, a constructive simulation is not per se non-complex because it is relatively less expensive. Non-computerised forms, such as board games, which are constructive simulations, can include elaborated rules and the use of detailed miniatures as symbols. This is especially apparent in hobby wargaming.⁷⁶ Hence, constructive simulation as a term encompasses several forms of wargaming of various complexity, including board games, computer games, miniatures games and seminar games.

The use of military simulations is connected to technology. Recent development of computer technology has affected simulation which has become 'hyperrealistic' with a high level of fidelity.⁷⁷ This emphasis to connect simulation to technology has been criticised by officers within the military profession. This is referred to by Major General Orme as the 'simulation dilemma': i.e. the focus is on technology and desired tactical outcomes rather than on *how* an armed force fights, i.e. tactics. Major General Orme exemplifies this dilemma with the exercise 'Millennium Challenge' in 2002, a mostly virtual simulation between blue (USA) and red (a country in the Middle East). The tactics of the successful red commander, the US General Paul van Riper, was perceived as 'unrealistic'. Hence the exercise was stopped and later restarted: the exercise evolved from a free play exercise to a scripted exercise with the result that the exercise did no longer serve as a learning tool. This example indicates a misuse of simulation that does not encourage innovation and adaptability. To solve this dilemma, Orme argues for a much better integration of simulation, and wargaming, in military education. The key to achieving this is cultural acceptance of wargaming.⁷⁸ On the other hand other proponents of wargaming in military education, such as Michael Macedonia in the USA, believe that a military culture has in fact emerged 'that accepts computer games as powerful tools for learning'.⁷⁹

There is criticism that simulations are too focused on technology and producing desired products, rather than functioning as a process for complex decision-making in an environment rife with complex interaction. Criticism on the lack of wargaming in the British Army has been articulated by Major General (ret.) Andrew Sharpe, who has emphasised that wargaming is a necessary instrument for increasing officer competence, the important human element in warfighting. Sharpe argues for the

⁷⁶ Featherstone (2009), and, Elg (2015), p.189.

⁷⁷ Military Simulation & Training Magazine (2017).

⁷⁸ Orme (2013).

⁷⁹ Macedonia (2002).

need of double-sided wargaming in the guise of the original *Kriegsspiel* or equivalents, for example, in hobby wargaming, since a fictional wargame such as *Warhammer* can represent British army tactical principles, such as ‘pin-pivot-punch’. This is an example of a gaming approach of military simulations.⁸⁰ This gaming approach can be compared to the analytical approach in the United Kingdom of ‘red teaming’, which is a tool set to question assumptions by the red cell in order to either provide a better product or a better informed decision. This sets red teaming apart from wargaming, which is centred on the actual decision-making.⁸¹ Therefore, it can be said that a gaming approach focuses on the adaptive decision-making *process* whereas an analytical approach focuses on improving the *product*, such as the comparison and evaluation of different courses of action (COA). This reconnects to the dual focus of education and analysis. Wargaming, in the form of a playable simulation, constitutes both purposes to various degrees.

The view that wargaming equals a military simulation centred on decision-making can be criticised as a too delimited definition of wargaming. The military theorist Martin van Creveld believes that only real war should be excluded from the term wargame. Wargaming should, in van Creveld’s view, connect to human culture. Therefore, it should encompass real, albeit controlled, violence. This attitude is somewhat similar to the approach by John Keegan regarding his definition of war as a cultural act.⁸² Consequently, all sorts of activities, such as large field manoeuvres, pistol duels and even gladiator games are to be included as wargaming, as long as the element of violence is ‘limited and controlled’.⁸³ While this clearly goes against Perla’s definition as well as military definitions, van Creveld makes a strong case by supporting the other two fundamentals of Perla’s definition by emphasising the necessity of an opponent. van Creveld is adamant that a real wargame must include a duel against a thinking opponent. In his view, a wargame:

(...) consists of the interplay between the two sides. Whether that interplay takes place on a board, or in a court, or on a computer screen, or between two squads, or between two army groups, is immaterial. (...) No exercise that does not involve the kind of interplay just mentioned can be considered a wargame. (...) Also excluded is the kind of exercise where an individual or team plays not against an opponent similar to themselves but against some sort of control which determines the course of the game

⁸⁰ Sharpe (2014).

⁸¹ Ministry of Defence (2013b).

⁸² Keegan (2004).

⁸³ van Creveld (2013).

but cannot be influenced in return. Such games may have their uses; however, they involve not strategy but a puppet-master and his puppet.⁸⁴

The question of whether opposing teams should be a required part of wargaming is a central question. Perla is of the opinion that it is essential for the wargame to be perceived as realistic.⁸⁵ What is a key issue is, however, not the number of players per se but the presence of contingent actions.⁸⁶

Part 2: A refined definition of wargaming grounded in theory

This thesis proposes the following definition of the research object: **wargaming is a playable simulation of military action**. In essence, a game is a process that structures information in the construction of a narrative (story) by human interaction.⁸⁷ The storytelling allusion makes it clear that while wargaming is not 'real', its interactions certainly are. Interaction can take several forms, such as adversarial or cooperative.⁸⁸ The interaction, however, needs to be contingent, i.e. the action of the self is dependent on the action of the other in a cyclical relationship. Without any form of contingent interaction, the activity is not a wargame but a scripted exercise. Predetermined procedures are not games.⁸⁹ Hence, rehearsals are not wargames because of the lack of dynamic interaction and role-play of participants, whose actions further affect the ongoing development of actions.⁹⁰ A wargame needs human players to create and sustain a narrative by contingent and symbolic interaction. The action in a wargame is conducted symbolically. For that reason, live simulations, in the guise of exercises with real entities that move and simulate firing, are not defined as wargaming in this thesis.

Symbolic interaction is a theory rooted in behaviourism and pragmatism. It departs from positivism in its relation to truth and instead recognises that 'truth is seen as that which most benefits man's actions'. This is because situations, in which actions are taken, are subject to constant change.⁹¹ War is a prime example of the impacts of contingency, i.e. unpredictable possibilities for actors' actions. The situation of war causes actors to use creativity to create new plans.⁹² War and contingency are interlinked. This is apparent in how von Clausewitz emphasised the frictions and fog of war by his

⁸⁴ van Creveld (2013), p. 3.

⁸⁵ Perla (1990), pp. 247-252.

⁸⁶ Engberg-Pedersen (2015), pp. 130-133.

⁸⁷ Fine (1983), p. 117.

⁸⁸ Dreborg (1993), pp. 32-33.

⁸⁹ Abt (1987), p. 9.

⁹⁰ Perla (1990), p. 164.

⁹¹ Helle (2000), pp. 33-35.

⁹² Joas & Knöbl (2009), p. 523.

comparison of the aspect of probability in war to a game of cards.⁹³ Since wargaming is to simulate aspects of war and warfare, wargaming is theoretically connected to symbol interactionism.

The inclusion of theoretical constructs in the form of ‘contingency’ and ‘symbolic interaction’ produces three consequences for this thesis. First, a conceptualisation of wargaming by a refined definition grounded in theory allows an inclusion of wargaming forms beyond the original map-based *Kriegsspiel*. Second, the theoretical connections reveal the importance of human control of wargaming, which supports the selection and inclusion of instructors as the most important primary source. Third, the bare existence of theoretical connections reveals that wargaming – ‘a practice without theory’ – is actually embedded in relevant general theory.

Wargaming is a social interactional process in which the participants, the players, engage in social action. While real, but not actual reality per se, wargaming aims to simulate aspects of reality. Hence, theories on behaviour in the real world are equally applicable to wargaming. The theory of symbolic interaction describes the process within a wargame. This linkage can be found in the theory of communication, and especially the views of George Herbert Mead on communicative action.⁹⁴ Wargaming, as a social activity, is a context where interaction occurs symbolically. This may involve calls and/or signals such as ‘**Fire!**’ and ‘**Attack!**’, which are understood by all the participants within the context of a wargame. This understanding lays the foundation for predictive behaviour regarding responses from other participants.⁹⁵ For a wargame to be ‘playable’ it is thus necessary for all the participants to understand the rules of the wargame and be able to communicate, i.e. take action.

Contingency means being dependent on a situation, either external or internal. The opposite of contingency is determinism. Frictions and fog of war are examples of contingent factors, which therefore make war a highly contingent activity. Contingency is, similar to simulation, dependent on the advancement of time. It is not a frozen moment in history.⁹⁶ Contingency becomes a so-called ‘double contingency’ when the Ego and the Alter are contingent: they may behave in different ways but their choice of action is dependent on the behaviour of their counterpart. ‘Double contingency, then, is a circular contingency that immediately produces a paradox: ‘I do what you want if you do what I want’ – and like all paradoxes, seen abstractly, it should lead to an impasse: who moves?’⁹⁷ In social theory, this impasse is seen as a problem that needs to be resolved, for example, by social consensus or communication.⁹⁸ What separates wargaming from most other social activities is,

⁹³ von Clausewitz (2002), pp. 29, 40-42, 112.

⁹⁴ Habermas, (1987), pp. 3-5.

⁹⁵ Habermas, (1987), pp. 14-15.

⁹⁶ Edenheim (2013), p. 149.

⁹⁷ Esposito (2013), p. 137.

⁹⁸ Vanderstraten (2002).

however, a desire for players, in an adversarial or competitive environment, to actually *increase* the level of uncertainty to deceive an opponent. Hence, more contingency. This is also applicable to competitive games such as sport activities. Sport is a tangible example of double contingency in action: opposing teams try to defeat each other by scoring the most points while adhering to the rules of the game. Consequently, for wargaming double contingency is not a problem but a prerequisite. As Luhmann writes, '[the other] can leave his intentions unclear or be deceptive about them'. This is about either striving for mistrust or trust: a strategy of choice that only appears because of the double contingency.⁹⁹ In this way, a wargaming process utilises the social problem of double contingency to its own advantage in comparison with most other forms of social interaction which instead strive to reduce the level of contingency.

'A contingency framework is embedded in the war game'.¹⁰⁰ The connection between contingency and wargames is central in von Hilgers's book on military wargaming focused on mathematical discourse. von Hilgers argues that wargames combine chance and skills and hence provide the best representation of human life, as well as an inspiration for inventiveness. Military practice, which relies on skills and contingencies, is thus considered to be best represented by wargaming.¹⁰¹ This connects to the view of von Clausewitz that war resembles a card game rather than a mechanical system.¹⁰² In the early 19th century the inventive tactical wargame by Baron von Reisswitz (the father of Lieutenant von Reisswitz, and an acquaintance of von Clausewitz himself) regulated 'the representation of visibilities, information flows, movements, strikes and losses of troops during a battle. His rule system is thereby open to the contingencies that different tactical manoeuvres can produce. The rules were centred on '(...) the systematic use of dice [which] contributed to the unforeseeability and irreversibility of simulated courses of battle.'¹⁰³ In a wargame for education, rules serve to explain the meaning of examples, which then directly lead to understanding. This understanding is linked to the participant's competence in following rules.¹⁰⁴

Rules, in society as well as in wargames, form a direct link to human action by the way of social interaction. George Herbert Mead, often seen as the father of symbolic interactionism, offers two terms on how interaction develops. The first is 'play' and the second is 'game'. Both words are inherently related to wargaming, i.e. you play a wargame by wargaming it by playing a certain role, i.e. role-play. In Mead's example, both play and game relate to role-playing. Game especially relates to

⁹⁹ Luhmann (1995), pp. 127-128.

¹⁰⁰ von Hilgers (2012), pp. x-xii.

¹⁰¹ von Hilgers (2012), p. 29.

¹⁰² von Clausewitz (2002), pp. 29, 40-42, 112.

¹⁰³ von Hilgers (2012), pp. 47, 101.

¹⁰⁴ Habermas, (1987), pp. 16-17.

competitive roleplaying. As play is associated with the play of children, game is contrasted as being a more organised form of role-playing where competition becomes prevalent. Participants in a game are organised as units.¹⁰⁵ In wargaming this usually means a 'red team' versus a 'blue team'. In order for play to transition to a game there is a need for an uninvolved third person. This person is to have a neutral attitude as the third person, differentiating him/herself from the first and second persons who have a performance attitude.¹⁰⁶ The third person is evidently more of a role, or a third-person mode, to which the first and second persons are supposed to switch, in order to develop an objective attitude to his/her interaction. This can be juxtaposed to traditional military educational wargaming, where an umpire was to play the role of neutral adjudicator, who was integral to, and a requisite for, the conduct of a wargame. That person was called the 'trusted one', which indicates the neutrality of the third person's position.¹⁰⁷ A contemporary encompassing term is game director.

A central thesis in education is the need of reflection for learning.¹⁰⁸ Symbolic interaction entails that an individual's action is reflected back through the reactions of other human beings. Hence, the possibility of reflection occurs, as 'my ego is reflected back to me in the reactions of the other or others'.¹⁰⁹ This quote captures a central tenet in symbolic interaction. It connects to the learning cycle of experiencing and experimenting and also indicates that wargaming produces consequences because of one's action, which are then reflected back. For this reason you have to deal with the consequences of your own actions in the form of reactions of the other. This is something that is explicitly apparent in a turn-based wargame, with a continuous loop of action and reaction.¹¹⁰ Herbert Blumer argues that symbolic interacting is a self-reflecting process.¹¹¹ Reflective interpretation by participants thus describes symbolic interactionism in a wargame.

¹⁰⁵ Habermas, (1987), pp. 31-32.

¹⁰⁶ Habermas, (1987), p. 36.

¹⁰⁷ Hörberg (1830), p. 3.

¹⁰⁸ Mead (2013), p. 66.

¹⁰⁹ Joas & Knöbl (2009), pp. 128, 133-134.

¹¹⁰ Sabin (2012), pp. 104-111.

¹¹¹ Blumer (1969), pp. 14-15.

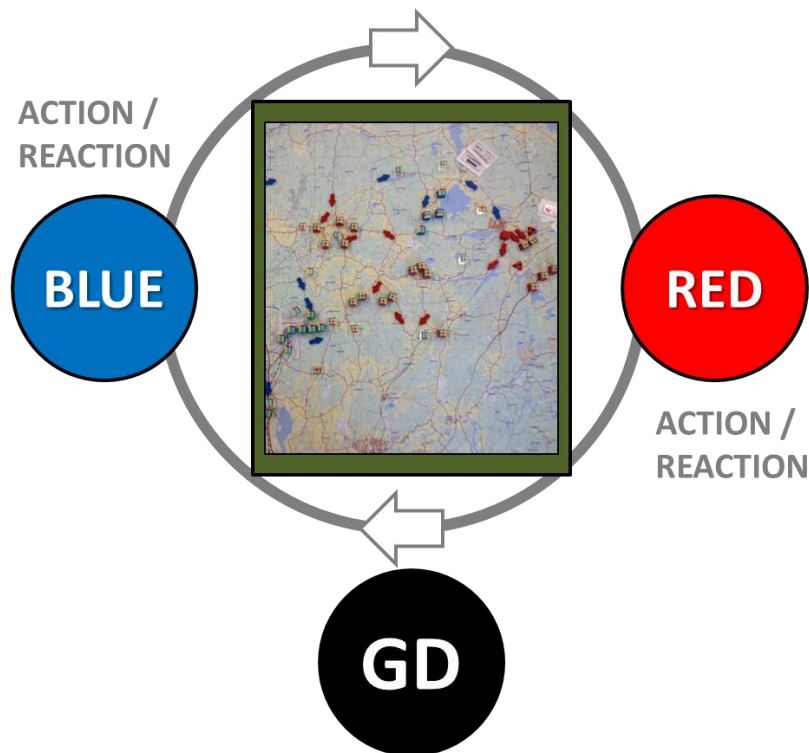


Illustration no. 2: interaction (actions and reactions) within a wargame.

The illustration indicates the core of wargaming: the symbolic interaction between two sides (blue and red). Symbolically, this may be done with the use of a printed map on a table (as shown), or with other forms such as computers. What is important to note is the presence of a game director who facilitates this interactional process. Wargaming is an iterative action-reaction process. There is, however, no explicit need for the red and blue being equally manned in a military educational wargame. In fact, there are many wargames with game directors that also control the red side.¹¹² In some wargames, especially hobby wargames, solitary play is possible. However, to constitute a wargame the iterative action-reaction dynamic needs to be implemented in some form. The role of the game director is fundamental since he/she can ‘manipulate the rules to structure interaction within a game.’¹¹³ The presence of a game director is a significant feature in the categorisation of games because that person ‘maintains control over the game flow’ and can ‘decide the outcome of a battle quite independently of how the dice rolls’.¹¹⁴ The instructor’s role in ‘actively and dynamically controlling’ the wargame is further acknowledged in a recent dissertation on the instructor’s role in educational serious games, including military wargaming.¹¹⁵ The illustration indicates that the game director may influence the

¹¹² Försvarshögskolan (2007), and, Elg (2015).

¹¹³ Fine (1983), p. 117.

¹¹⁴ Jonsson, Waern, Montola & Stenros (2007).

¹¹⁵ Alklind Taylor (2014), p. 140.

wargame by controlling the information flow between the player teams. It is also possible for the game director to either act as the red team, or influence the red team, without the blue team's knowledge.

Part 3: Forms of wargaming

Traditionally, wargaming has been linked to a specific and physical form. The initial military educational wargame was a bulky apparatus as evident in depictions of the initial *Kriegsspiel* by von Reisswitz the Elder. That wargame consisted of a large and heavy wooden table with a number of built-in lockers for game pieces. Later versions by von Reisswitz the Younger became more portable with the use of maps and smaller metal unit pieces. Still, it was common to enclose rules, maps and game pieces etc. in heavy wooden boxes as depicted in the photograph.



Photograph no. 1: the components of the Swedish Army's coastal defence wargame, early 20th century (author, the Defence Museum in Boden, 2015).

Traditionally, military wargaming was perceived as manual and map-based. One example is from an official Swedish manual which provides specifics of the actual physical form of wargaming in use: 'The wargame is a military exercise which consists of the movement of discs [i.e. game pieces, such as chips], which represent troop units or war equipment, on maps, in a certain order and with the observance

of some rules, in order to the highest possible degree correspond to how real troops are handled in the field by the person in question.¹¹⁶ In other words, military wargaming was traditionally viewed as the movement of unit symbols on a regular map. This rudimentary form of wargaming was referred to as ‘map manoeuvres’ and was used as a ‘learning device’.¹¹⁷ The striving for realism and the activity’s link to the officer profession are palpable.

Another and much broader view that encompasses vastly different wargaming forms can be discerned in the German use of wargaming up to the end of the Second World War. A post-war report on the German use of wargaming identified a number of different military educational activities that were apparently referred to as ‘wargames’:¹¹⁸

- ✕ The ‘proper’ wargame (*Kriegsspiel*) which was conducted double-sided (on maps).
- ✕ Map exercise. The game director played the opposing side.
- ✕ Command Post Exercise (CPX) in which the participants were organised as a headquarters and the game director played the opposing side.
- ✕ Sand table exercises for minor units (battalion to platoon).

Not all activities mentioned by Hofmann or Vego are listed above.¹¹⁹ Two activities, staff rides (or ‘exercise ride’) and tactical exercises without troops (TEWT)/‘terrain discussion’/tactical walks, have been removed. The reason is that such outdoor activities are generally not playable simulation but more akin to outdoor discussions or presentations of concepts/orders. Potentially, both examples are part of a grey zone and *may* constitute a wargame as defined by this thesis. It is, for example, possible for a wargame to be explicitly included as part of a staff ride. In some cases, a staff ride can also follow, or initiate, a wargame. It is not uncommon that a staff ride and a wargame are integrated. Furthermore, a tactical exercise, or terrain walk, is sometimes referred to as ‘game’.¹²⁰ This variation of terms is confusing, but from an officer viewpoint, wargaming and staff rides are after all two different educational activities.¹²¹ A Command Post Exercise (CPX) and a sand table exercise, on the other hand, are potential wargaming activities. However, a CPX may have a focus on internal staff procedures rather than on decision-making. Such a purpose almost certainly entails a scripted exercise with frictions played by the exercise director according to a predetermined script. Likewise, a sand table exercise may be conducted as a rehearsal rather than as a dynamic wargame.

¹¹⁶ Generalstab (1878).

¹¹⁷ Hausrath (1971), pp. 127-129.

¹¹⁸ Hofmann (1952).

¹¹⁹ Vego (2012), p. 115.

¹²⁰ Försvarmakten (2006), p. 431.

¹²¹ Baudin (ed.) (2012).

One additional activity can be added to the historical German examples above. This is described by Vego as *Planspiel* – a ‘planning game’ or ‘planning exercise’. Hofmann, on the other hand, refers to this as a map exercise. A specific purpose for planning games was to rehearse plans for future military operations. In comparison to ‘proper’ *Kriegsspiel*, which were double-sided, *Planspiel* included only one team manned by players (blue) since the opposing team (red) was directly controlled by the game director. Planning games were delimited to test certain plans and specifically linked to the education of doctrine and tactical principles. In comparison to *Kriegsspiel*, *Planspiel* was conducted quicker since the double-sided *Kriegsspiel* was more complex to organise and run.¹²² While both forms can be described as map-based wargames, there is a notable difference due to the difference in purpose as *Planspiel* is one-sided while *Kriegsspiel* is double-sided. A contemporary military *Planspiel* is known as course of action (COA) wargaming. This form is integrated in military planning with a focus on comparing different courses of action.¹²³ As with the historic planning game, the game director seems influential in the choice of wargaming form. For example, the UK-NATO doctrine on operational-level planning acknowledges that ‘the coordinator (...) decides which method will be applied.’¹²⁴

One conclusion based on the examples of German historic wargaming is that there is little difference between wargaming forms. In other words, a military wargame is generally conducted on a map, or a terrain model, with game pieces modelled after military unit symbols. One major difference, however, is if the game director is playing the opposing side or if the wargame includes two (or more) teams of players. This conclusion is, however, not based on contemporary data of military educational wargaming. What occurred after the end of the Second World War was the introduction of computers to handle combat adjudication. Later, computers were used to provide visualisation, which could hide some information from the players. One example of contemporary military educational computer-based wargaming can be seen in the photograph below, which depicts military officers in a wargaming exercise. The wargaming form is a network of individual computer stations rather than traditional movements of unit symbols on a physical map.

¹²² Vego (2012), p. 116.

¹²³ NATO (2010).

¹²⁴ Ministry of Defence (2013a).



Photograph no. 2: military computer-based educational wargaming (author, 2007).

The introduction of computer-based wargaming has led to an academic debate on the merits of computer wargaming versus the traditional map-based or board game wargaming forms. One applicable feature of computer-based games is the ability to limit information to what players can see and therefore implement the ‘fog of war’. On the other hand, Professor Philip Sabin lists six limitations of computer-based wargaming. First, the majority of computer-based wargaming is designed with a focus on entertainment rather than on realism. Second, many computer wargames are only digitalised versions of existing board games. Third, design ambitions are devoted to graphical visualisation rather than the human dimension. Fourth, computer wargames tend to become obsolete and unusable due to the constant upgrades of soft- and hardware. In comparison, many more available board games exist. Fifth, physical game pieces and maps often provide a better pedagogical presentation than expensive computer screens. And sixth, manual wargames are generally more accessible for redesign tweaks.¹²⁵ While this debate has a general focus including any educational wargame, the criticism is also applicable to military educational wargaming. From this follows that the distinction between manual and computer wargames constitutes an explicit variable between wargaming forms.

¹²⁵ Sabin (2012), pp. 23-27.

The physical form is not the sole distinction between wargames. A civilian specialist in US military (naval) educational wargaming, McHugh, has classified wargaming forms with six variables.¹²⁶ Two of those six variables have been removed since they are already delimited by this thesis. The removed variables concern purpose and what level/organisation are represented in the scenario. Since this thesis is focused on educational wargaming on the tactical level those two variables are therefore not included in the list below. The remaining four variables are:

- 1) Sides (manned by players): one-sided, double-sided or multi-sided,
- 2) Information: *open* or hidden (*limited*),
- 3) Combat adjudication: *free*, *rigid* or *semi-rigid*,
- 4) Physical form: manual, computer-supported ('machine') or computer.

The four variables offer a basic framework for a descriptive comparison of contemporary wargaming in military (army) education. Regarding the number of sides, it is relevant to observe if the game director, rather than players, controls one (or more) side. Alternatively, a small player cell may play one of the sides. Notably, a true double-sided wargame, such as *Kriegsspiel*, involve two equal teams (regarding size, focus and learning objectives).¹²⁷ The availability of information accessible to players connects to the factor of realism, i.e. a player in a specific role is only able to observe what that role would be able to spot in reality. Regarding combat adjudication, *free* adjudication is the case when the game director acts as a 'god' and him/herself decides every outcome and event during the wargame. For example, by relying on experience and/or intuition. In comparison, *semi-rigid* adjudication exists when the game director still makes the major decisions, but relies to some extent on results from, for example, a computer or written rules. The latter can come in the form of a combat result table. A *rigid* form of adjudication exists when the rules are paramount and solely decide the outcome. In this case, the game director may have very limited input or might in fact not even exist as a role during the wargame. Regarding the physical form, 'machine' refers to the early/pre- introduction of computers and includes various methods to support the game director with calculated data. Today's computer-supported form includes such functions as well as, for example, visualisation. Manual wargaming comprises the original *Kriegsspiel* and covers all map-based, board and seminar forms. It is possible to computerise board and map games, such as the original *Kriegsspiel*. Computer wargames, however, also cover more elaborate wargames, i.e. both virtual and constructive simulations are included.

¹²⁶ McHugh (1966), pp. 1-3, 1-14.

¹²⁷ Försvarshögskolan (2007), and, Elg (2015).

2.2 Educational games and military wargaming

Part 1: Game-based learning

The use of games in education is centred on the concept of ‘game-based learning’ – an elusive term.¹²⁸ Game-based learning is sometimes perceived as a specific form of game, to be precise, computer and/or video games.¹²⁹ In general, game-based learning can be described as a game-supported method applied to a task and creatively handled by participants.¹³⁰ Player motivation is indispensable for an educational game. Motivation is generated when participants experience ‘flow’, a notion articulated and categorised by Mihaly Csikszentmihalyi and since then often applied in theoretical studies on the use of educational games.¹³¹ Flow is achieved when the player has the right skill to master the challenge the game presents.¹³² The need for flow is not the only general theory applicable to game-based learning. One common denominator in texts on game-based learning is the inclusion of assurances that the activity is not frivolous. Therefore, educational games are considered to be ‘serious games’.¹³³ This seriousness is grounded in the concept of evident usefulness. This is generally motivated by three specifics: a reference to the important role of play in the pedagogic development of children;¹³⁴ the proposition of the incorporating role of play in human culture in the form of ‘Homo Ludens’;¹³⁵ and finally, references to the educational philosophy of *pragmatism* and its portal gestalt John Dewey, who emphasised the importance of reflectivity and ‘learning by doing’.¹³⁶

Two key words within the wider context to which game-based learning belongs are ‘problem-based learning’ and ‘gamification’. Problem-based learning is a method of learning: education is conducted according to how individuals learn in the real world to solve real problems with available resources.¹³⁷ Gamification, on the other hand, is about game design. However, gamification has become a ‘hyped concept in game-based learning’.¹³⁸ A general definition of gamification is that it ‘is the use of game design elements in non-game contexts’.¹³⁹ This can be exemplified by three specific design elements: abstraction, mechanics and interfaces. Abstraction simplifies representations in the game and introduces complexity step by step so that the player can learn. Mechanics is about the feedback loops

¹²⁸ Alklind Taylor (2014), and, Ulicsak, Mary & Wright, Martha (2010).

¹²⁹ IJGBL, (2015).

¹³⁰ CarltoninGames (2010).

¹³¹ Admiraal, Huizenga, Akkerman & ten Dam (2011).

¹³² Csikszentmihalyi (2003), p 99-100.

¹³³ Abt (1987), and, Whitton (2014), pp. 114-115.

¹³⁴ Vygotsky (1978).

¹³⁵ Huizinga (1955).

¹³⁶ Stensmo (2007), pp. 201-221.

¹³⁷ Bron & Wilhelmson (2011), Olstedt, p. 166.

¹³⁸ Whitton (2014), p. 85.

¹³⁹ Deterding, Dixon, Khaled & Nacke (2011).

concerning the game's challenges, which become progressively more difficult and rewarding for the player. Third, game interfaces are designed to invite ongoing participation. The purpose is to promote player engagement and to create a sense of fun.¹⁴⁰ Accordingly, gamification is about improving learning by increasing motivation. This is done by incorporating the elements of fun, competition and tangible scores, such as victory points, in an educational game design. In short, **problem-based learning constitutes a context and an overarching purpose, while gamification is the actual technique (design) to increase the educational effectiveness of a specific game.**

Problem-based learning is deemed especially suitable for profession-based higher education since the best way to become a doctor is arguably to be one (under supervision). Central in this form of learning is that it starts with a problem from the real world and that the solution requires knowledge that the students do not have and thus must acquire during the process. By solving the problem, the students accumulate knowledge, practice and attitudes.¹⁴¹ The direct purpose of problem-based learning is that the students 'learn to learn and develop their own critical thinking'.¹⁴² Critical thinking is created as the individual generates various attempts at solutions. With a developed solution the unclear becomes clear and this process generates knowledge by reflective thinking.¹⁴³ Problem-based learning is related to *pragmatism*, a philosophy that emerged at the end of the 19th century. Pragmatism is based on the value of ideas and theories as tools to solve a problem. One of the most famous pragmatists was John Dewey (1859-1952) who argued for its implementation within education. Dewey's argument is that reality is always changing which therefore constantly creates new problems. Those problems are managed by the individual using reflective thinking which concretely means a goal-oriented systemising and organising of ideas that leads to a solution and an action. Consequently, a test is conducted to see if an idea works in reality. In this regard, failures are also instructive and indicative. The educational method proposed by Dewey is 'learning by doing' where students investigate from a concrete starting point and with an abstract end state. In other words: students engage in problem-solving. This is envisaged to be done as teamwork with other students.¹⁴⁴ In problem-based learning, the influence of the instructor on the process should be minimal in order to let the students themselves handle the process.¹⁴⁵

Problem-based learning covers several educational methods. Two of the more utilised methods are educational games and the case method. The case method consists of a case presentation to the

¹⁴⁰ Yunyongying (2014), and, Whitton (2014), pp. 112-115.

¹⁴¹ Biggs & Tang (2011), pp. 178-181.

¹⁴² Bron & Wilhelmson (2011), Olstedt, p. 166.

¹⁴³ Bron & Wilhelmson (2011), Olstedt (ii), pp. 133-134.

¹⁴⁴ Stensmo (2007), pp. 201-221.

¹⁴⁵ Biggs & Tang (2011), pp. 179-184.

participants in the form of a narrative – a story – about a real situation or event.¹⁴⁶ A game, on the other hand, entails that the students themselves participate in – and create – their own narrative, regardless if the game is about a historical or fictive situation. In comparison, the case-method ‘is always a situation that an individual finds herself in, which causes the learning to become dependent on that situation, contextualised and related to previous experiences of the individual student’. The learning occurs in the case seminar, which constitutes the main methodology of the case method.¹⁴⁷ The seminar discussions aim to illustrate particular cases where principles and theories may apply. The individual student is thus able to hear the viewpoint of other students about a particular case, and in particular, how they reached their conclusion.¹⁴⁸

In comparison to the seminar discussion of the case method, the focus in an educational game is on the students’ creativity in the construction of their narrative. Consequently, one important part of an educational game is *role-play*. For example, students may play different roles in order to increase their knowledge in a certain area, for example, their understanding of the conflict complexities in the Middle East. Role-play offers the participants the possibility to observe the world with new perspectives to increase their understanding and therefore also their learning.¹⁴⁹ An educational game entails both *co-operation* between individuals within a team, and *competition* between different opinions/ideas by individuals in different teams, or, within the same group/team. Obviously, co-operation also exists in team assignments, while competition exists in debates, but in a game, co-operation and competition exist simultaneously and affect each other in a dynamic way. Participants need to co-operate with each other to increase their team’s chance of success. Since it is a game an allure of competition exists: to play the game can thus become more important than the learning objectives.¹⁵⁰ However, a focus on the role-play of the participants reveals no fewer than four potential and different dynamic human relations within a game:¹⁵¹

1. *Antagonism*: two sides are attacking or threatening each other,
2. *Competition*: different teams compete with each other for limited resources. One classic historic example would be the relationship between the two famous allied generals Montgomery and Patton during the Second World War,
3. *Co-operation*: different teams work together to reach a common objective,
4. *Representation (act for)*: a participant is to represent other (subordinate) roles.

¹⁴⁶ Biggs & Tang (2011), p. 163.

¹⁴⁷ Bron & Wilhelmson (2011), Nordquist & Eriksson, pp. 172-173.

¹⁴⁸ Biggs & Tang (2011), pp. 163-165.

¹⁴⁹ Ramsden (2003), pp. 160-173.

¹⁵⁰ Ellington, Gordon & Fowlie (1998), pp. 8-9.

¹⁵¹ Dreborg (1993), pp. 32-33.

The variation of dynamic interaction between human participants is one reason why games are good for education. This assumption is centred on one key-word: *role-play*. This forces the participants to see things from another (role's) perspective.¹⁵² The inherent essence of games is, however, the decision-making by participants. Hence, the participants must have meaningful roles in the game. The resulting immersion is necessary for participants to buy into the game and thus enable suspension of belief. The 'role-assumption is a fundamental feature of gaming's utility.' The role-play in combination with human interaction creates a powerful tool for learning.¹⁵³

The application of critical thinking by the participants and subsequent problem-solving of the challenges in the game is described as the 'principle of learning' in educational games. Hence, a game constitutes a learning cycle which begins with a proposition which is then tested. This causes a reaction, upon which reflection occurs. The cycle then continues anew since it is a repeatable process.¹⁵⁴ This cycle is akin to David A. Kolb's learning cycle, which is a general idea on how learning is accomplished. The basic principle is to learn by testing, in other words, to experiment. Hence the phrase 'experimental learning', a phrase which was also developed by Kolb. His model was additionally influenced by the previously mentioned John Dewey as well as Jean Piaget. The latter emphasised the necessity for the student to be active in order to learn – i.e. 'active learning' – rather than relying on teachers or other tools.¹⁵⁵ Regarding Dewey, his connection to *pragmatism* also connects to *symbolic interactionism*. This is evident in that the participant is required to construct his own actions on the basis of his own interpretation of the situation: i.e. **'he may do a miserable job in constructing his action, but he has to construct it'**.¹⁵⁶ This quote regarding reflective interpretation followed by action represents a core thesis in symbolic interactionism.¹⁵⁷ It also represents the connection between symbolic interactionism and learning. This is visualised in Kolb's learning circle, where learning is explained as a process that can begin at any phase as long as the process is a loop in which participants self-learn.¹⁵⁸

¹⁵² Perla (1990), pp. 181, 250.

¹⁵³ Perla (1990), pp.247-252.

¹⁵⁴ Mead (2013), p. 66.

¹⁵⁵ Stensmo (2007), pp. 161-162.

¹⁵⁶ Blumer (1969), pp. 15-16

¹⁵⁷ Blumer (1969), pp. 14-15.

¹⁵⁸ CarltoninGames (2012).

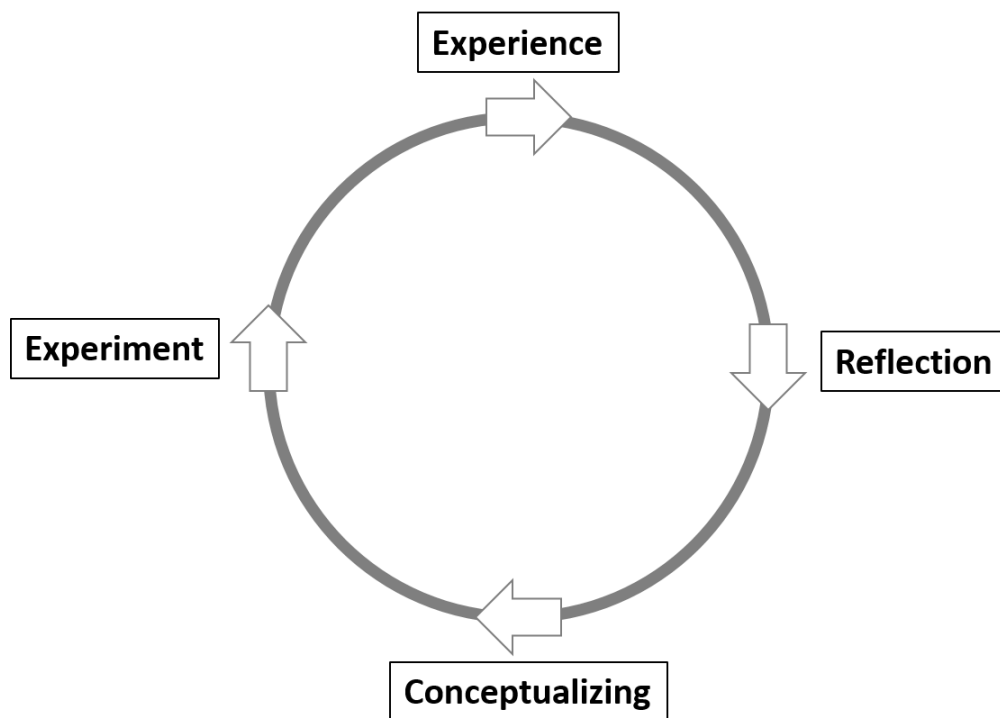


Illustration no. 3: the learning cycle: a model by David A. Kolb.

Educational games may constitute the driving element in Kolb's model as a representation of 'experiment'. Experience emerges from – and during – various activities ('experiment') such as simulation or role-play.¹⁵⁹ Subsequent steps in the circle involve reflection on the newly acquired or previously held experience. During 'conceptualising' sorting occurs and abstract formulations lead to conclusions. Then experiments test the conclusions and the process continues in further loops.¹⁶⁰ Examples of educational games that provide experience, and allow experiments, are the computer games *Civilization* (historical progress and developments in the guise of nation building), *SimCity* (modern urban development) and *The Sims* (modern social role-play). Such games are examples of experiments that produce experience and therefore contribute to learning.

While educational games in the guise of game-based learning and gamification seem to be effective learning within the overall concept of problem-based learning, many instructors and teachers seem hesitant to use 'games'. One reason is that 'play and games are dirty words to many traditional educationalists because of their connotations of trivial, wasteful and indulgent activity.'¹⁶¹ Due to this negativity, which can be likened to a form of stigma, the use of terms such as 'serious games' signifies a determination to avert a potential perception that educational games are only applicable to child-

¹⁵⁹ Elmgren & Henriksson (2013), p. 82.

¹⁶⁰ Elmgren & Henriksson (2013), pp. 82-83.

¹⁶¹ CarltoninGames (2010).

like play. The presence of such a perception would arguably limit the use of educational games for adults. This is a paradox since 'fun' is arguably a powerful tool for learning according to proponents of gamification and thus generally applicable to higher education and serious professions, such as the medical field.¹⁶² One reason behind the drive for 'serious games' is arguably that many games are not perceived to be realistic, and hence not suitable for higher education. This aversion seems to affect some game forms in particular: criticism has been levelled at board games, including chess, as too simplified and too abstract.¹⁶³

Part 2: Wargaming in military education

The above concerns of educational games as being too childish or too abstract to be of any value for an adult education as serious and traditional as the army officer corps raises questions about the applicability of game-based learning and gamification in military education. Military wargaming has, however, a much longer history than the civilian educational terms of game-based learning and gamification which surfaced after the Second World War. In a military wargame, participants act as themselves rather than play a fictional role (or position). This sets it apart from games in civilian education and hobby wargaming.¹⁶⁴ Furthermore, participation in educational military wargaming is compulsory which differs from 'games' and 'play' where players to a large extent voluntarily participate for fun. 'War' and 'game' are however not antonyms. For example, in military culture war can be construed as ritual and rule-based behaviour.¹⁶⁵ Martin van Creveld has even explicitly referred to the legendary fighting representation during the Roman era, Gladiator tournaments, as a form of 'wargame'.¹⁶⁶ The connection of wargames – *Kriegsspiel* – to theatre, or drama, is palpable.¹⁶⁷ The uncertainties in games, since results are contingent on many factors such as the behaviour of other antagonistic and/or competing players, are comparable to the uncertainties of war. Hence, von Clausewitz claimed that the human activity most similar to war is a 'game'.¹⁶⁸ The use of 'games' in military education is, however, not completely standardised.¹⁶⁹ For example, in the Swedish Armed Forces' handbook on education a 'game' is a 'verbal combat exercise', i.e. an exercise without troops but with 'fantasy' which can occur either outdoors or indoors. While no further description of 'game'

¹⁶² Yunyongying (2014).

¹⁶³ Goffman (1969), p. 90.

¹⁶⁴ Fine (1983), pp. 8-11.

¹⁶⁵ Keegan (2004).

¹⁶⁶ van Creveld (2013).

¹⁶⁷ von Hilgers (2012), pp. 33, 63.

¹⁶⁸ von Clausewitz (2002), pp. 29, 40-42, 112.

¹⁶⁹ Hausrath (1971), pp. 9-11.

is provided in that handbook, the stated purpose of 'games' in military education is to practise tactics and combat methods by decision-making.¹⁷⁰

Instead of 'game', 'wargaming' is the traditional term used in military education. Wargaming was formally introduced in Prussian professional military education in 1824. At that time, in Berlin, a lieutenant named von Reisswitz conducted a demonstration of his own designed double-sided map-based wargame with *rigid* rules for the Prussian chief of staff, General von Muffling. The demonstration of the *Kriegsspiel* went smoothly and the General became so impressed with the feel of the wargame that he allegedly exclaimed loudly 'this is not a game, this is practice for war'. This feel of realism was exactly what von Reisswitz the Younger had in mind with his wargame – a refined version of his father's wargame to 'give a realistic picture of actions on the battlefield'.¹⁷¹ The subsequent introduction of *Kriegsspiel* in Prussian military education as ordered by von Muffling saw further developments. The *rigid* rules for combat adjudication were continuously developed and made more detailed in order to produce realistic combat results. Following this route, directing a wargame became a cumbersome process. This in turn developed into a major complaint among officers assigned to conduct a wargame since they saw a fundamental flaw: 'when an officer fluent in operation is intimidated by the prospect of administrating a wargame – the dissonance being that if the wargame is supposed to train officers for war, how can seasoned officers lack the capability to conduct wargames?'¹⁷² To increase the instructor's ability to control a wargame a Prussian colonel named von Verdy proposed a major revision of the *Kriegsspiel* in 1876. This changed the wargaming form from *rigid* to *free*: the combat result was to be decided by the instructor (umpire) rather than be conducted in accordance to extensive printed rules and adjudicated through lengthy calculations. This revised wargaming form became akin to an interrogation, in which the director asks the commanders and/or subordinates their intentions at a certain time. This general form of wargaming, known as *free Kriegsspiel*, received a positive reception from officers. Supposedly, this major revision also increased the military use of educational wargaming.¹⁷³

The issue of 'too much game', exemplified by the *rigid* approach in wargaming, is arguably a traditional concern for the officer profession. This concern is compounded with what Anders Frank has described as 'gamer mode', when military students become so focused on winning the wargame that they concentrate on winning at all costs rather than on the learning objectives.¹⁷⁴ While academics, such as van Creveld, may emphasise the need for double-sided wargames, many officers, exemplified by the

¹⁷⁰ Försvarmakten (2006a), pp. 416- 432.

¹⁷¹ Peterson (2012), pp. 227-228.

¹⁷² Peterson (2012), p. 246.

¹⁷³ Peterson (2012), pp. 246-247.

¹⁷⁴ Frank (2014), p. 81.

US Army officer Farrand Sayre, represent a fundamentally different view.¹⁷⁵ Sayre believed that the concept of 'game' was unnecessary for wargaming ('map manoeuvres'):

Although map maneuvers owe their origin to a game [by von Reisswitz], the game feature is no longer an important element of them. A predominance of the game idea has always been an obstacle to the proper development of these exercises as a means of military instruction and training. (...) in order that no injustices might be done to either side, computations of losses were made (...) the dice, tables and rules served to secured fairness to the players and to clear the director of suspicion of bias; but when the idea that the map maneuver is a sort of game – in which one merely plays to win – is set aside these considerations lose their importance.¹⁷⁶

There are two perspectives inherent in Sayre's argumentation. One embraces the concept of wargames with two opposing sides, which have more or less equal chances of winning, while the other perspective believes that the instructional value does not require two sides of players competing against each other. The core in Sayre's argument is that a wargame has nothing to do with a 'game' since it is a military exercise. However, by putting forward this argument, Sayre acknowledges the connection between games and wargames by referring to the original wargaming form designed by Lieutenant von Reisswitz in 1824. The answer to the simple question of whether a wargame is a 'game' or not was actually the reason that *Kriegsspiel* was adopted, as the Prussian General von Müffling, to whom the demonstration was done in 1824, clearly emphasised that 'It's not a game at all'.¹⁷⁷

The military dislike for the word 'game' concerns the amusement and/or entertaining aspect connected to the competitive settings. However, even Sayre noted that a latent entertaining and positive factor exists in educational wargaming. This is directly related to the intellectual challenge of a contest against a live opponent. If that duel-situation were removed, the only thing left would be pure order training. This order training is, however, what Sayre sees as the usefulness of wargaming. On the other hand, he also acknowledges that a double-sided game with an opposing side raises the interest for the wargaming exercise. His counter-argument to this is that single-sided wargames are more effective since they are controlled: a game director controls the opponent directly and therefore shortens the waiting time between moves. Nevertheless, his conclusion is paradoxically an endorsement of the double-sided version:

¹⁷⁵ van Creveld (2013), p. 3.

¹⁷⁶ Sayre (1910), p. 28.

¹⁷⁷ McHugh (2013), p. 31.

Broadly speaking, it may be asserted that the one-side maneuver is the better vehicle for instruction – the two-side maneuver the better means for given training and practice. (...) Two-side map maneuvers have important advantages and will probably always be regarded as the highest form of the exercise and be the form most frequently used. There is a closer approximation to the conditions of war, for there is an actual contest and greater interest is aroused. Responsibility is thrown directly upon the commanders, who thus acquire training in bearing it. The lessons taught are more convincing and are more indelibly impressed upon the memory.¹⁷⁸

The reality is, however, not as clear-cut as Sayre presents it. There is a grey zone in the respect of players and different sides. Pure double-sidedness can be said to be relatively rare as this should entail both sides (teams) having a more or less equal chance of winning the ‘contest’. In many cases, a separate minor ‘red cell’ or the game director himself plays the opposing ‘red team’. This is a form of double-sidedness, at least in regard to the interactional aspect. Furthermore, different cells in the same ‘blue’ team may co-operate or may even, to some extent, compete with each other. The issue of double-sidedness can be exemplified by the difference between the German forms of *Kriegsspiel* and *Planspiel*. In *Kriegsspiel*, two equally manned teams (blue and red) play through a war scenario while in *Planspiel* only one team (the blue side) directs the phases of the wargame.¹⁷⁹ Both forms, however, include the term ‘game’ (‘spiel’) which indicates that the issue of player sides is a dichotomy *within* wargaming, rather than a difference between a wargame and a non-wargame.

Arguably, an aversion to relate to the ‘game’ part of wargaming means that the term ‘wargame’ is currently avoided in military education. A similar aversion has been noted in the civilian application of educational games.¹⁸⁰ According to Thomas Allen, many academics avoid the term ‘wargaming’.¹⁸¹ Instead, terms such as ‘conflict simulation’ and ‘military simulation’ are used. Notably, ‘games’ are said to have ‘undesirable characteristics [that] encourage the operator to deviate from standard operational procedures.’ In short, the term ‘game’ is affiliated with entertainment and fun and not to real-world tasks.¹⁸² In a professional military setting, games incorporate competition, but they are not played for entertainment as military training is seen as ‘a very serious activity’.¹⁸³ This attitude is reinforced by norms.¹⁸⁴ The aversion in both the military and civilian fields of educational games to bring ‘game’ and ‘war’ together thus leads back to the term ‘serious games’, which was coined by Clark

¹⁷⁸ Sayre (1910), pp. 55, 61-63, 65.

¹⁷⁹ von Hilgers (2012), p. 156.

¹⁸⁰ CarltoninGames (2010).

¹⁸¹ Allen (2009), p. 14.

¹⁸² Narayanasamy et al. (2006).

¹⁸³ Smith (2009), pp. 201, 220.

¹⁸⁴ Nygaard, Courtney & Leigh (2012), p. 2.

Abt in the early 1970s. Contrary to the popular notion that ‘serious games’ imply that the fun factor is to be excluded, Abt in fact clearly states that:

‘serious games’ [...] have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement. This does not mean that serious games are not, or should not be, entertaining. We reject the somewhat Calvinistic notion that serious and virtuous activities cannot be fun.¹⁸⁵

In other words, Abt, the inventor of the phrase ‘serious games’ himself emphasised the inherent emotional satisfaction that may arise from any game, even if played seriously. Furthermore, Abt also makes the connections of games to war, a competitive activity of the largest scale where the outcome is uncertain. His conclusion is that games are essential in military planning and training.¹⁸⁶ Accordingly, military educational wargaming suffers from a paradox. While wargaming has a recognised usefulness in military education, the practice suffers from controversy because of its connections to gamification – a game design’s use of fun and competition to increase learning motivation –, which on the other hand is also a key factor behind the usefulness of wargaming.

¹⁸⁵ Abt (1987), p. 9.

¹⁸⁶ Abt (1987), pp. 8-14.

Summary

Wargaming is a playable simulation of military action. Inherent in wargaming is a process that constructs a narrative by contingent symbolic interaction. Hence, every wargame is unique. Within an educational framework, 'to wargame' is to experiment in order to gain experience to reflect upon and learn. Wargaming is a mirror – a metaphor of the ongoing symbolic interaction between the participating individuals, conventionalised as Ego and Alter, whose interaction enables the participants to reflect on their own actions. This process augments learning. While the inherent process is thus clear, wargaming can take on many different forms. This is evident in four variables: the number of participating sides, hidden or open information, combat adjudication methods and the physical form. The last variable is especially noteworthy regarding the traditional map-based (manual) form and the more recent computer-based form. Two major dichotomies in wargaming are also covered by the variables: between *rigid* and *free* wargaming and between one-sided and double-sided wargaming.

One major disputed area has been identified: military wargaming is often not considered a 'game'. This concerns the unwillingness in military culture to connect wargames to entertainment, as military wargaming is 'not supposed to be entertaining'. Instead wargaming is seen as 'serious games' and is often referred to as 'simulation' or 'decision-making exercises'. Simulation, however, does not carry the same meaning as wargaming. In many cases, simulation is not about human interaction and role-play: at times no humans are actually 'playing'. Such activities are not 'playable simulations' and hence not wargaming. The aversion to connect wargaming to games may inhibit learning from educational concepts such as game-based learning and gamification. The latter concept, gamification, in particular entails 'fun', which accordingly seems to arouse scepticism, especially so in military education.

3. Sweden

Introduction

In Sweden the Defence University (SEDU, Swe: *Försvvarshögskolan*) has a dominating position in the education of military officers. A civilian university since 2008, the SEDU is tasked by the Swedish government to organise the three-year Officer Programme with a professional officer degree (BA) that enables graduated officer cadets to apply for employment as a second lieutenant in the Swedish Armed Forces. In addition, the SEDU provides the higher officer education in accordance to requirements from the Swedish Armed Forces.¹⁸⁷ A central part of the higher education is the two-year Senior Staff Course, which offers mid-ranking officers (majors) the opportunity to graduate with an advanced degree in War Studies (MA). Accordingly, the SEDU is responsible for all officer education related to university credits and degrees. The Swedish Armed Forces retain, however, several schools for additional education and training for officers. The largest of those is the Land Warfare Centre (Swe: *Markstridsskolan*) which offers education, development and training in all aspects of land warfare.¹⁸⁸ This includes a one-year education, at the Land Warfare Centre's detachment in Kvarn, for officer cadets of the Officer Programme in the infantry/armour branch. For these reasons, the embedded units of analysis regarding contemporary military educational wargaming in Sweden are:

- The SEDU and the Land Warfare Centre: the Officer Programme with officer cadets (I),
- The Land Warfare Centre: courses for army officers (II),
- The SEDU: the staff courses (III).

¹⁸⁷ Regeringen (2013).

¹⁸⁸ Markstridsskolan (2014).

3.1 Lower level: the Officer Programme

The Officer Programme (OP) was designed in 2006-07 as a joint three year programme with most officer cadets attending similar courses. The intake for each year, starting in August, usually consists of 100 to 150 officer cadets. By 2014 the Officer Programme had evolved into four profiles. The largest group is called the War Studies Profile with an emphasis on land warfare. The second group is the Military Technology Profile, with military technology as the main subject instead of War Studies. The third group is the Nautical Profile for naval officer cadets. Part of their education is conducted at the Kalmar Maritime Academy within the Linnaeus University. Finally, the fourth group consists of air force pilot apprentices – their education/training is set up as contracted teaching on behalf of the Armed Forces, while the other three profiles consist of accredited university education. Of the four profiles above only the War Studies Profile is covered since the focus is on land (army). The 4th and 5th semesters (one year) are conducted at Armed Forces' schools, such as the Land Warfare Centre.¹⁸⁹

Contemporary wargaming

Below is a chronological overview of wargaming conducted in 2014-2015 at the War Studies Profile.

WHEN	WHY	WARGAME CLASSIFICATION
2 nd semester: intermediate module in land tactics	A two hour introduction to 'gaming the plan' in the planning process	A map wargame ; to 'game the plan' with a focus on 'classroom planning': 'PUT-spel'
2 nd semester: intermediate module in land tactics	A 'wargaming week' to learn tactics at battalion level	An in-house developed hybrid map/board wargame with a focus on 'classroom warfighting': BMBat
4 th -5 th semester: Land warfare centre (Kvarn)	A 'wargaming week' to learn combat techniques within company level	A focus on 'classroom warfighting' using the computer game VBS (StriSim-PC)
4 th -5 th semester: Land warfare centre (Kvarn)	A couple of occasions to discuss specifics issues through a 'reasoning wargame'	An in-house developed hybrid seminar/map wargame with a focus on 'classroom planning'

Table A: overview of wargaming for Swedish officer cadets (armour/infantry) 2014-15.

The five-week intermediate module in land tactics starts with lectures followed by a battalion level scenario of planning, including a simple map wargame. The planning is followed by a one week staff ride focusing on reconnaissance of the terrain. What remains before the final examination week is the 'wargaming week', which gives the officer cadets the chance to practise decision-making in a double-

¹⁸⁹ Försvarshögskolan (2014).

sided scenario between a red and blue side. The wargaming activity thus forms part of a progression in the form of an educational ‘ladder’ within the module.¹⁹⁰ In 2014, and every year since 2011, the wargaming form used in the ‘wargaming week’ for the intermediate tactics module is the *Board Game Mechanized Battalion* (BMBat): an in-house hybrid map/board game developed by the author. BMBat allows up to 16 officer cadets to participate in two teams (blue and red), each with two levels of command: the battalion tactical command post (Bn HQ) and the Company Commanders (Coy). During the ‘wargaming week’, each officer cadet (out of a typical total number of around 60) is able to play twice: in a different role (Bn HQ or Coy) and on a different team (red or blue).

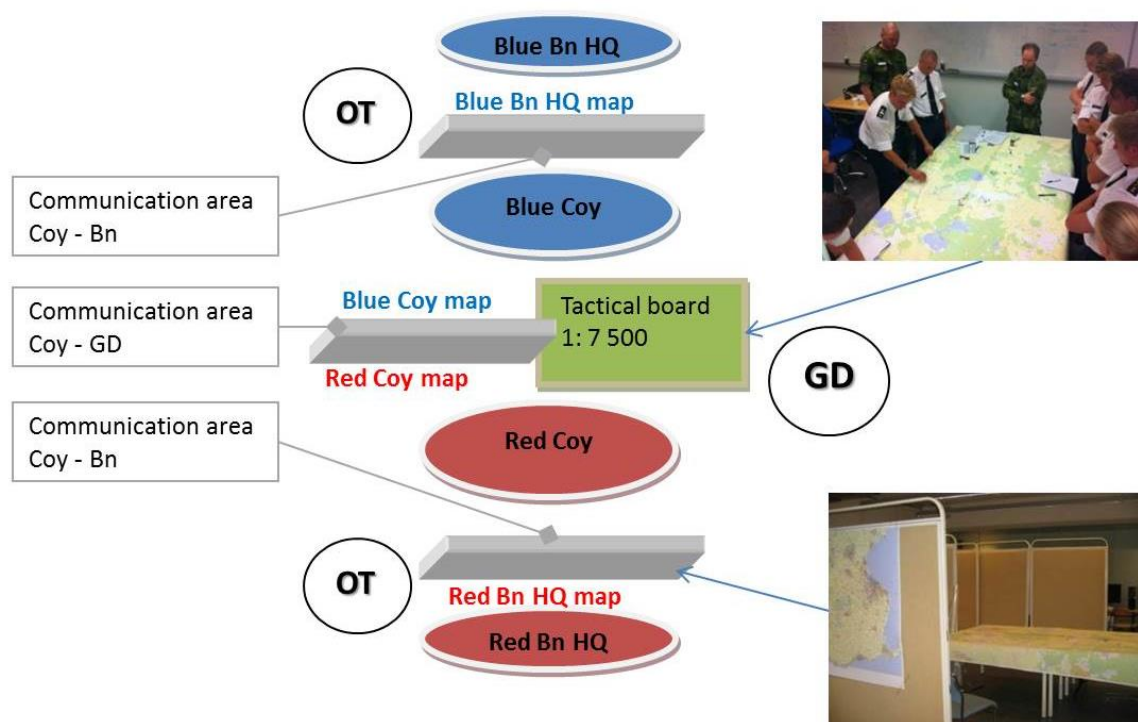


Illustration no. 4: The hybrid map/board game BMBat created by the author.¹⁹¹

The central tactical map – the ‘tactical board’ – is an enlarged version (1:7,500) of an ordinary map (1:50,000). The map has two hexagon overlays (1,500 m and 150 m) to measure distance and speed up the adjudication process, which is handled by one game director (GD). He or she is supported by up to two observer-trainers (OT), whose main task is to assist the officer cadets, primarily at the battalion (Bn) level. The OT also observe the wargame in preparation for the debriefing session at the end. The

¹⁹⁰ Interview: Perkola, 2014-04-01.

¹⁹¹ Elg (2011-14).

last 30 minutes of one wargame is for the debriefing session and is led by the OT. The entire wargame takes about three and a half hours. With two game directors and two wargaming sets, up to four wargames per day have been conducted.



Photograph no. 3: an overview of the central tactical map with hexes (150 and 1,500 m) and contour lines (5 m) in BMBat.¹⁹²

In 2014-15 there were few subsequent occasions of wargaming for the land warfare officer cadets besides the 'wargaming week' at the SEDU. However, one year of a total of three years is conducted at one of the Armed Forces' schools. The Land Warfare Centre's detachment in Kvarn utilises two different forms of wargaming:

1. Computer game: *Virtual Battlespace* (VBS) with roles as soldier, Section Commander, Platoon Commander and company headquarters,
2. The 'reasoning wargame' (Swe: 'resonemangsspel').¹⁹³

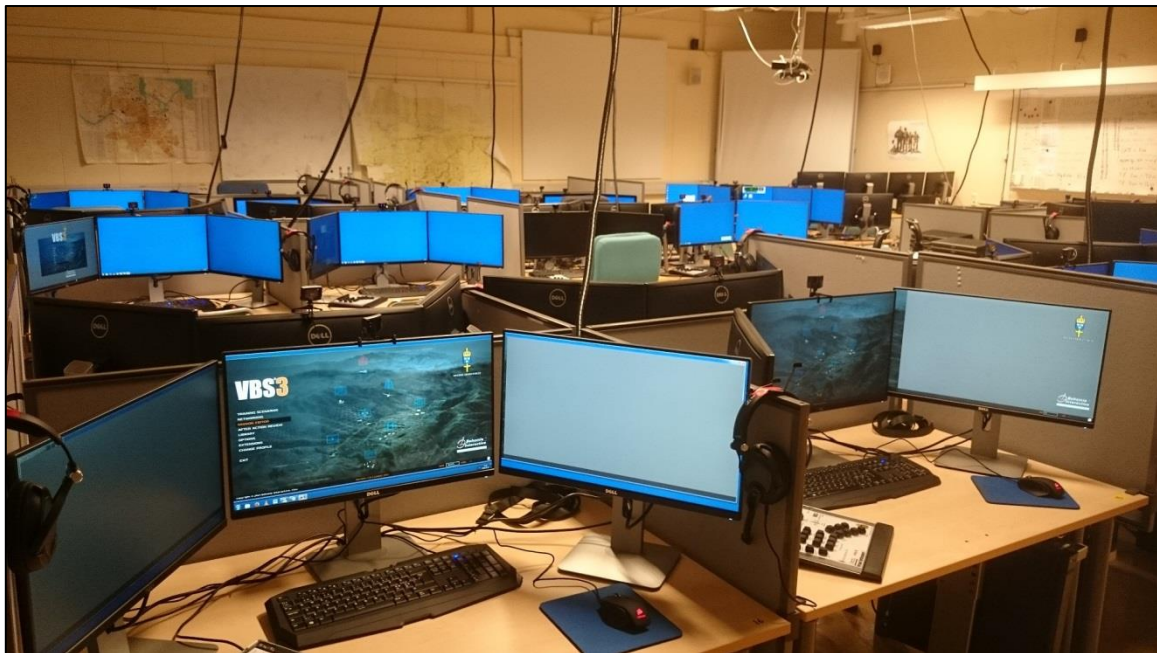
In 2014, the officer cadets received one week of practice with VBS and several scenarios ranging from platoon to company were used. During that one week, the officer cadets spend their morning outdoors in the terrain participating in a tactical exercise without troops (TEWT) before going to the computer

¹⁹² UK Connections (2014), (photograph by author), and, Elg (2011-14).

¹⁹³ Interview: Walldén, 2014-09-19.

facility. The officer cadets were thus able to wargame ‘in the same terrain’ they had visited in the morning. The longest consecutive computer-session conducted with VBS lasted almost 24 hours, which included the time to synchronise the activities in the wargame with the need for people to eat and rest in real-time. The instructors themselves played the red cell since the focus was on the *co-operative* interaction between the blue side’s levels of command (section-platoon-company).¹⁹⁴

The *Virtual Battlespace* (VBS) is a modified commercial game, and a virtual simulation, with a first person shooter view. However, VBS is not used as a stand-alone computer game. The outdoor TEWT and the focus on command roles indicate an integrated and organised approach in the use of VBS. Notably, the VBS manufacturer, Bohemia Interactive simulation (BISim), refers to the Swedish use of VBS as ‘integration of Live-Virtual-Constructive (LVC) exercises’.¹⁹⁵ Computer-based wargaming in the Swedish Armed Forces is implemented by a single concept called StriSimPC (Eng.: ‘combat simulation personal computer’) at garrisons and in schools. StriSimPC consists of software (VBS), hardware (about 30 computers) and one large classroom. StriSimPC also allows constructive computer-based simulations, such as *Steel Beast Pro*, with aggregated player-control and a 2D-view.



Photograph no. 4: the StriSim-PC facility in Kvarn (Markstridsskolan, 2014).

¹⁹⁴ Interview: Walldén, 2014-09-19.

¹⁹⁵ Bohemia Interactive Simulations (2015).

The second wargame at the Land Warfare Centre is not part of StriSim-PC. The 'reasoning wargame', was specifically developed by the Land Warfare Centre's detachment in Kvarn. The 'reasoning wargame' is a hybrid form of wargame: it combines a seminar focused on discussions with a map wargame centred on visualising frictions – specifically constraints attributable to the laws of physics. At least two maps are used: an overview map and an enlarged map. The latter is used to show details and to move pieces symbolising vehicles and personnel. A game director runs this wargame by control questions, such as: 'did you actually bring the grenade launcher with you?', 'How much ammunition did you bring?', 'Where is the extra ammunition?' Conclusions are generated from the answers. This form of wargame was developed in 2010-11 to analyse the situation of Swedish units in Afghanistan by the use of real combat data. Since then, the 'reasoning wargame' has evolved to educational use.¹⁹⁶ In the 'reasoning wargame' the emphasis is not on generating combat results but on generating conclusions from the responses of the participants to critical questions asked by the game director. The common form of the 'reasoning wargame' is an enlarged map with unit symbols on the floor surrounded by the training audience which is supported by subject matter experts in the back row.



Photograph no. 5: 'the reasoning wargame' (*Markstridsskolan*, 2014).

¹⁹⁶ Interview: Walldén, 2014-09-19, and, Interview: Gyhagen, 2014-09-19.

National traditions and foreign influences

Historically, wargaming in Sweden has been influenced by the close proximity of Prussia/Germany. In 1830, just a few years after the publication of the *Kriegsspiel* rules in 1824, the rules were translated into Swedish and published. Hence, military wargaming in Sweden has a long tradition with several publications and manuals from the 19th and early 20th centuries on how to conduct wargaming at tactical levels.¹⁹⁷ This data influenced the contemporary in-house development of the *Board Game Mechanized Battalion* (BMBat) regarding the role of the game director and how to handle time and space. The 'reasoning wargame' has also connections to traditions, in particular the physical map-based form. Captain Gyhagen at the Land Warfare Centre in Kvarn explained that historically, wargaming in Sweden was connected to maps. Enlarged photographs were chosen for the 'reasoning wargame' to complement the maps as photographs evidently give a better sense and visualisation of the actual terrain at the lower tactical level.¹⁹⁸ Both the BMBat and the 'reasoning wargame' seem, however, first and foremost connected to specific individuals rather than national traditions.

It is individuals – the course module directors – who ultimately decide if a wargame is to be included. One director, Major Perkola, noted that 'no one from the armed forces told me, as director, of the need for any wargaming. I did it myself as director, relying on written regulations and doctrine.'¹⁹⁹ This specifically concerns the use of wargaming in the Swedish planning manual PUT. This manual regulates wargaming to test and improve an almost complete plan by 'playing through the plan'. The purpose is to make the plan more robust by finding new points for decisions. Another purpose is to inform the commander, the staff as well as subordinate commanders of the subsequent execution phase. The effectuation of the wargame thus aims to increase the mental awareness of the plan and what needs to be done.²⁰⁰ However, quite often the time allotted to do this kind of planning-wargaming is very limited. The result is that, in general, Swedish officers consider that they have inadequate experience of using wargaming for this purpose.²⁰¹

Swedish national traditions seem inherent in map and discussion-based wargames, while computer games such as VBS may seem to have foreign influences since the software is a foreign product, although somewhat modified for Swedish requirements. There exists, however, a third category of in-house-developed wargaming forms connected to certain individuals, such as the BMBat and the 'reasoning wargame'. Lieutenant Colonel Palmqvist, a former teacher at the Officer Programme in 2004 and a well-known army advocate of wargaming as the head of the Tactical Section at the Land

¹⁹⁷ Hörberg (1830), and, Sayre (1910).

¹⁹⁸ Interview: Gyhagen, 2014-09-19.

¹⁹⁹ Interview: Perkola, 2014-04-01.

²⁰⁰ Ledningsvetenskapliga avdelningen (2006), p. 15.

²⁰¹ Interview: Anonymous no. 1, 2014-05-20.

Warfare Centre in Skövde has offered one explanation of this. Wargaming has not existed in Sweden at lower tactical levels since it was never well-established. Instead, there are 'enthusiastic driving forces' – i.e. individuals – who decide about the form of wargaming.²⁰² Another instructor also noticed this apparent lack of Swedish contemporary wargaming when he was a student for one year at a US Army military school in the late 1990s. In his view, US Army wargaming was 'better integrated', and also double-sided, in comparison to Sweden.²⁰³ However, it appears that the recent implementation of planning manuals, such as PUT, which stipulate the use of wargaming in planning processes, has given support to individual instructor to promote and conduct wargaming. The forms of such wargaming seem, however, to be based on the preference of the individual.

Availability of commercial off-the-shelf games (COTS)

The 'wargaming week' during the second semester of the Officer Programme at the SEDU has seen a variety of forms of wargaming since it was instituted in 2008. Initially, computer games were used, for example, the COTS computer wargames *Operational Art of War III* and *Decisive Action*, before the activity in 2011 evolved into an in-house developed hybrid map/board-wargame, the *Board Game Mechanized Battalion* (BMBat). In play testing with teachers, COTS manual hobby wargames such as the *World at War: Blood and Bridges* were found to be lacking in realism. For example, non-simultaneous movement based on chance were found to be distinctly unnatural by instructors with recent combat experience at the company level. This limitation due to perception was likewise detected in the previously mentioned computer wargames. To put it simply, such wargames were designed for another level of command: corps/division rather than battalion. In fact, no COTS wargame was found to be suitable for use in the intermediate module in tactics. Some were better than others, one example is the computer-based *Modern Close Combat*, but did not provide editing functions for the right terrain, a crucial factor since the wargaming session was to be preceded by a staff ride in the same terrain. Furthermore, the COTS wargames did not include Swedish equipment/units. Thus, the remaining alternatives were to either develop in-house (manual or computer-based) wargames or procure a wargame according to specifications. The first alternative can be exemplified by the BMBat. The second alternative can be exemplified by the StriSimPC, which in 2014 encompassed *Steel Beast Pro* and VBS. Those are modified foreign commercial games adapted for military use by the addition of correctly modelled Swedish units, terrain and other features, such as hardware to simplify control of the players' avatars.²⁰⁴

²⁰² Interview: Palmqvist, 2014-04-17.

²⁰³ Interview: Anonymous no. 1, 2014-05-20.

²⁰⁴ Observation: StriSim-PC facility in Kvarn, 2014-09-19.

Previous attempts to introduce COTS wargames in military education have been unsuccessful. During Lieutenant Colonel Palmqvist's position as an instructor in tactics at Karlberg for the officer cadets in 2003-04, he experimented with wargaming for a proposed supplementary module in tactics with different forms of wargaming. In his view, what was needed were 'smaller, simpler and uncomplicated wargames based on historical examples, where the officer cadet could apply military theoretical principles to a tactical situation.'²⁰⁵ Those 'smaller, simpler and uncomplicated wargames' were envisaged to be COTS: either in the form of board games or computer games. Palmqvist's conclusion was that general military education in tactics is well-suited for board games. The main reason for this preference was the similarity to military practice in the use of maps, and also the suitability of using a board game as a part of discussions with students and teachers around the table.²⁰⁶ However, in order to get a good effect from board games, either the students had to get extra time for reading and to practise the rules, or a game director had to conduct the wargame. The conclusion was: if there is no time for students to learn the rules then there is definitely a need for a game director who is well-versed in the board game.²⁰⁷

An experiment to test the feasibility of 'smaller, simpler and uncomplicated wargames' was conducted with volunteer officer cadets during a weekend. The officer cadets planned a historical operation with a commercial board game (*Lost Victories*) and used two command-levels (army and army group) of players. The result was that this kind of wargame – 'a dynamic double-sided applicatory example' – was considered appropriate for illustrating applications of maneuver warfare. It was also 'fun' and 'motivating'.²⁰⁸ A couple of additional experiments with some of the officer cadets were also conducted regarding the use of commercial board games for the purpose of instructing cadets in military theory and tactics. However, the education of officer cadets in Sweden was discontinued for two years due to lack of funding. Eventually, the new three-year Officer Programme started in 2006. This two-year gap, which saw Lieutenant Colonel Palmqvist and other teachers transferred away to other assignments, meant a lack of continuity regarding the instructors. Thus, the projected five-week module in tactics on various forms of wargaming was never implemented. What remains in 2014 from this wargaming initiative is the 'wargaming week' in the intermediate tactics module.

²⁰⁵ Palmqvist (2004), pp. 6-9.

²⁰⁶ Palmqvist (2004), p. 5.

²⁰⁷ Palmqvist (2004).

²⁰⁸ Palmqvist (2004), p. 9.



Photograph no. 6: officer cadets at Karlberg practise tactics with the COTS board game *Battle for the Ardennes* in 2004.²⁰⁹

The attempt by individuals to introduce COTS wargames in order to enhance the military education may indicate a relationship of such individuals to hobby-wargaming. One proponent in particular, Lieutenant Colonel Palmqvist, has indeed explicit connections to hobby-wargaming.²¹⁰ In many cases such individuals were often introduced to hobby-wargaming *before* joining the military. But that is not always the case. Another military teacher who also participated in Palmqvist's experiments, Lieutenant Colonel Nilsson, is adamant that he is *not* a hobby wargamer. However, he agrees with the proposition that in order to learn tactics and combat principles from wargames, 'umpires, dice and/or computers' are necessary. Features such as dice and written rules are often integral parts in manual hobby wargames. While computer games also have such features, board games are seen as more suitable since computer games, according to Nilsson, are time-consuming in the set-up and pre-game preparation.²¹¹ However, COTS wargames seem to suffer from the fact that such games, hobby wargames, are designed for something other than professional military education. Consequently, the use of COTS wargames at this level is currently (2014-2015) non-existent. On the other hand, much of what is used, for example the hybrid map/board BMBat and the computer-based VBS, are refined and developed military versions of COTS wargames.

²⁰⁹ Palmqvist (2004), p. 14.

²¹⁰ Interview: Palmqvist, 2014-04-17, and, Interview: Anonymous no. 2, 2014-06-13.

²¹¹ Interview: Nilsson, 2014-10-07.

Processes: planning and decision-making

What separates 'classroom planning' and 'classroom warfighting' is the latter's emphasis on decision-making during double-sidedness: i.e. wargaming with two sides. Promotion of double-sidedness as helpful for practising decision-making can be found in a wargaming manual at the SEDU. However, there are several different forms: only a few examples envisage two perfectly equally-manned teams.²¹² As can be seen in the VBS activity and the previous experiments with a COTS board game, teachers, not officer cadets, play the opposing side. The clear-cut team vs team double-sidedness in the 'wargaming week' with BMBat seems to be an exception.

The learning objective of the 'wargaming week' in the intermediate tactics module is as follows: 'the officer cadets will through staff rides and wargaming analyse tactical problems and train decision-making and issuing orders.'²¹³ This learning objective thus reveals a challenge in the perception of wargaming among the military teachers and instructors. Wargaming is often seen as a simple binary choice: either to test a plan or to practise decision-making.²¹⁴ Since the 'wargaming week' in the intermediate tactics module was established in 2008 the theme has consistently been decision-making. However, the basis for this practice are previously developed plans by the officer cadets. Hence, while the 'wargaming week' is about decision-making, it is also about testing plans.

The officer cadet opinion of the 'wargaming week' can be seen in a student evaluation from 2011. The officer cadets believed that wargaming in general, and a manual map-wargame in particular, could offer a chance to understand frictions and provide an opportunity to practise issuing orders and use tactics. In short, for them it was an opportunity to test themselves and the team in order to improve their skills. However, the officer cadets also noted that there were some risks of *rigid* adjudication of wargaming. The emphasis on game rules may overshadow the focus on learning tactics, especially if adjudication takes too long to resolve. While the latter critique concerns manual wargames with *rigid* rules, the comments, on the other hand, explicitly prefer the visualisation and interaction of a manual wargame over computer screens.²¹⁵ These comments indicate conflicting individual preferences for different wargaming forms.

Influence from individuals can be counteracted with official instructions on how to conduct wargaming. Two specific wargaming forms can be found in the Armed Forces methodology handbook *Basic Command Battalion*. In a 'map-wargame', the chief of staff is recommended to take the role of

²¹² Försvarshögskolan (2007).

²¹³ Försvarshögskolan (2011b).

²¹⁴ Interview: Perkola, 2014-04-01.

²¹⁵ Försvarshögskolan (2011a).

game director, while in a 'discussion-based wargame', which is more abstracted regarding time and space compared to a 'map-wargame', the Battalion Commander leads the wargame. Adjudication is to be done by a 'leading commander' and relies on 'values based on experience' and various manuals.²¹⁶ Both forms are envisioned as part of planning. However, a duality then surfaces in the statement that 'games' are a good way to train decision-making.²¹⁷ The actual wargaming forms in use indicate that some forms are connected to handbooks while some are not. The initial map-based planning game, as well as the 'reasoning wargame' are both quite similar to what is envisaged in the handbook. Such simple forms seem connected to 'classroom planning'. This is different than the more elaborate wargaming form of the 'wargaming week' (BMBat) and also the computer-based VBS.

It can be argued that wargaming forms differ if the wargame is about planning or decision-making. One conclusion from the experience of the 'reasoning wargame' at the Land Warfare Centre at Kvarn was that the purposes of analysis and decision-making cannot be combined in the same wargaming session. There is a perceived need to keep these purposes separated because of the mental environment that execution-training generates in a wargame in comparison to plan development.²¹⁸ This conclusion is also supported by the general division of wargames into those that generate 'decision-making information' and those that generate 'decision-making experience'.²¹⁹ On the other hand, the 'reasoning wargame' did originate with an analytical purpose but has since its initial development also been used for education. Thus, the very same form of wargaming *can* be used for either purpose, albeit preferable not at the same time. Consequently, while some forms of wargaming are arguably connected to the planning process (map- and discussion-based) and some forms are arguably connected to execution-training for decision-making (hybrid map/board and computer), the same wargaming form *can* be used for either purpose. In some cases, such as the BMBat, the duality of 'classroom planning' and 'classroom warfighting' is somewhat integrated.

The individual instructor

The importance of the individual instructor has been consistent throughout the above issues. What illustrates the various responses from individual instructors is the need for 'control'. Administrative concerns are part of this, but first and foremost 'control' refers to the actual running of a wargame. For example, the best strength in the 'reasoning wargame' is mentioned as the possibility by the game director to exercise control of the wargame by 'accelerating and braking'. The wargame may be paused

²¹⁶ Försvarmakten, 2004, pp. 36-40.

²¹⁷ Försvarmakten (2006), pp. 431-432.

²¹⁸ Interview: Gyhagen, 2014-09-19.

²¹⁹ McHugh (2013).

(in Swedish the explicit phrase used was 'frozen') and a situation can then be discussed in detail. When the game director is satisfied, the wargame may continue. This form of explicit control requires the game director to be firm and clear in his/her directives.²²⁰ Administrative concerns are used in conjunction with control as the setting-up time of a wargaming session is often mentioned by the interviewed instructors either as an advantage or a disadvantage. In the education/training of officer cadets by the Land Warfare Centre, the 'reasoning wargame' is seen as a wargame that can be quickly set-up (in 30 minutes). This is then compared to a computer wargame, VBS, which needs about eight hours of pre-training of the officer cadets before a session.²²¹

One opinion from an interviewed instructor was that the combat technical level (platoon) is not suited for wargaming. From this perspective it would be more suitable for officer cadets to conduct role-playing or actual outdoor field exercises rather than wargaming, as the latter is better suited for battalion and higher command levels.²²² This opinion corresponds to official documentation which tends to view 'games' as an outdoor activity in the forms of TEWT. However, this arguably transforms the activity from a wargame to a non-wargame. Major Perkola states that while no officer is completely negative to wargaming they all have different degrees of willingness to use it. The reasons for this hesitation are supposedly due to one, or several, of the five reasons below as listed by Major Perkola:

1. It takes too much time and effort,
2. Few positive personal experiences,
3. No clear identified connection regarding the purpose and the effect,
4. Not comfortable in the role of game director,
5. Too insecure to handle the conflict between two sides in a double-sided wargame.²²³

While 1) is about administrative concerns and 3) covers the effort of connecting educational objectives to learning effects in teaching methods, the other three reasons indicate a deeply personal relationship between the wargame and the instructor. It would seem that the form of decision-making ('classroom warfighting'), as in 5) above, requires more personal effort from the game director than a wargame for plan development ('classroom planning'). The importance of the individual is accentuated by the apparent perceived lack of support from academic literature on wargaming at this level. The manual on wargaming at the SEDU contains, for example, no references or footnotes.²²⁴ In the case of the 'reasoning wargame' there is no handbook on how to conduct it, and no academic sources were said

²²⁰ Interview: Gyhagen, 2014-09-19.

²²¹ Interview: Walldén, 2014-09-19.

²²² Interview: Anonymous no. 2, 2014-06-13.

²²³ Interview: Perkola, 2014-04-01.

²²⁴ Försvarshögskolan (2007).

to have been used during its development.²²⁵ Consequently, educational wargaming in use at the lowest level seems connected to the personal concerns of the individual instructor. Arguably, if the instructor is not comfortable with a certain form of wargaming because of a negative perception and/or previous bad experience with a wargaming form, there is less willingness to use wargaming as an educational method.

²²⁵ Interview: Walldén, 2014-09-19.

3.2 Intermediate level: the Land Warfare Centre

Military education at the Land Warfare Centre in Skövde is concentrated on three courses for army officers (2014). The first course is the OF 2 'Captain Course' that runs from January and is 17 weeks long. The other two courses begin directly after the end of the OF 2 course, and are named Company Commander Course and Battalion Staff Member Course. Those two latter courses are both eight weeks long and run in parallel during late spring until early summer. It is possible to continue from the OF 2 course into either of the other courses.²²⁶

The Land Warfare Centre facilitates live, virtual and constructive simulations. Live simulation consists of a mobile combat training facility (STA) to support mechanised companies training with laser equipment to simulate combat. Virtual simulations are conducted with mock-ups, such as the BTA 122, a platoon simulator for the main battle tank Leopard 2 improved (Strv 122), as well as the combat infantry vehicle type 90 (CV 90). What can be described as a combined constructive and virtual simulation is the 'command training exercise' (LTÖ) at the command training facility (LTA). LTÖ is mainly used to train battalion headquarters (mechanised, artillery and engineers) in a variety of situations: from a brigade level high-intensity operation versus an enemy mechanised force, to a battalion level low-intensity operation, where the opponent has limited military capabilities.

Contemporary wargaming

Below is an overview of the Land Warfare Centre's educational wargaming activities for officers.

WHEN	WHY	WARGAME CLASSIFICATION
OF 2 Course (Captain Course)	A 'wargaming week' (the 16 th of a total of 17 weeks) to learn tactics at brigade level.	An in-house developed hybrid map/board wargame with a focus on 'classroom warfighting'
Company Commander Course	A recurring weekly activity to learn tactics at company level	A map wargame to 'game the plan' with a focus on 'classroom planning'
Company Commander Course	A 'wargaming week' (the 7 th of a total of 8 weeks) to learn tactics at company level	A map wargame to 'game the plan' with a focus on 'classroom warfighting'
Recurring over the entire year: week-long training 'command training exercise' (LTÖ) at the LTA	A 'command training' week for staff training and about the execution of a developed plan	A fusion of a virtual and constructive simulation: a computer-assisted map wargame with a focus on 'classroom warfighting'

Table B: overview of wargaming at the Land Warfare Centre in 2014-15.

²²⁶ Interview: Torgén, 2014-09-10.

One specific form of wargaming is the ‘wargaming week’ during the OF 2 Course, run since 2011. The participants, about 30 army lieutenants, put their planning from the previous week to the test by playing two blue brigades that defend against an attacking opposing force of two red brigades. This is a good example of a symmetrical double-sided wargame since the lieutenants were divided equally between the blue and red brigades. The game director himself only controlled a (red) parachute regiment, a non-mobile entity with a defensive role. In 2014, each of the four playable brigades had around eight participants with their own classroom and maps. *Rigid* adjudication occurred in an additional (fifth) separated classroom on an ordinary map with a hexagon overlay. The game director, Lieutenant Colonel Palmqvist, used two dice and a combat result table to determine combat results based on probability. Each brigade had two military instructors that were playing the roles of subordinate Battalion Commanders. After the combat adjudication, the instructors reported back to their brigade what actions or events had occurred during the last turn. In the morning of the fourth and last day all participants gathered in a lecture hall and the game director presented what had happened during the game. The presentation was followed by a discussion on key tactical decisions made during the wargame.²²⁷



Photograph no. 7: the game director’s master map: an ordinary map (1:100 000) with a printed hexagon overlay.²²⁸

²²⁷ Observation: OF 2 course, 2014-04-14 until 2014-04-17.

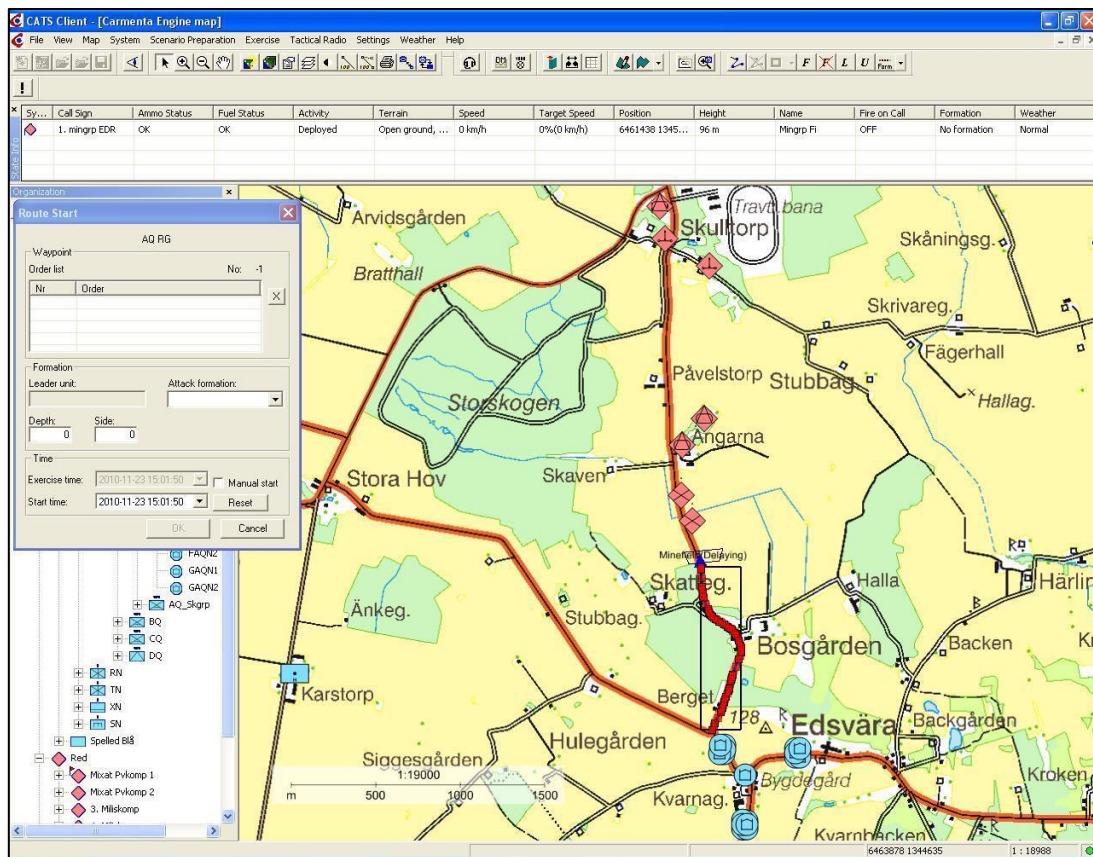
²²⁸ Palmqvist (2012).

In the Company Commander Course a map-based wargame was used almost every week to test the plans that the participants (army lieutenants) had developed during the initial part of the week. The opponent was played by the game director. The penultimate week of the Company Commander Course has in recent years seen several different teaching methods or forms in use: map-wargames, VBS, training with the LTA and cadre exercises. In 2014 a decision was made, according to the course director Major Torgén, to use a map-wargame instead of an outdoor cadre exercise, since the former provided a better learning progression. The cadre exercise would have had to use ordinary vehicles in their outdoor exercise, which would have been a step backwards since combat vehicles were used early in the Company Commander Course. The map-wargame was used for one week. Focus was on decision-making to indicate frictions, provide opportunities and understanding. The map used was scaled at 1:10 000 since the focus was on the company level and the ordinary map scale (1:50 000) would have overfilled the map with unit symbols.²²⁹

Finally, the 'command training exercise' (LTÖ) at the command training facility (LTA) involves the most people. Each LTÖ consists of a one-week focus on 'classroom warfighting'. One aspect that was notable during the author's observation was that the training audience does not directly interact with the supporting computer system (CATS). Instead, the game directors, higher command (HICON) and subordinate commanders (LOCON) interact with the computer system. The first day in a 'command training exercise' usually consists of computer training for the subordinate commanders, who commonly belong to the unit whose headquarters is being 'command-trained'. Each day finishes with a feedback session, where game directors highlight certain events that occurred in the exercise. The purpose of the feedback is not primarily to discuss what happened: it is to make people realise what needs to be improved.²³⁰

²²⁹ Interview: Torgén, 2014-09-10.

²³⁰ Eliasson (2014).



Screenshot no. 1: the overhead map-view (2D) in CATS at the LTA.²³¹

The LTA is to a major extent used for constructive simulation rather than virtual simulation. This is an interesting aspect since the LTA relies on the *Computer Assisted Training System* (CATS), a windows-based Swedish product (in 2014 the BAE Systems C-ITS) to simulate weather, line-of sight, movements, and combat. Each and every vehicle can be represented in two different views: map overview (2D) or 3D. A mock-up of a CV 90 command version, surrounded by large projector screens, allows a Battalion Commander's forward command post to move around in the 3D environment, modelled on real Swedish terrain. The system also allows voice communication between the battalion headquarters and subordinate Company Commanders. The latter are located in different stands in a large room, named the 'game dungeon', together with game control. The latter is envisaged to consist of three game directors and several assisting game directors, all with specific tasks and with individual workstations connected to CATS.²³² Almost all the computer screens, however, show the 2D map rather than the 3D view.²³³

²³¹ Eliasson (2014).

²³² Eliasson (2014), and, Observation: Land Warfare Centre, 2014-04-08.

²³³ Observation: Land Warfare Centre 2014-04-08 and 2014-09-10.

National traditions and foreign influences

In Sweden 'wargaming' is perceived as being connected to manuals and handbooks on military planning.²³⁴ For example, in one handbook for the battalion level, wargaming within the planning process is either done as a discussion-wargame or a map-wargame. The map-wargame is played on an ordinary map with unit symbols, visible to everyone, and does not have any specific rules for adjudication. Instead, combat results are determined by values based on experience and data from various army manuals and regulations.²³⁵ Another manual, at the brigade level, includes an annex specifically named 'wargaming'. While similar to the battalion level, the handbook also includes computer-support as helpful 'to quantify relations of time and space'. Wargaming, as a method, is nonetheless explicitly associated to planning.²³⁶ While manuals influence the choice of wargaming forms in education/training to a certain extent, such as discussion and map-wargaming, there are other forms of wargaming in use at the Land Warfare Centre. These other forms involve a specific and more complex control organisation of teachers as game directors. The manual wargaming in the OF 2, and the mixed form in the LTA, indicates a more sophisticated way of using wargaming that is beyond what is found in manuals.

Regarding foreign influences, the game director at the OF 2 Course, Lieutenant Colonel Palmqvist, is of the opinion that Sweden is using the traditional German form of wargaming and not American traditional wargaming. German wargaming purportedly put more emphasis on war as an art – a duel combined with irrational factors. Palmqvist referred to this difference between the US and German traditions by referring to the book *Command Culture* by Jörg Moth – a comparison of US Army and German officer education before the Second World War. One of the differences between US and German educational wargaming was that the German school emphasised that there was no optimal solution in a wargame because of too much 'chaos and turmoil' in war. Accordingly, decisiveness and creativity were ranked high.²³⁷ The wargame Palmqvist uses in the OF 2 wargaming week is indeed adjudicated with dice, involves fog of war and is double-sided with students divided equally into blue and red teams.

The use of specific computer support systems is another indication of foreign influence. One example is the BAE virtual world (CATS) used in the LTA. In addition, there is a Memorandum of Understanding

²³⁴ Interview: Eliasson, 2014-04-08.

²³⁵ Försvarsmakten (2004), pp. 36-40.

²³⁶ Försvarsmakten (2009), p. 185.

²³⁷ Muth (2011), pp. 190-191, and, Interview: Palmqvist, 2014-04-17.

in existence between Sweden and Germany which allows various activities such as study visits.²³⁸ As an example, in the fall of 2014 a delegation from the Swedish Land Warfare Centre was scheduled to travel to the *Infanterieschule* in Hammelburg, Germany, to study a comparable command training facility to the LTA. Major Sturesson, who previously visited another such German facility in Münster, is of the opinion that besides some differences – such as the training concept, the level of complexity and integration regarding tactics vs. method – ‘Germany does it in about the same way’.²³⁹ There are thus indications of foreign influence, primarily from Germany, and first and foremost regarding the ‘command training exercise’ of the LTA.

Availability of commercial off-the-shelf games (COTS)

While there are historical examples of the use of COTS wargames at the Land Warfare Centre, none are actually in use today (2014). One example of a previously used commercial wargame is *Steel Panthers*.²⁴⁰ While a similar commercial computer game may be suitable today, there are difficulties in accrediting it on computers.²⁴¹ In addition, while commercial wargames are much cheaper than a wargame developed in-house or procured from outside, the issue of cost-effectiveness is related to all education/training methods. Hence, *any* simulation system hypothetically acquired by the Land Warfare Centre is cheaper to run compared to an outdoor field manoeuvre.²⁴²

The wargaming form used in the courses (OF 2 and Company Commander Course) is manual rather than computer-based, even though computer halls are available at the nearby LTA. Major Torgén, the course director at the Company Commander Course, believes that the same wargaming methods that officers are educated and trained in must also be suitable for use out in the field during wartime. Consequently, he considers a map or terrain model/sketch the most suitable form since it is the least complicated in terms of administration and has no need of technical support and personnel support.²⁴³ Another instructor believes that the main challenge is to make the wargame simple enough for the students to handle, yet useful for its purpose. The first major obstacle is that about 50 % of the students in a course are not interested in ‘game rules’. In other words, the wargaming method should not be discussed but rather the content.²⁴⁴ This indicates a concern of instructors that directly relates to the wargaming form.

²³⁸ Utrikesdepartementet (2009).

²³⁹ Interview: Sturesson, 2014-06-04.

²⁴⁰ Interview: Anonymous no. 2, 2014-06-13.

²⁴¹ Interview: Eriksson, 2014-04-09.

²⁴² Interview: Eriksson, 2014-04-09.

²⁴³ Interview: Torgén, 2014-09-10

²⁴⁴ Interview: Anonymous no. 2, 2014-06-13.

The above instructor-based argumentation, on shielding the students/training audience from the actual game, can be said to be how wargames are used at the Land Warfare Centre. Such a usage may actually support using COTS, if the students are never to actually observe the system for adjudication and/or visualisation. However, this is currently not the case since no COTS are used. At the Captain Course (OF 2) during the 'wargaming week' a manual board game is used for adjudication, but it is an in-house developed version rather than a COTS hobby wargame. The game director, Lieutenant Colonel Palmqvist, experimented with COTS as 'smaller, simpler and uncomplicated' wargames in his previous teaching job at the officer cadet school in 2004.²⁴⁵ Palmqvist's decision to use his own in-house developed hybrid map/board wargame seems to indicate that COTS wargames are difficult to fit within a course without modification.

The issue of COTS seems to relate to the individual level. One example is an ongoing competence development initiative that involves several instructors at the Land Warfare Centre participating voluntarily in an ongoing wargame akin to a play-by-email (PBEM) format. This is encouraged as competence development for teachers mainly at the section for tactics: instructors can commit to it for about one work hour per week. The wargaming form involves submitting written orders to a game director, Lieutenant Colonel Palmqvist, who uses a COTS manual board game and a historical World War 2 scenario. Orders are submitted once or twice per week and in turn generate reports back to the players after adjudication by the game director.²⁴⁶ Here is a good example of a wargaming form based on COTS and with a hobby wargame perspective, namely, to re-fight a historical scenario. It is, however, only used for and by the instructors rather than in the education of military students. It is also connected to, and personalised by, a single instructor.

Processes: planning and decision-makings

The focus of wargaming at the Land Warfare Centre is on 'classroom warfighting' rather than 'classroom planning'. Instructors have an understanding of, and a will to use opposition (red vs blue team) since it generates dynamism with expected (and unexpected) reversals. This is considered good in the context of practising decision-making.²⁴⁷ If the concept of winning is incorporated in education the argument is that talented officers will emerge. Such officers will be able to take initiative, accept risks and be calm and stable.²⁴⁸ The necessity of taking (or re-taking) the initiative is a central principle

²⁴⁵ Palmqvist (2004), pp. 6-9.

²⁴⁶ Interview: Palmqvist, 2014-04-17.

²⁴⁷ Interview: Eriksson, 2014-04-09.

²⁴⁸ Interview: Anonymous no. 2, 2014-06-13.

in Swedish military doctrine on tactics.²⁴⁹ While recent doctrine puts an emphasis on acquiring information and analysing the situation where the enemy's vulnerabilities are, the simple, general and traditional Swedish dictum on how to act in tactics can be said to be as follows: 'if you do not know what to do, attack'.²⁵⁰

Simplicity in doctrine does not entail the use of simple wargames for 'classroom warfighting'. One noted limitation of wargames in 'classroom warfighting' is possible player misunderstanding of rules – hence a need for someone to continuously supervise the wargame. If the wargame takes the form of a computer-assisted wargame, as in the LTA, the game director can concentrate on possible manual intervention rather than vigorously running everything. In comparison, an abstracted board game as a military educational wargame has arguably characteristic limits as not many people can be directly involved and receive feedback, compared to computer wargames. The latter form can also handle thousands of simultaneously moving objects. This is good for mechanical functions, such as indirect fire, which may be needed for immediate implementation in a real-time exercise, which in turn generates a necessity for rapid feedback to the training audience. On the other hand, if the situation is simulated more abstractedly, the use of a board game may become a viable alternative. However, one opinion at the Land Warfare Centre is that the wargame should only visualise units that are visible in real life. Thus, an open map wargame would be more similar to a 'game of chess'.²⁵¹ On the other hand, in the Company Commander Course, the open wargame was not an issue. However, it was an issue of concern for the OF 2 Course and also for the LTÖ. In both latter cases the combat adjudication was shielded from the training audience and results delivered by communication system/messengers. Since the OF 2 and the LTÖ were more focused on 'classroom warfighting' this raises questions if 'classroom warfighting' is especially sensitive for what the training audience may perceive as flaws in the adjudication.

One major issue related to wargaming in general, and 'classroom warfighting' in particular, is how the training audience may perceive possible flaws within the wargames. The issue of how the instructor imagines the attitude of the training audience towards the wargame seems to play a major part in the selection and preference of wargaming form. In an interview with the game director Lieutenant Colonel Palmqvist directly after the conclusion of the 'wargaming week' (OF 2) in 2014, Palmqvist stated that one of the most frustrating things about wargaming is that the training audience does not accept certain aspects of the wargame such as: pre-conditions, abstraction of time and combat results. This non-acceptance blames the specific form of the wargame. As a consequence, the participants may

²⁴⁹ Försvarsmakten (2006b), pp. 50, 62.

²⁵⁰ Weissman & Ahlström (2017).

²⁵¹ Interview: Eriksson, 2014-04-09.

start to use the game rules to their advantage, by optimising 'game tactics'. In order to alleviate this concern, even though the OF 2 Course consists of 'mature' lieutenants aged 25-30, combat adjudication was done in a separate room by the game director together with other teachers, the latter employed as LOCON (battalions). The form of the wargame, a *rigid* adjudicated manual board game, makes it possible to modify combat results similar to the 'command training exercises' (LTÖ). Even so, such kinds of intervention did not occur during one complete wargame session observed by the author.²⁵² Nevertheless, results in a wargame *can* be modified because of pedagogic reasons, such as an effort to keep the students engaged and committed to the wargame process. In the view of Palmqvist, it is better to use a manual map-based wargame rather than a computer-assisted wargame, as results in the latter form are either difficult or time-consuming to change.²⁵³ This striving to control the pace of the game is described by Major Sturesson, a game director at the LTA, as an important feature; namely the possibility to 'accelerate or brake' during a wargame.²⁵⁴

There is a difference between controlling the pace of the wargame and actually changing combat results. One example of the former issue was seen during the author's observation of the OF 2 wargame. Lieutenant Colonel Palmqvist asked the course director (another lieutenant colonel) if they (HICON) should allow the two blue brigades to attack, even though it was clear that this would be rather unrealistic since the enemy red side was well entrenched and the odds for a successful attack were accordingly very low. This assumption was deducted on the game director's table where all information was available. In consultation, they decided to frame it as a question from HICON to the two blue brigades: 'if the brigades thought they still could achieve their objectives they would be allowed to proceed according to plan and attack'.²⁵⁵ The above example indicates that there is an element in wargaming that emphasises the importance of control. The training audience is not aware of this control mechanism since they are physically separated from the game director. One aspect is to synchronise the environment around the training audience. Another aspect is a palpable desire by the game director to alleviate the wargaming process by avoiding perceived obstacles; negative such as when the training audience questions certain combat results; positive such as when combat results are altered to support learning objectives. In the case of the 'wargaming week' in OF 2, the wargaming form included a separate room for adjudication and game control – a design feature by the game director to enhance control.

²⁵² Observation: OF 2 course, 2014-04-14 until 2014-04-17.

²⁵³ Interview: Palmqvist, 2014-04-17.

²⁵⁴ Interview: Sturesson, 2014-06-04.

²⁵⁵ Observation: OF 2 course, 2014-04-14 until 2014-04-17.

The individual instructor

The game director seems to be the major influencer on the actual form of the wargame. In a report by the Defence University in 2010 on the status of the use of wargaming in the Swedish Armed Forces, Frank and Granberg state that 'the amount of interest and wargaming competence of a game director constitute perhaps the most persistent obstacle as to why wargaming is not used [more] at the Land Warfare Centre'.²⁵⁶ One example of this was the author's discovery of a fixed sand table in the middle of a classroom for the Company Commander Course. This sand table, equipped with vehicle miniatures is not used except for its overhead cover, which functions as a table for a large map where manual map-wargaming occurs during the Company Commander Course. One conceivable reason why the sand table is no longer in use is because it models the wrong terrain: it would take some effort to correct the settings. A second reason, told by Major Torgén, who for four years has been the course director and chief instructor of the Company Commander Course, is that *previous* instructors used the sand table. Those instructors no longer work at the Land Warfare Centre. The fact that the fixed sand table is no longer in use highlights the importance of individual teachers.²⁵⁷ According to Lieutenant Colonel Eriksson, 'individuals drive the form of wargaming, and wargaming drives the exercise.'²⁵⁸ Individuals that drive the form of wargaming understand wargaming as a useful educational tool. One specific reason for this, according to Lieutenant Colonel Palmqvist, is the 'fun factor', which delivers good learning. Nonetheless, while the instructor is important for the actual form of the wargame, it is the course director that decides if wargaming is to be included as part of a course.²⁵⁹

How to run a wargaming activity and what forms of wargaming are considered valuable seem to depend on the concerns of the individual game director. One example is the 'wargaming week' in the OF 2 Course. This particular form can be traced to the game director, Lieutenant Colonel Palmqvist, who believes that the primary training audience should be shielded from the game rules and adjudication to avoid 'game optimisation'.²⁶⁰ Another game director, Major Sturesson, stresses the need of intuition to run a 'command training exercise'. In his view, the game director controls the wargame process by either 'accelerating or braking'. This is done by the use of various actors beyond the primary training audience: HICON (Higher Command), LOCON (Lower Control) or the opposing team (OPFOR). Hence, the game director is perceived as a 'soccer coach', since he/ she strives to create the best challenge for the training audience.²⁶¹

²⁵⁶ Frank & Granberg (2010), p. 36.

²⁵⁷ Interview: Torgén, 2014-09-10

²⁵⁸ Interview: Eriksson, 2014-04-09.

²⁵⁹ Interview: Palmqvist, 2014-04-17.

²⁶⁰ Interview: Palmqvist, 2014-04-17.

²⁶¹ Interview: Sturesson, 2014-06-04.

The individuals who work as game directors at the Land Warfare Centre have extensive experience of game control. Inscribed on annual metal plaques outside the 'game dungeon' are the names of the seven to ten personnel assigned at the LTA. Many have been at the LTA, although not at the same post, for as long as ten years.²⁶² Therefore, opinions of individual instructors on how to use wargaming seem to have developed from extended and extensive personal experience involving wargaming, primarily the 'command training exercise' (LTÖ) at the LTA. Consequently, while the importance of individuals is clear at most courses, the LTA facility seems to have developed a certain culture centred on one form of wargaming. This culture is manifested in the views and concerns of a few individuals, such as Major Sturesson and Lieutenant Colonel Eriksson.

One explicit aspect of individual influence is that the game directors consistently overrule and modify combat results generated by CATS during an LTÖ.²⁶³ Personnel at the LTA state that computer technology in itself does not matter as the same result could be achieved with manual techniques, i.e. ordinary maps or even miniatures on a terrain model. In their view, an estimated 75 % of the output is generated by the competence of the game directors rather than the computer system. However, by the use of a computer-assisted form the game directors can concentrate on supervision of the training audience and save data (map views, combat results etc.) for the daily feedback routine, instead of doing all the detailed adjudication.²⁶⁴ Consequently, the 'command training exercise' is *driven* by a 'wargame', which is *controlled* by a game director.²⁶⁵

²⁶² Observation: OF 2 course, 2014-04-14 until 2014-04-17.

²⁶³ Observation: Land Warfare Centre 2014-04-08 and 2014-09-10.

²⁶⁴ Eliasson (2014).

²⁶⁵ Interview: Eriksson, 2014-04-09.

3.3 Higher level: the Swedish Defence University (SEDU)

There are two staff courses at the Defence University (SEDU): the Staff Course (SU) and the Senior Staff Course (HSU). During the Staff Course, the officers (captains) are for the majority of the course separated into their respective branch (army, navy and air force). After one year they graduate as majors. The Senior Staff Course is integrated and joint. After two years they graduate with a Master of War Studies and are eligible for promotion to lieutenant colonel. The education during the Senior Staff Course is focused on staff work during a joint operation, with an emphasis on planning according to NATO's Comprehensive Operational Planning Directive (COPD). In comparison, the education during the Staff Course is focused on tactics (brigade level).

Contemporary wargaming

The wargaming activities in the staff courses for officers at the SEDU are listed below.

WHEN	WHY	WARGAME CLASSIFICATION
Staff Course: <i>Basic Module Higher Formation Land Operations</i> (SU 3)	One to two hours of 'gaming the plan' within the Swedish planning process.	A map wargame to 'game the plan' with a focus on 'classroom planning'
Staff Course: <i>Basic Module Higher Formation Land Operations</i> (SU 3)	A 'wargaming week' (the fourth of a total of five weeks) to learn brigade tactics	A map wargame with a focus on 'classroom warfighting' (2013). The form has constantly changed
		A computer wargame (2015)
		A computer and a hybrid map/board wargame (2016)
Staff Course: <i>War Studies Basic Module in Joint Operations Planning</i> (SU 4)	A one day introduction to COA-wargaming in NATO planning	A discussion wargame to 'game the plan' with a focus on 'classroom planning'
Senior Staff Course: <i>War Studies; Services, Branches and Functions</i> (HSU 4)	A 'wargaming week' (the ninth of a total of ten weeks) to learn branch (land/naval/air) tactics within a joint operation	A discussion wargame to 'game the plan' with a focus on 'classroom warfighting' (2013). The form has constantly changed
		A board game (2015)
Senior Staff Course: <i>Operational Art</i> (HSU 5)	A one day introduction to COA-wargame within NATO planning	A discussion wargame to 'game the plan' with a focus on 'classroom planning'
Senior Staff Course: <i>Regular warfare</i> (HSU 6)	A 'wargaming week' (the ninth of a total of ten weeks) to learn how to conduct joint operations	A discussion wargame with a focus on 'classroom planning' (2013). <u>The form has constantly changed</u>
Senior Staff Course: <i>Land Power</i> (HSU 8)	A 'wargaming week' (the third or fourth of a total of five weeks) to learn land tactics	A computer-assisted wargame (COTS) with a focus on 'classroom warfighting'

Table C: overview of wargaming during the staff courses at the SEDU in 2013-16.

Students in the Staff Course are introduced to wargaming in the *Basic Module Higher Formation Land Operations* (SU 3). The initial wargame is a simple and open map-wargame for the Swedish planning process (PUT). The purpose is to teach the officers the basics of using wargaming as stipulated by the PUT. This initial wargame is thus part of the planning process as ‘classroom planning’. Near the end of the same module, a second wargaming occasion occurs as a ‘wargaming week’. The focus is on decision-making, hence ‘classroom warfighting’. What is notable is that the actual form of the wargame for the ‘wargaming week’ in SU 3 has constantly changed. In 2013 the form changed from a computer-based (*Decisive Action*) double-sided *rigid* wargame to a *semi-rigid* map-wargame with the game director playing the role of the red team. The previous form (in 2012) was akin to a classic ‘three-room wargame’, with two student-controlled brigade forces (red vs blue) in two separated rooms while the third ‘room’ was the master map (computer). In 2013, the red team and the master map were combined into one room and the wargame thus became akin to a ‘one-room wargame’. The new game director in 2013, Lieutenant Colonel (ret.) Baudin, used map overlays as visualisations and based his *semi-rigid* adjudication on a study from the 1980s on conventional weapons as well as Lanchester’s Square Law.²⁶⁶

The ‘wargaming week’ of SU 3 has changed recurrently. In 2014 the ‘wargaming week’ in SU 3 saw the ‘one-room’ *semi-rigid* wargame conducted as two *simultaneously* played wargames by a single game director: two blue teams, representing different brigade headquarters, were in sequence called into the room of the red team/game director to present their orders at the master map for the next turn. This somewhat complicated arrangement was fully dependent on the game director’s ability and experience in wargaming.²⁶⁷ In 2015 the wargaming form once again became a ‘three-room’ wargame. However, this time the wargaming form was a new in-house developed computer wargame (SSM-Land), which utilised an additional team of students to input commands into the computers.²⁶⁸ One student team played as the blue brigade headquarters while another student team was split into the blue LOCON (battalions) and the red cell. While a three-room layout was used, only the LOCON and the red cell inputted commands into their rooms’ computers. In 2016, the wargaming form changed again. The computer game became a proper double-sided wargame with a corresponding blue *and* red brigade headquarters with LOCONs. The wargame thus turned into a ‘four-room’ wargame as each headquarters had a team of inputters in a separate room who represented the lower command (battalions/companies). In addition, this time the computer game was supplemented by a *rigid* ‘three-room’ hybrid map/board wargame (BMBrig) developed and directed by the author.²⁶⁹ Both forms were

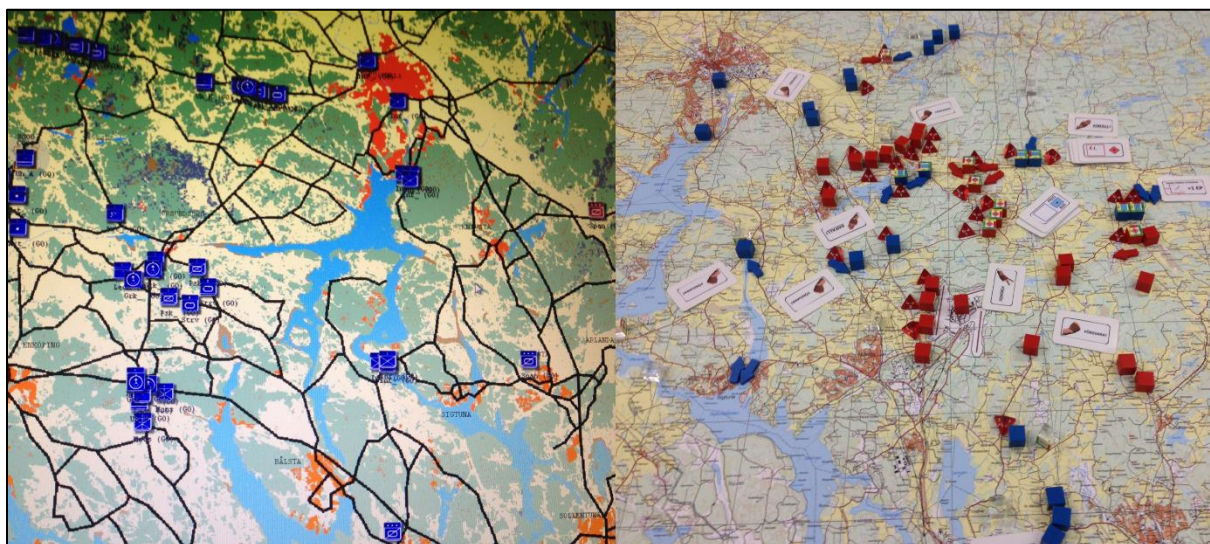
²⁶⁶ Löfstedt (1987), and, Observation: SU 3 module, 2014-11-06.

²⁶⁷ Observation: SU 3 module, 2014-11-06.

²⁶⁸ Granberg et al. (2015).

²⁶⁹ Elg (2014-15).

similar – double-sided, *limited* information and with *rigid* rules – except in physical form: the computer-based wargame used four rooms and the hybrid map/board wargame used three rooms (maps). The students played *both* forms during the SU 3 ‘wargaming week’ in 2016 since one of the learning objectives was to understand how different forms of wargames contribute to land operations. The two game directors, who had developed each wargame, ran the two forms of wargames separately.



Photograph no. 8: the computer-based SSM-Land (left), and the hybrid map/board game BMBrig (right).²⁷⁰

The last wargame in SU 3 is one day of COA-wargaming scheduled in the three-week long *War Studies Basic Module in Joint Operations Planning* (SU 4). In 2013, this one-day COA-wargame session was actually cancelled for all but one team of students. This decision was made by the teachers of the course because of a lack of time.²⁷¹ As a consequence, in 2013, the main and only wargaming activity for the land students, excluding whatever initiatives the students themselves took regarding simple map-wargames as part of their own plan development sessions, was the ‘wargaming week’ in the initial land warfare module (SU 3). The apparent lack of wargaming at the Staff Course was previously noted in an overview of wargaming activities in 2010 – due to a lack of prioritisation there is little wargaming done including during planning processes, in which wargaming should be conducted according to doctrine.²⁷²

²⁷⁰ Elg (2014-15), and, Granberg et al. (2015), (photograph by author in 2016).

²⁷¹ Interview: Nilsson, 2014-10-07.

²⁷² Frank & Granberg (2010), p. 34.

Constant changes in wargaming are also apparent in the Senior Staff Course. Three ‘wargaming weeks’ exist in the curriculum of the Senior Staff Course, however, this quantity is subject to change. For example, in 2010, non-land officers only received one week of wargaming.²⁷³ For the Senior Staff Course in 2014-2016 there are two joint ‘wargaming weeks’ plus one additional in an elective module (HSU 8). The initial joint ‘wargaming week’ belongs to the ten-week module *War Studies; Services, Branches and Functions* (HSU 4). The focus is on ‘classroom warfighting’. This joint wargame was conducted in 2013, since the two-year Senior Staff Course only starts biannually, as a discussion-wargame. Previously, in 2011 and before, it was a branch-only wargame, meaning that the land students had their own ‘classroom warfighting’ session in the form of a computer-assisted wargame similar to the ‘three-room wargame’ in the Staff Course’s ‘wargaming week’ (SU 3) in 2012. In 2015 the wargaming form evolved again as a new instructor developed an in-house board game.²⁷⁴ This board game, with hexes, dice and unit counters, was introduced in the HSU 4 module in 2015 as a ‘one-room’, open, double-sided and *rigid* wargame. Four wargames were conducted simultaneously in four separated classrooms with all students. The wargaming form of this initial ‘wargaming week’ has thus evolved constantly (2011-2013-2015) in conjunction with the changes of game directors.



Photograph no. 9: the board game in HSU 4 as a ‘one-room wargame’ (Author, 2015).

²⁷³ Frank & Granberg (2010), pp. 33-34.

²⁷⁴ Henåker (2016).

Following HSU 4 and before the second ‘wargaming week’ of HSU 6 there is a specific form of wargaming for plan development. In the module on operational planning, *Operational Art* (HSU 5), a session of COA-wargaming is scheduled. The purpose is, however, only to teach the basics of the method rather than to practise the method. Actual COA-wargaming is to be conducted in succeeding modules by the students themselves as part of their plan development sessions with NATO (COPD) and Swedish planning processes.²⁷⁵

The ‘wargaming week’ of the ten-week module *Regular warfare* (HSU 6) has seen several forms during the last years: in 2010 as a multi-team discussion-wargame, in 2011 as a map-based wargame in a classroom with a central master map, one game director and 3-5 teachers as umpires. In 2013, the wargame evolved into a seminar style wargame with a total of three moves. Each move began with a PowerPoint brief by the teachers, representing the Land Component Commander, the Maritime Component Commander etc., of what had happened during the previous three days. The officers then went into three parallel planning groups and discussed the events in the context of the operational plan. The day finished when one of the three teams briefed the commander (played by the head of the department, a colonel) on their recommendations. The commander then approved or disapproved and the teachers spent the next few hours until the early evening to synchronise a new and updated situation that was to be presented the next morning to the three blue teams in the same large classroom. Notably, the evolved wargaming form included a change in focus from ‘classroom warfighting’ to ‘classroom planning’: i.e. the teams provided staff recommendations and did not practise decision-making.

The third and last ‘wargaming week’ is part of the five-week module *Land Power* (HSU 8), an elective module of the Senior Staff Course. For one week, at a conference centre away from the Defence University, the students (8-16) initially present various themes in military theory, conduct a two-day staff ride, followed by a quick planning process, before one full day (12 hours) of wargaming. The wargame form is computer-based and double-sided (two-room). Combat adjudication is provided by a COTS computer wargame, *Operational Art of War III*. The map view is projected on a large screen in each classroom.²⁷⁶ While the commercial wargame is thus visible, each team has one dedicated instructor that inputs all orders into the computer. The main purpose of the wargame in HSU 8 is ‘classroom warfighting’ of a fictional modern scenario between a red and a blue team, each with three to four subordinate Brigade Commanders. For such purpose, *Operational Art of War III* has proved resilient. The conceptual idea of fog of war is augmented with an initial physical separation of

²⁷⁵ Interview: Nilsson, 2014-10-07.

²⁷⁶ Ahlström, Baudin & Lind (2004), p. 145.

command levels. This means that the wargame actually begins as a four-room wargame (physical separation between headquarters and subordinate commanders) and then, from the second turn of the wargame, transforms into a two-room wargame as subordinate commanders join each headquarters. While there are drawbacks with a turn-based sequencing in *Operational Art of War III*, since many students find sequential turns strange compared to simultaneous movement, the turn-based approach allows abstraction of time and a possibility to move deeper into a scenario. It also allows each side a 30 minutes pause for planning (and reflection) before the turn results get back and it thus becomes a 30 minutes phase of action. This cycle is equivalent to a learning loop. Furthermore, some scholars also deem alternating player turns as a more realistic simulation of war ‘as it reflects the episodic nature of real military operations [...]’.²⁷⁷ The perception among instructors of effective learning, and realistic representation of higher-level tactical land warfare, have arguably contributed to the continued use of this commercial wargame.



Screenshot no. 2: the blue team's (divisional headquarters) view in the COTS computer wargame *Operational Art of War III* for HSU 8 (2014).²⁷⁸

²⁷⁷ Sabin (2012), p. 105.

²⁷⁸ Matrix Games (2006-2015), (screenshot by author).

National traditions and foreign influences

Since the end of the Cold War and especially since 2000 there was a reduction in the amount of wargaming conducted in the Swedish Armed Forces.²⁷⁹ During that time frame, all joint operational area headquarters (Swe: MILO) and divisional level land commands (Swe: fördelning) were disbanded. Instead, one single and centralised headquarters became responsible for the military strategic, operational and higher tactical planning of war. The contemporary situation is thus fundamentally different compared to the early 1990s or indeed the early 2000s. Today's (2014) Sweden has a small voluntary and professional army of two brigades, whereas, in 1992, a conscripted army was capable of mobilising 21 combat brigades. In addition, the focus shifted in the early 2000s from invasion defence to international missions, such as participation in the mission in Afghanistan (ISAF). Due to this major re-orientation, previous traditions of wargaming, especially on the operational and higher tactical levels, have been reduced and even diminished. One indication of this reduction is that manuals on how to conduct wargaming as well as staff rides etc. were discarded.²⁸⁰ A 'wargaming centre' (Swe: *Försvarets Krigsspelscentrum*, FKSC), situated at the Armed Forces Headquarters in Stockholm, existed until 2006 but was then relocated and combined with what is today (2014) the Command Combat Centre (Swe: *Ledningsstridsskolan*) in Enköping.



Illustration no. 5: the Coat of Arms of the disbanded Swedish 'Wargaming Centre' (Eng.: 'War Case Centre').²⁸¹

²⁷⁹ Frank & Granberg (2010), p. 43.

²⁸⁰ Interview: Baudin, 2014-04-01.

²⁸¹ Försvarets krigsspelscentrum (2014).

The Command Combat Centre's contemporary activities include the provision of simulator support to large high-level (brigade and above) staff exercises (CPX/CAX), such as the annual two-week Combined Joint Staff Exercise (CJSE) organised by the SEDU and attended by the Staff Course and Senior Staff Course. Notably, the Command Combat Centre's role is to provide exercise facilities and simulation support (computers, software and networks) and not the pedagogical framework.²⁸² Hence, there is no perception of any 'wargaming' activities at the Command Combat Centre. Instead, officers refer to the SEDU, rather than the Armed Forces themselves, as a place where wargaming traditions are kept. One reason is that 'the right people', individuals who can stand up against perceptions of a 'negative culture of wargaming', are present at the SEDU.²⁸³ Lieutenant Colonel Eriksson, at the Land Warfare Centre, recalls from his studies at the SEDU the instructor Lieutenant Colonel (ret.) Baudin and his operational level map-wargame (1:250 000) with metal markers and states that the continuous use of wargaming by the SEDU has had effects on how wargaming is perceived in the Armed Forces. Thanks to a handful of such individuals, this 'negative culture' has to some extent been reversed.²⁸⁴ Such individuals also seem to promote certain forms of wargaming. Baudin himself claims that traditional Swedish wargaming is similar to German inter-war wargaming, in particular the integration of map-wargames together with staff rides and field exercises in one planning cycle. This is complemented by a Swedish tradition from the early 19th century of 'preparatory exercises' – to 'think before action'. However, Baudin adds that wargaming, while perceived as useful, is 'not always used because it takes time'. The consequence of the reduction of wargaming in the Armed Forces since 2000 is that officers are no longer used to running wargames.²⁸⁵

The traditional Swedish wargaming as presented by Lieutenant Colonel (ret.) Baudin has seemingly been superseded by an international form of wargaming. This concerns COA-wargaming as stipulated by the NATO *Comprehensive Planning Directive* (COPD). This form of wargaming occurs in, for example, the module *Operational Art* (HSU 5) for plan development. The head teacher in Operational Art at the SEDU, Lieutenant Colonel Nilsson, has attended NATO courses on wargaming, and refers to the 'NATO handbook on wargaming', a published document from the German *Führungsakademie* in Hamburg, on how to conduct COA-wargaming.²⁸⁶ There is also a Swedish version of the COPD, in use since 2014, which is applied in the following module (HSU 6). However, there is no difference in regard to how COA-wargaming is supposed to be conducted: both versions are in accordance with the 'NATO handbook on wargaming'.²⁸⁷ COA-wargaming in accordance to NATO doctrine on the operational level

²⁸² Frank & Granberg (2010), p. 31, and, Ledningsstridsskolan (2014).

²⁸³ Interview: Baudin, 2014-04-01.

²⁸⁴ Interview: Eriksson, 2014-04-09.

²⁸⁵ Interview: Baudin, 2014-04-01.

²⁸⁶ Die Führungsakademie der Bundeswehr (2006).

²⁸⁷ Interview: Nilsson, 2014-10-07.

seems to have superseded Swedish traditional wargaming regarding 'classroom planning'. However, there are no particular indications of foreign influences regarding 'classroom warfighting'. Moreover, the influence of individuals to implement wargaming (or not) is apparent in all the investigated courses.

Availability of commercial of-the-shelf games (COTS)

The use of a COTS wargame, *Operational Art of War III*, could only be found in one module, the *Land Power* (HSU 8) in the Senior Staff Course. This particular computer wargame has been continually updated and used for at least ten years at the SEDU. This staying power may have come about since the course module itself has remained in basically the same form over the years. The instructors assigned to this module have also remained more or less the same individuals. In comparison to other modules the number of students is far lower: around eight in comparison to a total amount of about 40-60 students at the Senior Staff Course. This means that only one wargame will run rather than several in parallel, or in sequence, which is the case at the previous 'wargaming weeks'. Consequently, there will be more instructors available to run the wargame. This also means that the students themselves do not have to run the wargame. The students just communicate with their appointed instructor what they wish to do and the instructor then implements this in the game system as an 'inputter'. Notably, the game directors of this particular module are only a few recurring individuals over a period of ten to fifteen years. No major changes have been made regarding the form of wargaming in these years. Only minor revisions have been implemented regarding the order of battle and the map, which is a graphic representation (and not a real map) that covers the actual terrain which is visited during the preceding staff ride.

While there are no other COTS currently in use with the other 'wargaming weeks' other COTS have nevertheless been *previously* used in two modules: the SU 3 at the Staff Course and the HSU 4 at the Senior Staff Course. The wargame in the SU 3 module was until 2012 the COTS wargame *Decisive Action*. This is the commercial version (2.7) of a wargame originally developed for the US Army Command and General Staff College by Lieutenant Colonel (Ret.) Lunsford. Only one person – the author –, who as game director inputted orders from both the red and the blue teams into the computer system by shuttling back and forth between the teams' rooms, ran *Decisive Action* in 2012. Regarding the HSU 4, in 2007 a computer game procured by the SEDU, *King's game*, was used. However, technical difficulties due to lack of support and updates meant that its use was discontinued. The author witnessed this debacle, which led to the improvised use of a simple map-based wargame as an instant replacement since the computer wargame did not work. Subsequently, a COTS wargame, *Operational Art of War III*, was used in 2008-09, followed by another COTS wargame, *Decisive Action*

in 2010-11, as the latter was considered more suitable for brigade level combat. The use of COTS wargames enabled a continuation of computer-based wargaming, which the author, at that time, was told was the desired form of wargaming. However, at the next occasion in 2013, the HSU 4 module again evolved: a new game director changed the wargaming form into a discussion wargame.

What might have contributed to the demise of COTS in SU 3 and HSU 4 was that they were put directly in front of the training audience and were as a result vulnerable to criticism regarding the realism in the modelling of units, combat results and the concept of time and space. A comparison can be made with the Land Warfare Centre where the use of various wargaming forms, such as by computer and/or manually, are actually kept *away* from the training audience in separate rooms. With this in mind, the reduction of COTS at the SEDU has seen other forms of wargaming with less emphasis on duality despite the continued focus on 'classroom warfighting'. The one major exception is the longevity of the HSU 8 module. In addition, recent developments (2016) in SU 3 have focused on double-sided wargaming. In SU 3, however, the in-house developed wargames (SSM-Land and BMBrig) are physically separately from the students regarding combat adjudication. This is different from HSU 8, where the COTS wargame is intentionally put directly in front of the training audience in order to contribute to a more stressful environment with the watching of a graphical overview of the opponent's actions/reactions. Still, if the main concern would be to hide the wargame from the training audience one may argue that you would not need a computer game at all – a manual wargame or even one umpire with a map would do just as well. This potential development did happen at the SEDU: during a staff exercise the game director decided to halt the computer-assisted system and revert to an open map-wargame where adjudication was discussed and decided.²⁸⁸ This indicates the influence of individuals and their preferences for certain wargaming forms. Furthermore, it also exemplifies the importance of control, and, how individuals may establish control with a wargame.

Perhaps the best explanation why the only COTS wargame currently (2013-16) in use, *Operational Art of War III*, has endured is because it offers some credibility. For example, the editing function allows Swedish units, with accurate equipment, to be represented in the correct map area. However, the game itself does not allow control *during* a wargame – there is no 'master map'. This lack of control, experienced by the author, has led to frustration among both instructors and students and sometimes caused the *rigid* adjudication to be complemented by manual adjudication, implemented through improvisation by instructors during the wargame. Such improvisation, however, arguably makes the wargame *more* vulnerable to criticism from participants – the importance of the instructor explaining what is happening (and why) is thus simply essential for the utilisation of a COTS wargame.

²⁸⁸ Interview: Anonymous no. 2, 2014-06-13.

Processes: planning and decision-making

At the SEDU there exist both 'classroom warfighting' as in the 'wargaming weeks' as well as 'classroom planning' as seen in the recurrent COA-wargaming sessions. The students themselves often conduct the latter, whereas 'wargaming weeks' are conducted by teachers with students as the training audience. A teacher has arguably more leeway to change or modify the wargaming form for 'classroom warfighting' since that form does not seem to be regulated in doctrine. One non-published SEDU manual, however, exists. This in-house manual supports alterations since it discusses optional wargaming forms based on the configuration of the training audience (one-sided, double-sided and subordinate leaders etc.).²⁸⁹ Conversely, the wargaming forms used in 'classroom planning' are regulated in external manuals and instructions, as, for example, COA-wargaming (NATO COPD).

One issue of 'classroom warfighting' in particular is that some forms of wargaming are seemingly more demanding than other forms for teachers. Lieutenant Colonel (ret.) Arne Baudin claims that the risk of using computers is that 'the teachers hide and let the computers run everything'. In his view, it is much more demanding for a teacher to do manual wargaming, where the teachers also have to perform and have to be able to answer military questions such as 'what can be done?' and 'what cannot be done?'. This requires a high level of self-confidence as the teacher needs to be able to respond to: 'what would you have done as commander?'. Baudin's conclusion is that there is a need for a course module in how to organise wargaming. What is essential is that such instruction on how to conduct wargaming must take place early on in an officer's military career.²⁹⁰ This vision to use wargaming progressively in military education, for both teachers and students, is also advocated by Lieutenant Colonel Jan Nilsson.²⁹¹

The constantly changing and evolving wargaming forms seem to indicate indecisiveness, or worse, a lack of knowledge, amongst instructors about how to conduct 'classroom warfighting'. Furthermore, there is evidently a lack of in-house modules in how to run wargames in the context of military educational progression. This general lack of education, coupled with a lack of manuals, may lead to either strict implementation of wargaming according to the few existing manuals (COA-wargaming) or the individual teacher's preference for a certain wargaming form. However, a possible distinctive drift towards wargaming forms used in 'classroom planning', i.e. seminar and map wargames, cannot be fully ascertained. Nor does it seem that the temptation to let the computer handle it all has occurred. Instead, the influence of individual instructors seems to prevail.

²⁸⁹ Försvarshögskolan (2007).

²⁹⁰ Interview: Baudin, 2014-04-01.

²⁹¹ Interview: Nilsson, 2014-10-07.

The individual instructor

The wargaming forms at the SEDU are constantly evolving. One example is the HSU 4 'wargaming week' where in 2015 a new in-house developed board game was introduced by a new teacher with a background in hobby-wargaming. It is not uncommon to find strong opinions among game directors on how to conduct wargaming. Lieutenant Colonel (ret.) Baudin emphasises and describes wargaming as a 'ladder in educational progression'. Near the end of this 'ladder' a wargame is conducted with a 'duel' followed by an examination in tactics.²⁹² This emphasis on 'experience-based learning' can also be found in publications at the SEDU.²⁹³ However, there is a distinct lack of any referral to external academic literature on the use of educational games.²⁹⁴ Instead, while wargaming is accepted as a military educational method, it seems that it is the individual instructor that determines the actual form. On the other hand, as wargaming is a recurrent activity in courses and modules, wargaming forms are carried on from teacher to teacher.²⁹⁵ This knowledge does not seem to be in documented form until very recently, with the exception of a 'wargaming memo' in existence since 2003.²⁹⁶ A recent addition is a handbook from 2012, which specifically outlines the wargaming experience and recommendations of Lieutenant Colonel (ret.) Baudin.²⁹⁷

While there are strong individual opinions about how to conduct wargaming, there are conceivably different motivations behind these opinions. Hypothetically, the wargaming form is dependent on the opinion of the individual game director, which in turn is influenced by how participants and others evaluate his/her credibility in wargaming. Lieutenant Colonel (ret.) Baudin used a personal anecdote to describe this premise as he recollected when he was, for the first time, in charge of running a staff ride – in his perspective an 'outdoor wargaming session'. A colonel, responsible for the exercise, said during the final brief that it was a well-conducted exercise despite the 'very inexperienced' leader. Baudin was at that time a 38 years old major.²⁹⁸ This indicates that wargaming is a practice developed *within* the military organisation. In detail, older, more experienced teachers nurture their less experienced younger colleagues. This kind of knowledge transfer, connected to experience and age, and the absence of any formal modules/courses in wargaming in military education, may be characterised as an intra-professional mentor system where an experienced person – in wargaming methods – transfers his/her skills to a person with less experience.

²⁹² Interview: Baudin, 2014-04-01.

²⁹³ Ahlström, Baudin & Lind (2004), p. 144.

²⁹⁴ Interview: Nilsson, 2014-10-07.

²⁹⁵ Interview: Baudin, 2014-04-01.

²⁹⁶ Försvarshögskolan (2007).

²⁹⁷ Baudin (ed.)(2012).

²⁹⁸ Interview: Baudin, 2014-04-01.

One example of a mentor is Lieutenant Colonel (ret.) Baudin, who was employed by the SEDU as a consultant in wargaming after his retirement. In 2013-2014 he organised the 'wargaming week' in the SU 3 module. He also participated as a teacher in the HSU 8 module – his longevity as an instructor in the HSU 8 module has arguably contributed to the module's unique and enduring form of wargaming. Consequently, Baudin can be considered a mentor in wargaming at the SEDU. However, the constant evolving forms of wargaming at the SEDU do not provide support of only one particular standard. Instead, each game director has arguably his/her own, and different, individual preferences. In other words, no single individual at the SEDU decides the form of wargaming in every module. Instead, each individual game director seems to influence the eventual form. Some instructors, however, arguably provide more influence than others.

Conclusion: military educational wargaming in Sweden

The various wargaming occasions are fairly equally distributed over time: i.e. no obvious imbalances seem to be in existence such as a total absence of wargaming at a certain level. The various forms of wargaming can be sorted in accordance to the four variables of wargaming forms. Elaborate forms of wargaming exist in all three embedded units of analysis: the Officer Programme (I), the Land Warfare Centre (II), and the SEDU's staff courses (III). Such wargaming occasions typically consist of week-long 'classroom warfighting' and are often referred to as the module's 'wargaming week'. The other activity, 'classroom planning', is commonly referred to as 'game the plan' events. Most wargames are manual and have military students playing only one side (blue). In comparison, diversity exists regarding information and combat adjudication.

WARGAME DATA				VARIABLES OF WARGAMING FORMS										
COUNTRY CASE	EMBEDDED UNIT	NAME OF WARGAME	FORM OF WARGAME	PLAYER SIDES			INFO.		COMBAT ADJUDICATION			PHYSICAL FORM		
				1	2	M	OPEN	LIMITED	FREE	SEMI-RIGID	RIGID	MANUAL	COMPUTER-SUPPORTED	COMPUTER
SWE	I	‘Game the plan’ (PUT)	MAP				O							
		BMBat	MAP/BOARD.											
		VBS	COMPUTER											
		‘Reasoning wargame’	MAP/SEMI.				O							
	II	‘Wargaming week’	MAP/BOARD.											
		‘Game the plan’ (1)	MAP				O							
		‘Game the plan’ (2)	MAP				O							
		‘Command training’	MAP/COMPU.											
	III	‘Game the plan’	MAP				O							
		‘Wargaming week’ 2013	MAP											
		‘Wargaming week’ 2015	MAP/COMPU.											
		‘Wargaming week’ 2016	MAP/COMPU.											
		‘Wargaming week’ 2016	MAP/BOARD.											
		COA-wargaming	SEMINAR				O							
‘Wargaming week’ 2013		SEMINAR				O								
‘Wargaming week’ 2015		BOARD				O								
COA-wargaming		SEMINAR				O								
‘Wargaming week’		SEMINAR												
‘Wargaming week’	COMPUTER													

Table D: variables of wargaming forms in Sweden in 2013-16.

Wargaming forms are connected to a specific process: i.e. either decision-making or planning. The latter is generally inferred from official handbooks and manuals, which promote open discussion- and map-based wargames with no *rigid* rules.²⁹⁹ The former does not have the same support in manuals and hence comprises more diverse forms, albeit likely with double-sidedness as an included variable. While wargaming centred on planning is explicitly mentioned in manuals and handbooks, individuals provide improvements and further developments: the 'reasoning wargame' at the Land Warfare Centre is one example of this. This influence by individuals is especially accented regarding wargaming centred on decision-making. Such individuals are likely to have been engaged in hobby wargaming. However, this connection has not led to a widespread use of COTS wargames. Instead, hybrid and unique forms have appeared, such as in-house developed board- and map-wargames. Moreover, wargames for decision-making are either directly visible or shielded off from the players.

International influence is rather evident regarding computer wargames and COA-wargaming. The computer wargame *Virtual Battlespace* (VBS) is used in other countries (the USA and the UK). In Sweden, this usage is represented by the ongoing (2014) implementation of the StriSim-PC in the Swedish army with a focus on the lower tactical level (section, platoon and company).³⁰⁰ The 'command training exercises' at the LTA are also to some extent influenced by foreign input, since the software (CATS) is originally of British origin. Germany also uses a similar form of simulation as noted by visiting Swedish instructors. However, international influence arguably affects only a minority of the total educational wargaming activities in Sweden. This is because 'game the plan' in PUT is a Swedish wargaming method for planning at the tactical level. Furthermore, most 'wargaming weeks' seem connected to the preferences of individual instructors.

What can be inferred from the three embedded units of analysis is the central role of the individual game director. This is supported by data from interviews that indicate categories of concerns by wargaming instructors that influence the wargaming form. One aspect that was discovered during the data collection was that in all three embedded units of analysis wargaming forms are evolving. This development seems primarily related to instructors: when a new game director is assigned to a course module the wargaming form tends to change as well. The constant evolution of wargaming forms cannot be explained by national traditions or foreign influences, availability of COTS wargames or a connection to a specific process ('classroom warfighting' and 'classroom planning').

²⁹⁹ NATO (2010), Führungsakademie der Bundeswehr (2006), Försvarmakten (2009), Försvarmakten (2004), and, Försvarmakten (2012).

³⁰⁰ Försvarmakten (2014).

4. Concerns and strategies: an analytical model grounded in data

Introduction

The preceding chapter on the case of Sweden indicated that the forms of wargaming continually evolve and that these changes are primarily connected to individuals, i.e. the game directors. When a new game director appears, the wargaming form is also likely to change. Based on this find, an analytical model grounded in data was developed for the remaining four country cases. This analytical model is robust since it is grounded in data rather than based on the author's preconceived explanatory variables, i.e. the four initially presented conjectures. Consequently, the model presented in this chapter is centred on the concerns of the game directors and instructors.

A key feature in the methodology of grounded theory is to look into the concerns of respondents (interviewees) and specifically what they do to alleviate those concerns.³⁰¹ This chapter presents those concerns in a conceptualised manner based on explanatory substantive theory with developed codes at the following three levels: categories, properties and indicators of incidents. Each category has at least one property, and each property is indicated by one or several incidents. The codes were created and refined during the constant comparison of data from the Swedish case.

The first part of this chapter covers the individual's main concern, the discovered core category. The chapter's second part presents three conceptualised categories based on developed codes (categories) from the collected data on how the main concern is alleviated. The conceptualised categories are used in the chapter's third part as theoretical concepts in order to formulate an analytical model as to why wargaming takes the form it does within the substantive field of army educational wargaming. The theoretical concepts' properties and indicators are subsequently further explored in the four country cases regarding Germany, the United Kingdom, the USA and Japan.

³⁰¹ Glaser (2010), pp. 131-132.

4.1 The core category and its supporting core categories

The finding of a key explanatory variable, known as the core category, is the result of the application of grounded theory methodology. In other words, the discovery of the main concern, i.e. to answer ‘what is really going on?’, was developed from the collected data by a process of coding and constant comparison. The core category, which was discovered to be **instructor buy-in**, was developed based on three initial aspects recognised from the comparison of notes from interviews and observations regarding the case of Sweden. Those three aspects are so-called supporting categories to the core category. They were found to be **credibility**, **comfort** and **control**. These three categories constitute the essence of **instructor buy-in**. Before presenting a more detailed overview of each supporting core category, it should be made clear that these three categories were not the only codes at the categorical level discovered during the constant comparison process. For example, one code that surfaced early on and then appeared repeatedly was the issue of simplicity. However, simplicity was found to be a *method* for achieving **instructor buy-in** rather than a property or supporting category of the core category. To put this in clear terms: a simplified wargaming form is one way for the game director to accept and support the wargaming form.

Acceptance is what **instructor buy-in** is about. What is at stake is the **credibility** of the individual game director. As one respondent put it: ‘to be responsible for one group requires knowledge – what can be done and what cannot be done – accordingly a high level of self-confidence is needed; you need to be able to answer the question: what would you have done as commander?’.³⁰² It is, however, not enough to have sufficient proficiency in military matters in order to run a wargame. Indeed, as another respondent with solid experience in military educational wargaming put it: ‘if one does not know how to do [wargaming] people will instead make a speech for two minutes.’³⁰³ In order to protect one’s **credibility**, the wargaming form may thus regress into a non-wargaming activity. While the category **credibility** to a certain extent describes **instructor buy-in** it has limited explanatory power in itself regarding how to actually run a wargame. Data indicated two further categories that support the core category and are more explicit about the actually running of a wargame. While **credibility** is a key feature of **instructor buy-in** it is also akin to a personal mind-set that a game director must deal with before, during and after a wargaming session. Such a mind-set is integral to the additional two supporting categories.

To run a wargame the game director must have a sufficient level of **comfort**. For example, one issue discovered during the data collection was that an instructor, with the role of game director, has to

³⁰² Interview: Baudin, 2014-04-01.

³⁰³ Interview: Anonymous no. 2, 2014-06-13.

handle – in front of the training audience – problematic issues such as a perceived lack of realism in the wargame. Such concerns over unrealism are also noted in a recent doctoral thesis on Swedish military educational wargaming by Anders Frank.³⁰⁴ To handle this aspect in wargaming, the game director needs to continuously comprehend the output of the wargame.³⁰⁵ Consequently, the category of **comfort** is about the game director's own comfort in directing a wargame. One property of **comfort** manifested itself at an early stage, namely whether the instructor had been introduced to wargaming at a young age. This can take the form of hobby wargaming, such as board games, *before* the individual began his military career. This kind of introduction, or the case of a potential mentorship between officers, actually seems a common way of transmitting wargaming forms between officers in lieu of written documentation and manuals.³⁰⁶ Accordingly, **comfort** is integral to the individual's preferences regarding what form of wargaming to use in military education.

The third supporting category is **control**. This forms an important part of **instructor buy-in** since it allows the game director direct authority over the wargame. This specifically applies to 'accelerating or braking' the wargaming process. For a game director to do this, he or she must be fully in control. The category of **control** also is about the level of complexity and internal support within the control organisation of a wargame. If the control team is large, i.e. with several assisting game directors assigned for specific wargaming functions, then the level of complexity in that function is determined by that particular assisting game director's level of competence.³⁰⁷ Consequently, the game director's individual competence is affiliated with the ability to **control** a wargame.

The issue of individual competence can be traced to the actual purpose of the wargame, in essence the specific educational objectives. The competence of the individual game director is connected to the person's professional knowledge and experience in military affairs and how that knowledge can be used in a wargaming context. When key personnel teach in the same educational establishment for long periods of time they become experienced in the use of wargaming. Wargame directing is an individual 'perishable skill' – one has to continually practise it to manage it.³⁰⁸ Several of the game directors interviewed have remained in positions where they, over time, have developed their own preferred wargaming forms. Such experience connects to the individual's need of **comfort**. However, **comfort** also refers to the ability of being in **control**. Different forms of wargaming offer different possibilities for this. For example, it seems that the possibility to hide the wargame from the training audience is a successful way of achieving **comfort** for the game director in the running of the wargame.

³⁰⁴ Frank (2014).

³⁰⁵ Interview: Anonymous no. 2, 2014-06-13.

³⁰⁶ Interview: Baudin, 2014-04-01.

³⁰⁷ Interview: Stureson, 2014-06-04.

³⁰⁸ Interview: Nilsson, 2014-10-07.

This particular feature of removing a wargame from the views of the participants also means that the **credibility** of the game director can be protected since unrealistic features can be hidden from the training audience. In addition, **control** can more easily be achieved when in a position of overseeing (in an adjacent control room) rather than would be the case during direct involvement as in, for example, a map wargame within the same room.

Interviews indicated that **instructor buy-in** constitutes the core category because of the three supporting core categories. Significantly, indications of **instructor buy-in** emerged early in the data collection and comparison process as respondents voiced opinions and concerns related to, for example, 'perception', 'understanding' and 'epiphany'. These properties matured during the constant comparison to become the supporting categories of **credibility** and **comfort**. In comparison, **credibility** was initially deemed a potential core category but was later found to be a supporting category together with **comfort** and **control**. One reason that **credibility** was initially deemed to be the core category was general concerns in the wider wargaming community regarding the possibility of 'stigma' and 'legitimacy'.³⁰⁹ Such concerns are valid, and arguably connect to various philosophical constructs such as tradition and rationality. However, the focus on respondents' concerns made it clear that **credibility** and **comfort** were more tangible, and hence more relevant, than for example 'stigma'. As a case in point, it is a challenge for the individual to be comfortable and secure in the role of game director.³¹⁰ A key issue, according to several respondents, is thus the ability of the individual to exercise control of a wargame.³¹¹ The last supporting category to mature was **control**, which was likewise to **credibility** initially considered a potential core category. However, **control** was not deemed sufficient in itself to explain the main concern – the core category – of game directors.

The discovered core category of **instructor buy-in** is strengthened in the light of other potential aspects of buy-in besides **instructor buy-in**. Two plausible examples are hierarchy buy-in and participants' buy-in. These were found to be integrated parts in *how instructor buy-in* is achieved. For example, hierarchy buy-in is connected to the property of doctrinal adherence. This relates to (the few) manuals and official planning guides that promote certain forms of wargaming that are both 'allowed' and 'necessary'. Hence, doctrinal adherence provides some **credibility** for the instructor to apply a certain wargaming form. On the other hand, it was found that there is a reluctance from the hierarchy to interfere in exact educational details. In other words, the exact form of wargaming is up to the instructor and/or course director to decide.³¹²

³⁰⁹ UK Connections (2013), and, US Connections (2014).

³¹⁰ Interview: Perkola, 2014-04-01.

³¹¹ Interview: Gyhagen, 2014-09-19, and, Interview: Sturesson, 2014-06-04.

³¹² Interview: Perkola, 2014-04-01.

Participants' buy-in, on the other hand, is part of the property of promotion of gamification and consequently also to the property of suppression of gamification. Both properties relate to the exposure of the training audience to the wargame and their potential questions about unrealistic aspects, which undercut game director **credibility** and therefore affect the core category of **instructor buy-in**. In Sweden, formal evaluations of course modules can arguably measure the amount of participants' buy-in of a certain wargaming form. However, while such feedback is essential, the experience of the author is that, in the advent of negative feedback, this causes the instructor to *reassess* his/her **instructor buy-in**. For example, the HSU 4 module in the Senior Staff Course (III) introduced a board game for its wargaming week in 2015 because of a new instructor. As shown in the left side graph in the illustration below, many participants were either very negative (1-2) or very positive (4-5) about the wargame being appropriate for the learning objectives. The relatively high proportion of negativity – in general few participants have a neutral stance on wargaming – did cause a reassess. Subsequently, during the next course in 2016, the feedback was much better (right side graph). However, the wargaming form did not change. What *did* change was that the game directors in 2016 were willing teachers whereas students were assigned as directors during the initial run in 2015.³¹³ Based on the author's observation in the classrooms in 2015, several of these students (Directors) did not achieve **instructor buy-in**, which in turn affected the participants' buy-in. Accordingly, the evolving forms of wargaming in the Swedish case do not occur primarily because of a lack of participants' buy-in. Instead, constant changes occur because **instructor buy-in** is not achieved.

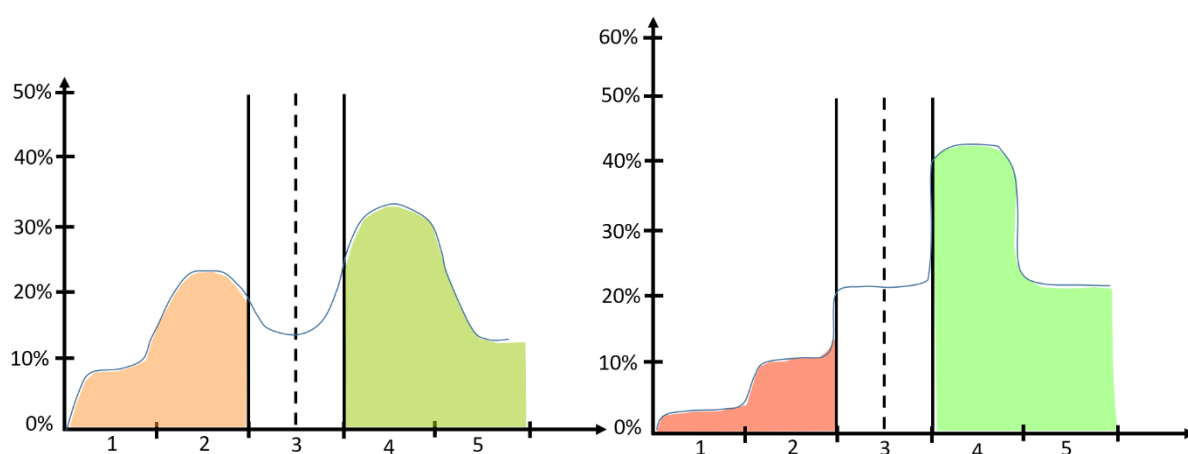


Illustration no. 6: student feedback of the board game in HSU 4 (2015 and 2016).³¹⁴

³¹³ Henåker (2016b).

³¹⁴ Henåker (2016b).

That the core category was found to be **instructor buy-in** is perhaps not unexpected in hindsight. This finding reconnects to a historical concern about officers becoming unable to administer a wargame even though the wargame is supposed to cover core issues in the officer profession.³¹⁵ Accordingly, the issue of **instructor buy-in** seems to have existed over time. This presence is further strengthened by the general discussion about the risk of individual stigma and striving for legitimacy in wargaming.³¹⁶ However, what is noteworthy and of significant explanatory value for this thesis is not the core category in itself but *how* the individual game director strives to achieve it. This reconnects to the proposition that the core category socially organises the behaviour in a substantive field, which in this thesis is the field of army educational wargaming.³¹⁷

³¹⁵ Peterson (2012), p. 246.

³¹⁶ UK Connections (2013), and, US Connections (2014).

³¹⁷ Glaser (2010), p. 133.

4.2 Three theoretical concepts (conceptual categories)

The initial case study of Sweden established that the main concern of the interviewees was found to be on how to avoid loss of **credibility**, **comfort** and **control** when functioning as a wargame director. To solve this – to achieve **instructor buy-in** of the specific wargaming form – one of three conceptual categories arguably has to be actively preferred by the game director. The problem of achieving **instructor buy-in** is therefore solved by individual adherence to one of these three discovered conceptual categories, developed during an analytical process into three theoretical concepts with properties and indicators. These three concepts are: **simple standardising**, **control & veiling** and **innovative active learning**. The names are conceptual since these categories directly connect to the core category of **instructor buy-in**.

The initially developed concept was **simple standardising**. The code simplicity was discovered early in the data collection and analysis as an issue that was often raised by interviewees. Notably, simplicity was initially thought to be a possible core category as it kept appearing in the data. However, this code was found to differ from the supporting core categories of **credibility**, **comfort** and **control** as simplicity concerns a solution for achieving the core category of **instructor buy-in**. Simplicity requires that a wargame takes the form of a standard that ‘every officer’ can understand and use. On closer examination, simplicity was found to be just as important as another code, doctrinal adherence. Both of these codes were subsequently determined as properties of a specific category, i.e. a concept that generally covered the viewpoint that ‘every officer should be able to do wargaming’. Hence, this concept concerns a rudimentary and straightforward wargaming form with doctrinal support. This concept was initially and tentatively termed as regimenting and was as such the initially discovered solution to the concerns of particularly **credibility** and **comfort**, which were determined to be properties (and eventual core supporting categories) of the main concern **instructor buy-in**. With the refinements of the properties simplicity and doctrinal adherence, the concept of **simple standardising** was found to be a fitting name to describe this particular endeavour into certain simple and straightforward wargaming forms, such as rudimentary map-wargames with ordinary military maps and *free* combat adjudication, in conjunction with organisational and hierarchical support because of doctrinal prescriptions of wargaming.

An endeavour for simplicity in organising and running a wargame is evident since some game directors promote it. The first of two explicit arguments is that wargaming should be easy to use ‘in the field’, hence outdoor with no need for extra equipment such as computers or elaborate unit markers. The second argument is that wargaming should be easy to organise and conduct. Both arguments thus favour simple forms of wargaming, meaning neither computer-based nor advanced board games. Instead, visualisation is a key feature and provided by the use of ordinary maps or rudimentary terrain

models. The second argument favours very few 'rules', i.e. none at all. In other words: the fewer the rules, the better the game. Thus, the concept of **simple standardising** endorses wargaming forms that are rudimentary, uncomplicated and straightforward. Specifically, this concept favours wargaming forms such as map or terrain model-based wargames as well as discussion-based wargames. Notably, the Swedish army's manuals and regulations for the planning and decision-making process explicitly support such simple wargaming forms.³¹⁸ It may also be argued that the international (NATO) form of COA-wargaming is part of this concept since this wargaming form for planning is rather simple and straightforward, i.e. there are few rules besides the action/reaction/counter-action sequence of turn order.

One issue that was exposed during the constant comparison was the difficulty for an instructor in the role of game director to – in front of the training audience – handle problematic issues such as a perceived lack of realism in the wargame. This was especially a factor in wargames with a focus on decision-making ('classroom warfighting'). To hide the wargame, or certain aspects of a wargame, from the training audience arguably removes or reduces this issue. In addition, this separation protects the instructor's **credibility** and increases his/her **control** and **comfort**. Consequently, this concept requires actual wargame procedures, especially the combat adjudication, to be put behind a physical barrier. The wargame would thus be veiled off so that the training audience would neither observe the adjudication nor be able to directly complain or stage opposition to issues regarding a lack of realism. This issue of unrealism is grounded in perceptions by individuals but also includes valid concerns of 'modern fiction', i.e. when certain weapon systems are promoted beyond their actual values and capabilities.³¹⁹ Another aspect of unrealism are game design artefacts such as, for example, when it does not matter what direction to shoot a tank since it is (incorrectly) modelled as having an equal level of amour protection on all sides (rather than on the front).

The second developed concept was termed **control & veiling**. This is when the training audience is separated away from the wargame, including adjudication, input and/or visualisation. This was found to be applicable to both manual and computer-based wargames. In the case of a manual and *rigid* adjudicated board game, one common method is to situate the master map in a separate room, entirely away from the training audience. Only the umpires and the control team, who may also play subordinate commanders (LOCON), are aware of the actual game rules and the ongoing adjudication. The training audience is thus steered away from 'game tactics', 'hexagon tactics' and 'optimisation', which is the drawback of *rigid* game rules. This particular risk has been categorised as 'gamer mode'

³¹⁸ Försvarsmakten (2004).

³¹⁹ Allen (2009), p. 97.

by a recent (2014) PhD dissertation on military wargaming by Anders Frank from the Swedish Defence University.³²⁰ Another issue is that technical malfunctions can be handled separately from the training audience, i.e., they will not be aware of the fact that the game director is actually revising and/or redoing results in the wargame. Such modifications may also happen either because the game director believes that the specific computer-based adjudication was completely wrong, or that the learning/training objectives would benefit from a different result. Overall, this concept is about the game director ability to take **control** of the wargame. The author witnessed one particular incident of this at the Swedish Defence University as part of the evolution of the wargaming form (from manual to computer) in the Staff Course: *Basic Module Higher Formation Land Operations* (SU 3). Shortly after the wargame, during the interview with the instructor, he motivated his action as follows:

I considered the shutting down of the monitor showing the computer-based simulation a criterion of success for having tactical discussions rather than focusing on game tactics.³²¹

The level of **control** by the game director is augmented by veiling the wargame from the training audience, which thus mitigates the risk that the training audience complains about unrealistic and/or complicated rules and perceived unrealism in the adjudicated results. In comparison, a direct exposure would force the students to translate their tactical ideas to the *rigid* ruleset of the computer-based wargame, which favours 'game tactics' and steers away from reality.³²² By separating the wargame from the training audience, the military students can focus on the actual learning purpose of the wargame by acting to accomplish their assigned task without realising that they are playing a wargame. Consequently, while wargaming is necessary for the educational objectives in **control & veiling**, the overall activity is seldom termed 'a wargame'. Instead, it is named something else, such as, for example, a 'command training exercise'.³²³

The third concept proposes that the instructor should not strive to hide the wargame. Instead, the opposite is proposed as the wargame, and specifically the use of gamification, is promoted as an important part of the education. Hence, the training audience is supposed to experience their interaction directly with the wargame, i.e. 'hands on'. This approach is focused on learning by allowing the training audience to experiment. This requires the wargame to be accessible so that the possibilities, and risks, or different outcomes become tangible. This third solution was named **innovative active learning**, which refers to two things: 1) the game director puts the wargame out in

³²⁰ Frank (2014).

³²¹ Interview: Lidbeck, 2015-11-30.

³²² Interview: Lidbeck, 2015-11-30.

³²³ Observation: Land Warfare Centre 2014-04-08.

the open in order for it to become transparent for the training audience as akin to an experiment, and 2) the training audience learns by actively experimenting with the wargame. This latter aspect is explicitly connected to learning theories, such as game-based learning. This include gamification regarding specific game design choices, such as an emphasis on the competitive aspect between teams and/or individuals. In other words, **innovative active learning** typically promotes the issue of winning or losing as a significant feature. This emphasis on explicit use of gamification, which also includes the aspect of fun, differs from the other two concepts.

It is noteworthy to reflect upon the fact that the three concepts, and in particular the concept of **control & veiling**, were discovered due to the methodological influence from grounded theory which avoids an initial delimitation of data collection. However, the uniqueness of military education means that there is an inherent physical limitation of the substantive field of army educational wargaming since it is concentrated to just a few individuals and locations. Repeatedly, each interviewee was often able to suggest one or a few other persons to speak to regarding wargaming: in many cases the name of the same individual was repeatedly mentioned. For example, this chain of discovery led the author to the Swedish Land Warfare Centre, where a certain type of developed wargaming exists based on comprehensive simulation systems at the command training facility (LTA). Their use of simulation systems is seldom referred to as 'wargaming'. Instead, the simulation system is masked from the main training audience when the wargame is running. The wargame application, in this case the computer-based simulation system CATS, can thus be considered veiled. The activity still functions as a wargame since the training audience's constructed military actions typically generate non-scripted counteractions.³²⁴ If this premise were not applicable, the activity would not be considered a wargame but a form of scripted exercise. Notably, a core function of **control & veiling** is that the training audience assumes that their actions generate non-scripted counteractions. Nonetheless, this concept entails that a wargame may possibly, and easily, change into a scripted exercise.

It can be discussed if **control & veiling** is a one-off phenomenon in comparison to the other two concepts. It was, however, found present in two different wargaming activities at the Land Warfare Centre: the command training facility's (LTA) CATS simulation exercises and the 'wargaming week' during the OF2 Course. Significantly, the former is computer-based while the latter is a manual hybrid map/board game. In both cases the game map is hidden from the main training audience, which works in the organisational guise of command posts. **Control & veiling** thus seems applicable when the wargaming form is generally similar to a Command Post Exercise (CPX) regarding manned roles and the simulated environment. In some cases, such as at the Land Warfare Centre, the classroom is

³²⁴ Observation: Land Warfare Centre 2014-04-08.

configured as a command post with comparable physical limitations, while in other cases the command post is represented by an ordinary classroom. There are additional examples that require less organisational support structures: at the Defence University's HSU 6 course, for the Senior Staff Course in 2013, the wargaming form used was arguably influenced by **control & veiling** since adjudication was done by instructors separated from the participants. In this specific example, the participants were divided into three operational planning groups that were briefed (by instructors) on the situation in the morning and then produced a recommendation in the late afternoon. After each group had presented their recommendations in the classroom, the students went home and the instructors alone did the adjudication for the next morning update.

The concept of **innovative active learning** can be seen as the direct opposite of the concept of **control & veiling**. In the former, the wargaming system is directly put before all the participants. This mode of operation accentuates the issue of the game director's own **comfort** in running a wargame. This concerns an individual's ability to conduct firm direction, such as to determine when to 'accelerate or brake' the gaming process. For the game director to do this, he or she must be in **control** and envision how an outcome connects to learning. **Control** is also associated with the ability to understand – and to use – underlying design variables of a wargame. For this reason, individual levels of competence regarding game direction are a critical factor in determining what form of wargaming is suitable. The competence of the individual game director seems connected to that individual's professional knowledge, including experience of military affairs, and how that knowledge can be used in a wargaming context. This knowledge must, however, also include the individual's ability to manage a wargame – an artful and practical skill that arguably only can be achieved, and sustained, by actually conducting a wargame.³²⁵

The presence of an assertive individual game designer is a clear indicator of the property individual innovativeness of **innovative active learning**. Certain individuals are affiliated with, and often identified with, certain wargaming forms. This explains why wargaming forms often change as individuals transfer or retire. Furthermore, such wargaming forms tend to be unique since such wargames generally are developed in-house and by single individuals. Examples are the creative use of certain COTS wargames, as well as uniquely developed wargames for specific course modules ('wargaming weeks'). This concerns the BMBat hybrid map/board game at the Officer Programme (SEDU), the 'reasoning-wargame' at the Officer Programme (Kvarn, Land Warfare Centre), the hybrid map/board game at OF 2 Course (Skövde, Land Warfare Centre) and the COTS wargame *Operational Art of War III* for the HSU 8 at the Senior Staff Course (SEDU).

³²⁵ Interview: Nilsson, 2014-10-07.

4.3 An analytical model: properties and indicators

The three developed theoretical concepts are defined by their properties. Each property has one or several indicators. This offers the possibility for comparisons between indicators and properties as well as the three concepts. This comparison, and the continuous process of exploration which began during the data collection in Sweden, led to the development of the three theoretical concepts. The additional four country case studies offer further exploration of these concepts. The expression *explore* is significant, since this is in line with grounded theory methodology. In comparison, a conventional deductive comparative method would rather include the terms *verify* or *falsify* regarding how to use the developed theory for the successive four cases.³²⁶ The three theoretical concepts, and their properties within the substantive field of military educational wargaming, are presented below.

Simple standardising has two properties: adherence to doctrine and simplicity. One evident example of this concept is course of action (COA) wargaming at the SEDU. There are also several examples in Sweden of map-based wargames, which are rudimentary but supported by doctrine as something that 'has to be done' in the military planning process (PUT). Such manual wargames occur in all three embedded units of analysis in Sweden.

Innovative active learning has two properties: promotion of gamification and individual innovativeness. The innovativeness concerns an explicit game design approach that takes advantage of gamification to promote learning. This is applied in modifications of commercial wargames or in in-house game designs such as hybrid wargaming forms (map/board games). One example is the extended use of *Operational Art of War III*, a COTS computer wargame for PBEM but configured as a two-room wargame, at the SEDU in the module HSU 8. Other examples are: the BMBat for officer cadets at the SEDU, the hybrid map/board game at the Land Warfare Centre, and the board game at the SEDU during HSU 4 in 2015 and 2016.

Control & Veiling was found to have one property: suppression of gamification. This concept is utilised at the command training facility (LTA) at the Swedish Land Warfare Centre, concerning map-based, board games as well as large computerised wargame exercises (LTÖ). The concept is also indicated in some examples at the SEDU, such as in the module HSU 6. This concept covers a grey zone that stretches into Command Post Exercises (CPX) and thus beyond what many would include as 'wargaming'.

³²⁶ Glaser & Strauss (2008), pp. 135, 211.

Concept (category)	Property	Indicator (of incidents)
SIMPLE STANDARDISING	Adherence to doctrine	Explicit support for specific wargaming form exists in the formal military decision-making process or military planning process.
		An attitude exists that 'we have to do wargaming' since it is doctrinally expected to do so.
		The product is more important than the wargame process.
	Simplicity	Every individual officer has to manage the wargaming form: as every officer has to have wargaming ability.
		Intra-professional learning is how methods to manage a wargame are learned, rather than formal written instruction/courses.
		An attitude exists that 'it must work in the field' and therefore ordinary maps should be used.
INNOVATIVE ACTIVE LEARNING	Promotion of gamification	Support by reference to game-based learning theory: learning is seen as attainment of experience by experimenting - hence the process is important.
		Competition is seen as a good feature rather than an unwanted/bad one.
	Individual innovativeness	An individual has either designed, or significantly modified, the wargaming form in order to enhance learning.
		The wargaming form changes when an individual relocates.
		An attitude exists that 'no one (else) understands wargaming'.
CONTROL & VEILING	Suppression of gamification	The game director controls and interrupts the wargaming by 'gas and brake', or halt and restart.
		'Free play' is not allowed: the red cell is supervised but is not fully controlled with a scripted pre-planned response list). The blue side's focus is the scenario and not on playing the game (for fun). The product is important and this is specifically developed by reflections during breaks after/during the wargame.
		The training audience's immersive credibility is safeguarded from potential concerns of unrealism related to the models of a wargame since the training audience itself does not interact with the simulation system because it cannot directly observe it during the wargame.
		An attitude exists that 'we are not doing wargaming here': the activity is not named 'wargaming' but perhaps 'command training exercise'.

Table E: concepts, properties and indicators.

Simple standardising: instructor buy-in occurs because of the explicit connection to doctrine – ‘we have to do wargaming’. This concept is closely affiliated to the military profession, which is manifested in the use of ordinary maps and that players staff their ordinary positions, such as, for example, roles in a military headquarters. One simple solution, which affirms the symbolism in wargaming, is the straightforward opinion to ‘use whatever you have in your pockets’ to represent units on a map. Adjudication is almost certainly of the so-called *free* type centered on instructors’ judgement rather than any form of *rigid* rules or computer simulations. This is because this form of wargaming is supposed to be used and practised by each and every officer. This makes it more or less impossible for ‘outsiders’ to practise this form of wargaming: i.e. one must be proficient in the military profession. This entails a capable officer who is comfortable in control and believed to be credible in his management of a straightforward wargame. However, this simplicity may entail that simple rehearsals on maps, or brainstorming around a map, may be mistaken for – or promoted as – ‘wargaming’.

Innovative active learning: instructor buy-in occurs because the game designer/game director, who may (or may not) be a military officer, utilises game-based learning for **credibility, control** and **comfort**. This is sometimes done intuitively rather than by explicit reference to theory. Accordingly, this concept is connected to certain individuals, i.e. ‘enthusiasts’. Hence, elements of charisma and creativity are involved as such individuals, implicitly or explicitly, complain that it is a challenge for other people to understand wargaming: i.e. ‘no one else understands wargaming’. Accordingly, **instructor buy-in** for this concept is restricted to the few individuals who can confidently rebut the possible and ever-present question: ‘are you just playing games?’.³²⁷ Such criticism re-connects to game-based learning and especially promotion of gamification, which includes the element of fun for better learning.

Control & veiling: instructor buy-in occurs because the wargame is veiled from the training audience. The military students are thus shielded from perceivable non-realistic combat results, or other perceptions, which may generate ‘gamer mode’, or non-acceptance, which are detrimental for learning. To prevent opinions that express that ‘we are just playing a game’ from manifesting, veiling is a real option for instructors. Veiling entails that the training audience does not physically observe, nor directly interact with, the wargame’s computer-based simulation system, map or board. Accordingly, it is to be expected for a game director in this concept to declare that ‘we do not do wargaming’. Still, the activity *is* arguably a wargame as long as it allows contingent symbolic interaction. If this free interaction does not occur the activity should be considered a non-wargame. One example of a non-wargame is a scripted exercise. Hence, this third concept constitutes a grey zone akin to **simple standardising**.

³²⁷ Observation: 2014-10-09.

Summary

What is really going on within the field of army educational wargaming? This rhetorical question is answered by the core category, **instructor buy-in**, which is the main concern of the key individuals – the game directors/instructors. The core category is explained by its supporting core categories: **credibility**, **comfort** and **control**. Each explains individuals' reasoning behind the use of certain wargaming forms. The core category is achieved by different methods. Three such theoretical concepts were identified and developed from the case of Sweden: **simple standardising**, **innovative active learning** and **control & veiling**. Properties and indicators explain each theoretical concept. This enables a further exploratory and comparative analysis as the developed analytical model forms the analytical underpinning for the country cases of Germany, the United Kingdom, the USA and Japan. Each country chapter covers three embedded units of analysis, and each subchapter is structured in accordance with the three theoretical concepts. This structure allows wargaming forms to be analysed within a relevant comparable and conceptual framework, rather than the initial conjectures by the author.

5. Germany

Introduction

In Germany, education of army officers is centralised in the form of the German Army's Education and Training Command, *Das Ausbildungskommando Heer*, established in 2013. This command is headquartered in Leipzig and controls several facilities, such as the Army's Officer School and the Army's Warfighting Simulation Centre. The Command and Staff College, *Die Führungsakademie der Bundeswehr*, is a separate entity and controlled by the central staffs of the Bundeswehr. The German Army has, however, a final say in the education of army officers by its general learning objectives.³²⁸ Since it was not possible for the author to visit the German Army's Infantry School in Hammelburg, the nearby simulation centre of the German Army in Wildflecken instead became the intermediate unit. This change came about primarily because of the issue of accessibility. However, preparative studies of possible embedded units in the intermediate range in Germany found that the nearby Army Warfighting Simulation Centre, *Das Gefechtssimulationszentrum Heer*, has a centralised organisational role in how simulation systems are used within the German Army.³²⁹ This connects to how military instructors learn wargaming, which in turn offers indications of how instructors receive **instructor buy-in** for different wargaming forms. Accordingly, the embedded units of analysis in this chapter are:

- The Army's Officer School (I),
- The Army's Warfighting Simulation Centre (II),
- The Command and Staff College (III).

Before going into detail of what is done, there is a need to clarify a language issue. For an Anglo-Saxon reader, the embedded unit of The Army's Warfighting Simulation Centre (II) might be seen as an entity for *training*, while the other two embedded units of analysis in Germany are for *education*. There is however no such clear-cut division in the German language (nor is there such a distinct linguistic division in Swedish). In Germany, education and training are generally combined into a single word: *Bildung*. Hence, education and training are not seen as separate entities as is sometimes the case in the English language. Furthermore, the English word 'training' is in Germany connoted with drills. And, the concept of doing drills as a form of education is not accepted in Germany.³³⁰ Hence, the German Army Warfighting Simulation Centre concerns primarily military professional education for army officers.

³²⁸ Interview: Trobisch, 2015-06-23.

³²⁹ Deutsche Heer (2015).

³³⁰ German Army Warfighting Simulation Centre (2015).

5.1 Die Offiziersschule des Heeres

The German Army's Officer School, *Die Offiziersschule des Heeres*, is located in Dresden and is the first step in the officer education system. The current (2015) system of officer education was established in 2006. Accepted officer cadets initially conduct six months pre-training and then enter the first officer course, OF1, which lasts for one year. The officer cadets then join one of the two universities of the Bundeswehr, in either Hamburg or München, for approximately four years' studies to earn a civilian degree. Thereafter the officer cadets return to Dresden for the second officer course, OF2, which lasts for three months. After OF2 the officer cadets are commissioned as officers and transferred into one of the branch schools, for example, the infantry school. There they receive their final training to become a Platoon Commander, or alternatively, specific training towards the job they will have when they thereafter join an Army unit.

Contemporary wargaming

The coherence of German officer education is supported by an unwritten educational principle. This concerns the educational progression which in the past was as follows: 1) classroom, 2) sand table, 3) field. Today, simulation systems are used and hence the contemporary order is: 1) classroom, 2) sand table, 3) simulation system, 4) field. The addition of simulation before going into field training is considered worthwhile as it saves time since different tactical situations can, if necessary, be repeated with the use of a simulation system.³³¹ This methodology is arguably similar at all levels in the German officer education system. Hence, simulation is 'integrated in every course' at the Officer School.³³² Notably, however, there is almost no use of simulation or wargaming during the OF1 course. The one and only exception is a map exercise conducted at the battalion level. On the other hand, after university, during OF2, 'simulations' are used.³³³ These simulations are all on the battalion level since this is centrally directed by the Head of the German Army. The reason is that the battalion level is believed to be the lowest tactical level where it is possible to cover principles of kinetic warfare in conjunction with tactical challenges.³³⁴

Two simulation systems are in use at the Officer School: SIRA and SiTA. SIRA stands for *Simulationssystem zur Unterstützung von Rahmenübungen* (Simulation system in support of exercises) and was developed by a German company, *CAE Elektronik GmbH*, in 1995 for use in military education. The main SIRA-facility in the German Army is located at the Officer School in Dresden. Other SIRA-

³³¹ Interview: Stuber, 2015-04-14.

³³² Interview: Gonnermann, 2015-04-13.

³³³ Interview: Gonnermann, 2015-04-13.

³³⁴ Interview: Michel, 2015-04-14.

facilities are located in Münster, Hammelburg (Infantry School) and Wildflecken (Army Warfighting Simulation Centre). SiTA is the acronym for *Simulation-based Training for military Academies*. SiTA is, compared to SIRA, a newer system and especially developed for military classroom education.³³⁵ Both SIRA and SiTA are computer-based constructive simulations. In comparison SiTA is more aggregated and requires about 6-8 officer cadets as operators for a battalion level exercise. For SIRA, the number of operators required to run a battalion level exercise is about 30.³³⁶ Both simulations are used for the battalion level and both are run in real-time. The latter feature is believed to be essential because of an educational focus on decision-making.³³⁷

There are differences in how SIRA and SiTA are used at the Officer School. SIRA is used for what is called 'simulation-based exercises' involving many officer cadets whereas SiTA is used in a classroom-setting for individual education of officer cadets. Accordingly, SiTA is considered less advanced than SIRA. SiTA is therefore often used as a preparatory session for a subsequent SIRA exercise. Regarding the OF2 course, each class of officer cadets participates in one SIRA-session, which covers two full working days. SiTA is used twice (3-4 hours each time). Combined with preparation, about one month of the three-month educational curriculum of the OF2 course relates to the SIRA- and SiTA-sessions.³³⁸

The simulation support centre located at the Officer School provides support to both SIRA and SiTA. This support involves placing units in starting positions in order to save time. Furthermore, there is technical system support by two-three officers. The support personnel are captains and IT-system specialists, usually from the signal branch as no category of simulation officers exists in the German Army. The main task of the SIRA-facility at the Officer School is to support courses and to provide an opportunity for officer cadets to practise the military decision-making process. Hence, the learning objectives assigned to a SIRA session concern tactical practice and decision-making. The decision-making process is focused on the battalion headquarters, which is supported by the company tactical level as a lower command level (LOCON).³³⁹

A SIRA-session does not involve direct physical interaction between the training audience and the simulation system. Instead, large numbers of operators are used to operate the simulation system. Those operators are officer cadets from another class. The operators enable the commanders to concentrate on reports generated from the simulation system, without the commanders themselves having to input orders or extract information from the computer-based simulation system.

³³⁵ CAE (2015).

³³⁶ Observation: 2015-04-14.

³³⁷ Interview: Gonnermann, 2015-04-13.

³³⁸ Interview: Gonnermann, 2015-04-13.

³³⁹ Interview: Stuber, 2015-04-14.

SIRA - EX concept



Illustration no. 7: the use of SIRA at the German Army's Officer School.³⁴⁰

A SIRA-session could be interpreted as a Command Post Exercise (CPX). However, SIRA is referred to as a 'simulation-based exercise'. This term differs from the English term 'computer-assisted exercise' (CAX), which is considered by the Officer School as a somewhat old-fashioned expression imported from the USA.³⁴¹ While the illustration indicates the basic concept of SIRA, it does not illustrate an additional separate room where the 'Director' runs the SIRA session, as well as the extra room for the opposing force (OPFOR). In comparison to a CPX, which is also typically run in real-time, in SIRA the battalion headquarters (Bn HQ) is not a fully functional command post as staff clerks etc. are not present. This abstraction, and the focus on educational learning objectives, means that instructors consider SIRA to be a 'simulation-based exercise' and not a command post or staff exercise.

Notably, the quote 'without any view [of] the simulation system' in the illustration reveals a certain feature: Company Commanders have their backs towards the computer screens. The operators, who interact directly with the simulation system, control the various platoons. Each Coy Commander has

³⁴⁰ Gonnermann (2015).

³⁴¹ Interview: Gonnermann, 2015-04-13.

his own headgear to communicate to the Bn HQ while using his own voice to communicate his own orders to his Platoon Commander(s) situated behind his back. Since the training audience (Bn HQ and Coy Commanders) do not directly interact with SIRA it is deemed enough to visualise a 2D view, rather than a 3D one.³⁴²

SIRA is perceived as the highest level of tactical training at the Officer School.³⁴³ The purpose of SIRA is for officer cadets to learn tactical practice and decision-making. While the latter concerns primarily the decision-making process at a Bn HQ, Company Commanders are also included.³⁴⁴ A SIRA-session involves the rotation of assigned decision-making roles. It is not unusual to have four-to-six different acting Battalion Commanders during one full day. A simulated battalion usually consists of five companies, meaning that there are enough positions for one class of 22-24 officer cadets when leader positions are rotated. The training audience (one class of officer cadets) is called 'military leaders', while another class provides support as 'operators/tactical communicators'. This support is provided in pairs: one officer cadet inputs orders into the SIRA simulation system while the other communicates with the Coy Commander. The 'Director', who controls the SIRA-session, is usually the Commander of the Officer Cadet Company to which the classes belong.³⁴⁵

While a SIRA-session is conducted in the organised facilities of the simulation support centre, a SiTA – session is done in a classroom environment. In total three classrooms at the Officer School are equipped with SiTA. There are three specific educational objectives in a SiTA session: 1) Improving tactical skills (fire and movements), 2) Increasing learning skills, and 3) Integrating of advanced training tools in the teaching: i.e., preparing for SIRA. However, SiTA is specifically about developing courses of action (COAs) as it allows the officer cadets to experience success and mistakes. The educational methodological alternative to SiTA is that the classroom teacher provides criticism and feedback. In comparison, the different ongoing interactions in SiTA allow the classroom teachers to discuss tactical principles by using SiTA's after-action review features. The action is double-sided since there is a blue and red force. The blue force has two-levels: Bn HQ and supporting companies, while the red force has a smaller number of operators and is directly commanded by the classroom teacher, who uses standard principles regarding how the red force is supposed to act. However, the role of the classroom teacher is primarily as an instructor rather than as the commander of the red force.³⁴⁶

³⁴² Interview: Gonnermann, 2015-04-13.

³⁴³ Interview: Michel, 2015-04-14.

³⁴⁴ Interview: Stuber, 2015-04-14.

³⁴⁵ Interview: Gonnermann, 2015-04-13.

³⁴⁶ Observation: 2015-04-14.

A SiTA-session is an organised and controlled process. It consists of three to four working groups, with about five to eight students each. Usually 5-6 officer cadets man the red battalion while the rest, about 15, operate the blue battalion. A day before a SiTA session the officer cadets prepare their orders according to a standardised order format. The next day, the SiTA session takes place for about four hours. During the initial hour the Battalion Commander issues orders, and for the remaining three hours, the simulation is conducted in real time. The four working groups work in pairs (Red-Blue and Red-Blue). Each of the working group-pairs tests one course of action (COA). It is emphasised that the red side has to obey the 'Director' since he is also the commander of the red side. No 'free play' is allowed in order to avoid a situation when officer cadets 'behave like cowboys'.³⁴⁷



Photograph no. 10: the use of SiTA.³⁴⁸

The photograph of SiTA from the company brochure provides a vivid visualisation since it illustrates a certain feature, which was acknowledged by the author's observation on site. The officer cadet that acts as the Battalion Commander only looks at the map attached to the wall and not at the computer screen behind his back. This feature is similar to a SIRA-session (Coy Commanders). In the SiTA classroom, the assigned Battalion Commander uses the situational map on a wall while the operator behind him inputs information into the computer system and communicates verbally back-to-back. The operator also communicates verbally with the Company Commanders situated at the same table.³⁴⁹

³⁴⁷ Observation: 2015-04-14.

³⁴⁸ CAE (2016).

³⁴⁹ Observation: 2015-04-14.

Besides the one SIRA- and two SiTA-sessions in OF2, few if any other activities are possible to categorise as wargaming at the Officer School. Two 'terrain walks' in OF1 are conducted outdoors where different options are put forwards as part of the decision-making process. There are also two 'terrain walks' in OF2 – officer cadets assume the role of instructor in the last one.³⁵⁰ There is also a sand table located in every classrooms but these sand tables are allegedly only used to visualise tactical examples with vehicle miniatures. Hence, wargaming at the Officer School is centred on 'simulation-based exercises' with SIRA and SiTA. This concerns fictional scenarios in nearby terrain, which thus support 'terrain walks' in the same terrain. There are no historical scenarios in SIRA or SiTA. This is especially so because the subject of military history at the Officer School does not use simulation since apparently military history teachers at the Officer School are not interested in using wargaming as a method.³⁵¹ Nonetheless, there are plans by individuals to expand wargaming into the military history curriculum at the Officer School in Dresden during OF1. This is envisaged as a combination of tactics and 19th century military history, with wargaming embedded with a tactical 'terrain walk'.³⁵²

A possible future initiative to introduce wargaming at OF1 is linked to game-based learning, which to some extent already occurs at the Bundeswehr universities in Hamburg and München. During the officer cadets' four year interregnum at one of the two Bundeswehr universities, one course by Armin Fügenschuh at the Helmut Schmidt University in Hamburg uses commercial wargames in the form of board games with a small group of officer cadets (eight in 2015). The purpose is to reflect on combat modelling by a board game of each officer cadet's choice. One of these board games was *Days of Battle: Golan Heights*. This type of use of educational wargaming is a recent phenomenon. It is also explicitly encouraged by one German officer, Colonel Uwe Heilmann, who is a big proponent of the usefulness of wargaming in education.³⁵³ Although the Helmut Schmidt University is by itself not one of the three embedded units of analysis, its education is at the initial level of the greater educational framework of officer cadets. Likewise, at the Bundeswehr University in München there are indications of some student participation in 'Planspiel' to simulate diplomacy at the United Nations.³⁵⁴ Diplomacy, however, falls outside the tactical level.

³⁵⁰ Interview: Knorr, 2015-04-14.

³⁵¹ Interview: Gonnermann, 2015-04-13.

³⁵² Interview: Anonymous A2, 2015-06-23.

³⁵³ Email: Fügenschuh, 2015-10-20.

³⁵⁴ Bundeswehr (2013).

Control & veiling

Both SIRA and SiTA indicate adherence to control & veiling since they physically veil the simulation system from the main training audience. SIRA in particular indicates suppression of gamification by the physical separation of computer screens *and* the adjudication process from the training audience. The 'Director' is in control of this separation. Furthermore, in both SIRA and SiTA, the 'Director' controls the wargaming process by the ability to pause and restart the process whenever he believes it is necessary. Further indications of adherence to control & veiling relates to concerns by the instructors about a lack of realism. To increase the feel of realism, an authentic army communication system is used in SIRA. Furthermore, LOCONs (Lower Control) are role-played and solve their tasks independently from each other: in SIRA each LOCON is separated in different rooms rather than together in a large hall. Nonetheless, several teachers believe that SIRA as a simulation system does not reflect reality very well. For example, there is no difference in combat adjudication modifiers if a red main battle tank is attacked from behind or from the front. There are also imperfections in the modelling of logistics. However, the focus of a simulation-based exercise is for students to execute the overall plan, which the current utilisation of SIRA achieves.³⁵⁵ This realisation is arguably because of the physical veiling. However, physical veiling is not only used to hide less realistic or poorly modelled elements. Veiling is also used to enhance certain aspects of the simulation in order to enable the training audience to construct their actions. For example, only the operators will see videos of violent demonstrations etc. The purpose is to achieve more realism in the operators' reports to the training audience. In other words, the immersion of the operators increases, which in turn increases realism for the training audience. This arrangement is deemed necessary since the training audience does not interact directly with the simulation system.³⁵⁶

A major disadvantage of adherence to the concept of control & veiling, in conjunction with the complex form of SIRA, seems to be a need for resources. Many operators are needed to man SIRA. It takes a full day of training, with five lectures, to learn how to work as an operator with SIRA. However, regarding the education of officer cadets, all officer cadets are at some point used as operators. When officer cadets are used as operators they are, however, not considered part of the training audience. This use of officer cadets as operators is sometimes a source of complaint by the officer cadets since it takes time to learn how to operate the system. From a cost and benefit perspective there is, on the other hand, no need for a standing staff of operators, nor extensive and costly computer graphics to enhance

³⁵⁵ Interview: Knorr, 2015-04-14.

³⁵⁶ Interview: Gonnermann, 2015-04-13.

visualisation for the training audience. The company behind SIRA, *CAE Elektronik GmbH*, could provide enhanced 3D graphics for SIRA but this option is not used.³⁵⁷

In essence, SIRA allows the training audience to focus on decision-making, by providing computer-based adjudication and a control and command system for the 'Director' to control the exercise. The game director handles frictions that occur during a session by a halt and restart procedure. A restart may entail a complete restart, or from a certain historical point in the scenario, or just unpause and continue. It is up to the game director to decide.³⁵⁸ This control lessens a general disadvantage about computer-based wargames, namely the possibility of unwanted effects by a simple push of the wrong button. The 'Director' has the power and means to correct any serious mistake by the operators, without the training audience even knowing about it.

The use of SiTA at the Officer School in general follows the principles of SIRA. However, in SiTA only the Battalion Commander in a group of eight officer cadets is veiled from the computer system. The rest of the officer cadets work directly with the system. On the other hand, the central player ('military leader') is the Battalion Commander and since he or she *is* veiled, the entire wargaming session is influenced. Inference of control & veiling in SiTA is reinforced by the firm control of the game director and the indicator that 'free play' is not allowed. While SiTA is arguably not such a clear-cut case of control & veiling as SIRA regarding the physical aspect of veiling, the property suppression of gamification is evidently present in a SiTA-session.

Simple standardising

Both SIRA and SiTA are named 'simulation-based exercises' and not 'wargames'. This is an indicator of the attitude 'we do not do wargaming here', which entails the adherence to control & veiling rather than simple standardising. However, the given reason for the referral to 'simulation-based exercise' rather than to 'wargaming' is that there exists a common and doctrinal view of wargaming as a COA-comparison analytical method. Such wargaming is not considered part of the standardised military decision-making process in the German Army. Since wargaming is not doctrinally a part of that process, COA-comparison is very limited at the tactical level because of limited time for planning: wargaming is simply 'not conducted' at the Officer School. Accordingly, 'wargaming' is supposedly only conducted at the Command and Staff College (III), which is the 'right level' for the use of COA-comparison analytical methods in officer education.³⁵⁹

³⁵⁷ Interview: Gonnermann, 2015-04-13.

³⁵⁸ Interview: Gonnermann, 2015-04-13, and, Observation, 2015-04-14.

³⁵⁹ Interview: Michel, 2015-04-14.

The situation of 'wargaming' not explicitly constituting a part of the German military decision-making process makes it problematic to argue that simple standardising is a concept that instructor can adhere to in order to achieve **instructor buy-in** at the Officer School. This issue is, however, distorted by how the German Army uses a narrower definition of wargaming. While SIRA and SiTA are officially not referred to as 'wargaming', both simulations fall within this thesis's definition of educational wargaming. What contributes to a narrower definition in Germany is not only that the English term 'wargaming' is considered to be a doctrinally COA-comparison method. The avoidance also stems from the fact that the German word *Kriegsspiel* is not a politically correct word in contemporary Germany. Since both doctrine and political correctness limit the use of 'wargaming' as a term of reference, one consequence is less contemporary knowledge of wargaming as an educational method than it was historically the case in the Germany army.³⁶⁰

What does, however, indicate support for simple standardising are indicators of the property adherence to doctrine. The army officer education in Germany is regulated by manuals connected to doctrine and instead of wargaming for planning, such as COA-wargaming, the focus is on 'simulation-based exercises' for execution-training: in other words, tactical challenges. This approach is directed by the Chief of the German Army, who has declared that officer education is to cover principles of kinetic warfare.³⁶¹ To achieve the learning objectives entailed by this approach, SIRA and SiTA are considered very important systems for the army's educational schools as well as for army units in general. Under the firm control of a 'Director', such 'simulation-based exercises' are considered to be high frequency exercises.³⁶² With SIRA, however, the training audience arguably uses rapid decision-making and not a military decision-making process. This would indicate a less doctrinal use than what simple standardising would suppose, especially since it is arguably possible for the training audience to actually use the military decision-making process since it is only a quick 15 minute process. This non-use has been criticised by sceptics of SIRA. On the other hand, positive experiences from SIRA have transformed many sceptics into supporters.³⁶³ This support may, however, be the result of an organisational hierarchy that institutionally promotes SIRA – 'everyone has to do it'. The tradition of using SIRA and SiTA at the Officer School involves every class, all officer cadets and all the classroom teachers. This indicates adherence to doctrine, meaning that everyone should use a common form of wargaming supported by doctrine. This support can be said to exist in the established principle of teaching on tactical levels. The principle covers four different and distinctive steps and one of these

³⁶⁰ Interview: Michel, 2015-04-14.

³⁶¹ Interview: Michel, 2015-04-14.

³⁶² Interview: Stuber, 2015-04-14.

³⁶³ Interview: Knorr, 2015-04-14.

steps explicitly concerns ‘simulation-based exercises’. Such exercises are consequently part of the curriculum at the Officer School.³⁶⁴

While available during the entire officer educational system, SIRA is perhaps less used than what adherence to simple standardising would entail. One instructor mentioned that he personally only used SIRA two times during his basic officer education: once during the OF2 course and once at a subsequent branch school (Platoon Commander Course). On the other hand, it is envisaged that a German Army Battalion should participate in one SIRA-exercise once or twice every year. This arguably indicates that every officer has the ability to manage SIRA. However, only one or two classroom teachers at the Officer School are *experienced* in how to use SIRA. Hence, this limitation became a challenge when the Officer School’s leadership decided that each Officer Cadet Company Commander should serve as the ‘Director’ during a SIRA-session with his officer cadets. Not every commander had previous experience of being a classroom teacher, and were thus not used to working with the SIRA-system. Instead, the classroom teacher, who is also considered the *expert*, does most of the work. For this reason, the most experienced of the classroom teachers in the Officer Cadet Company is likely to run the SIRA-session as ‘Director’. Sometimes, however, a more experienced classroom teacher from another Officer Cadet Company is used as ‘Director’.³⁶⁵

The use of a few individual classroom teachers, in the role of *experts*, to actually run the system arguably indicates less reliance on simple standardising. There exists a formal preparation module for classroom teachers on how to run SIRA. However, not every teacher seems to attend that module. Instead, some of the teachers teach themselves by learning from other teachers. This informal system of seniors helping juniors is an indicator of simplicity, as it is possible for anyone with interest to learn how to use the system without any major formal training. This exchange of informal knowledge is stimulated by the fact that in both SIRA and SiTA no manuals exist on how to act as ‘Director’. Hence, the best way is to learn from colleagues – experienced classroom teachers therefore teach less-experienced class teachers.³⁶⁶ As a classroom teacher usually stays for 2-3 years at the Officer School, they have to learn how to improve their ways of acting as a ‘Director’ from each other.³⁶⁷ Accordingly, while both SIRA and SiTA are sufficiently complex to be exclusively used in a dedicated facility and an equipped classroom respectively, incidents nonetheless link them to the property simplicity concerning how instructors actually learn to conduct wargaming.

³⁶⁴ Interview: Michel, 2015-04-14.

³⁶⁵ Interview: Knorr, 2015-04-14.

³⁶⁶ Interview: Knorr, 2015-04-14.

³⁶⁷ Interview: Nöhmeier, 2015-04-14.

The main reason why simple standardising may seem less relevant at the Officer School is that 'wargaming' in general, and SIRA in particular, are not included in the formal decision-making process. One instructor explained that this is mostly because of a perceived lack of time – wargaming is often seen as taking up too much time during the decision-making process.³⁶⁸ The indicator in simple standardising of an attitude of 'we have to do wargaming' may thus be considered of less relevance. On the other hand, every class of officer cadets has to do one SIRA 'simulation-based exercise' as well as several SiTA-sessions, run by the classroom teachers. However, the wargaming form used in SIRA is not based on the property of simplicity, which would, for example, entail an open map-based wargame in ordinary classrooms. Instead, SIRA is dependent on special facilities and is conducted as a computer-supported wargame with software for communication, visualisation and combat adjudication. In addition, SIRA is built on a premise of a one-to-one proportion between the training audience (the 'military leaders') and trainers/operators.

Innovative active learning

An indicator of individual innovativeness would be independent wargaming practices by certain individuals, such as classroom teachers. However, there do not seem to be any extra wargaming activities at the Officer School besides the two organisationally centralised and strictly coordinated activities of SIRA and SiTA. This is not to say that individual teachers at the Officer School are unable to conduct their own teaching methods within the curriculum. Nonetheless, despite the presence of a small (1x1m) sand table in each classroom and the availability of a total sum of 40 EUROS per year for each class to buy extra teaching aids, such as small tank models, potential simple map-based wargames apparently do not occur. The lack of regulations in the use of sand table in classrooms means that this activity is not mandatory. One teacher, for example, does not use sand tables in the classroom at all. However, the utilisation of a sand table is seemingly a common feature and a tool for utilisation outdoors in the real terrain during 'terrain walks'. There is, however, no outdoor standard set of sand tables. Therefore each Officer Cadet Company buys their own miniatures for visualisation – 'everyone does what they prefer'.³⁶⁹ Nonetheless, the use of sand tables is seemingly mainly for visualisation and not as a form for wargaming.

A second indicator of individual innovativeness is that an individual has the power to significantly modify a wargaming form. This is not the case with either SIRA or SiTA. However, what *does* occur is that 'Directors' have a free hand in directing their SIRA- and SiTA-sessions. This form of control is

³⁶⁸ Interview: Nöhmeier, 2015-04-14.

³⁶⁹ Interview: Nöhmeier, 2015-04-14.

specifically *when* to pause the wargame and *what* to then bring up to the attention of the training audience, and finally, from *where* to restart the wargame. Hence the 'Director' controls the process to a very extensive extent, in SiTA even more so than in SIRA.³⁷⁰ Since the 'Director' wields the power of control this also allows some experimentation, particular in SiTA. In conjunction with the fact that SITA costs less and is much quicker than SIRA, SiTA is even considered by some teachers to be a good tool for 'wargaming'. In this aspect, SiTA does not have to be realistic in every part.³⁷¹ Nonetheless, this form of control is not an indication of individual modification.

The option to allow for some experimentation, particular in SiTA, raises the possibility of the use of gamification. However, the attitude that 'free play' is to be avoided negates competition, an indicator of promotion of gamification. This attitude is attributed to the potential passive stance of 'see what happens' in a scenario, which is said to be an 'old-traditional' way of conducting wargaming. Instead, 'objective-oriented training' is used to connect to learning objectives. This may indicate suppression, rather than promotion, of gamification. Such an inference is supported by fully double-sided exercises, meaning two equally manned opposing sides, not being done with the officer cadets. Such a wargaming form is deemed to cause more uncertainty in regard to reaching learning goals, and hence it is not conducted.³⁷²

There are, however, indications of innovative active learning at this initial level of officer education. This, however, concerns only a handful of officer cadets at one minor course given during the four year interregnum at the Bundeswehr Universities. The course is conducted at the Helmut Schmidt University in Hamburg. This example offers two indicators of innovative active learning. First, one individual, Colonel Uwe Heilmann, is influential in this use of COTS board games in officer education.³⁷³ Secondly, there are clear links to game-based learning since the use of commercial board games at Helmut Schmidt University seem to adhere to innovative active learning by the reference to the activity as 'serious games' and consequently to game-based learning.³⁷⁴ However, few officer cadets are exposed to this kind of learning. Likewise, the Model United Nations, a 'Planspiel' that simulates diplomacy within the United Nations, only accepted 15 participants from the Bundeswehr University in München in 2012.³⁷⁵ Accordingly, few officer cadets are exposed to what can only be termed as exceptions in army educational wargaming forms at this level (I) in Germany.

³⁷⁰ Observation, 2015-04-14, and, Interview: Nöhmeier, 2015-04-14.

³⁷¹ Interview: Nöhmeier, 2015-04-14.

³⁷² Interview: Gonnermann, 2015-04-13.

³⁷³ Email: Fügenschuh, 2015-10-20.

³⁷⁴ Fügenschuh & Müllenstedt (2015).

³⁷⁵ Bundeswehr (2013).

5.2 Das Gefechtssimulationzentrum des Heeres

The German Army Warfighting Simulation Centre, *Das Gefechtssimulationzentrum des Heeres*, is a major actor regarding the use of constructive simulations in the German Army. The focus is on educating officers. This is done by bringing personnel from army units to the centre in order to man the simulation systems. The training audience does not consist of entire units but is limited to the unit's commander and his staff. The Army Warfighting Simulation Centre's educational activities are limited to providing support to army units, which are supposed to bring their own key personnel, such as 'Director' to the 'simulation-based exercise'. Besides some personnel provided by the Army Warfighting Simulation Centre, to man special gaming cells such as OPFOR (Opposing Force), units are supposed to bring all necessary personnel to man key positions and cells, such as HICON (Higher Command) and LOCON (Lower Control), to support the training audience. In essence, the Army Warfighting Simulation Centre provides support rather than a complete educational and training package. This support consists of the actual form of wargaming: the type of simulation system to be used and the structure of the 'simulation-based exercise'. The Army Warfighting Simulation Centre specifically relies on four 'pillars' to provide this support: computer-based simulation systems, (some) personnel, the physical facilities and the necessary IT-support to run an exercise.³⁷⁶

Contemporary wargaming

The Army Warfighting Simulation Centre's main tool for education consists of constructive simulations. Two constructive simulations are used: KORA (*Korpsrahmen Simulationsmodell zur Offizierausbildung*) for Corps and Divisions, and SIRA (*Simulationssystem zur Unterstützung von Rahmenübungen*) for Brigades and Battalions. In addition, VBS (*Virtual Battlespace*), a virtual simulation, is specifically used by Company Commanders to train their Platoon Commanders. All activities by the above simulations are referred to as 'simulation-based exercises', with the explicit purpose of providing training for tactical/operational commanders and their staff in realistic conditions. A major limitation in the use of simulations at the Army Warfighting Simulation Centre seems to be a lack of personnel, even though external visiting units supposedly staff various positions such as 'Director', HICON and LOCON. This deficiency means that the Army Warfighting Simulation Centre does not conduct two 'simulation-based exercises' at the same time. Even with such limitations, the Army Warfighting Simulation Centre annually provides support to the following 'simulation-based exercises' with constructive simulations: 4-5 brigade exercises (SIRA), 1-2 divisional exercises (KORA) and 1 corps exercises (KORA).³⁷⁷

³⁷⁶ German Army Warfighting Simulation Centre (2015).

³⁷⁷ German Army Warfighting Simulation Centre (2015).

The principle adhered to when KORA and SIRA are used is that the training audience never actually sees the simulation system. Consequently, it is considered that the training audience does not 'play' since they only act on reports, the majority coming from their own LOCON. One of the reasons for this principle is the basic belief in 'train as you fight'.³⁷⁸ There are, however, some major differences between the use of KORA (Corps and Division levels) and SIRA (Brigade and Battalion levels). For example, SIRA requires much more personnel in terms of operators. KORA requires 12-16 operators per Brigade while, in comparison, SIRA requires 40-50 operators. On the other hand, SIRA has the flexibility to create your own weapons/vehicles. SIRA models every single vehicle while KORA uses aggregate units as symbols that represent platoons or companies rather than individual vehicles. Hence, the main difference between the systems is their focus on different tactical levels: SIRA, at a lower level, is less aggregated and hence requires more resources when used.

The role of the Army Warfighting Simulation Centre is to function as a facilitator for simulation-based exercises. For this reason, the centre trains the operators from the visiting units with the simulation system just before the scheduled exercise. Besides the simulation system itself, a real and operational C3I (Command, Control and Communication & Intelligence) system is used. For example, during a KORA-exercise, an 'operator' runs the simulation system (KORA) while a 'planner' (a LOCON unit commander) runs the C3I system. Data is transferred automatically between those two systems. Control is done by a 'Director'. The 'Director' is considered to be 'the spider in the web' and steers all the cells – OPFOR, SITFOR (Situational Forces), the White cell, HICON and LOCON – besides the training audience itself. A prominent feature is that the absolute majority of personnel in every cell, as well as the 'Director', are from the unit and not from the Army Warfighting Simulation Centre.³⁷⁹

In addition to the constructive simulations SIRA and KORA, the virtual simulation VBS is in use since 2012. One example of how VBS is used is from late 2014, when a mechanised infantry company visited for a total of three weeks. Each of the company's three platoons spent one week of exercising with VBS. The military leader that was trained was the Platoon Commander. The Army Warfighting Simulation Centre provided support, but was not responsible for the actual context of this exercise. The exercise used four rooms, each with four workstations. The Company Commander (the 'Director') functioned as an overwatcher for one of his Platoon Commanders, who commanded his Section Leaders. Real people controlled OPFOR since the use of artificial intelligence (AI) is minimised. The reason is that the behaviour of AI is generally considered to be illogical, and hence unrealistic. An OPFOR-team in VBS consists of 3-4 individuals, either from the unit or from the support staff at the

³⁷⁸ German Army Warfighting Simulation Centre (2015).

³⁷⁹ Interview: Neuber, 2015-04-16.

Centre. In this example, to allow the training audience to run the VBS themselves without intermediate operators, three hours of pre-training was provided. During this pre-training the Centre emphasised that VBS is not a computer game but a 'serious simulation'.³⁸⁰

The use of similar simulation systems seems predominant at the intermediate level. Besides the Army Warfighting Simulation Centre, the Infantry School in Hammelburg utilises SIRA and to some extent SiTA. This use of constructive simulations for simulation-based exercises is similar to the Officer School. In Hammelburg SiTA is used to educate officers about the infantry branch while SIRA is used for operational army units.³⁸¹ While there is some use of VBS at the intermediate level the focus is not on officers but on soldiers. This is, for example, the case at the army training facilities in Münster.³⁸² Notably, many of the actual educational courses for officers at the intermediate level are actually conducted at the Officer School in Dresden and not at the Infantry School. For example: the Company Commander Course, perhaps the most noteworthy and comparative intermediate course for army officers situated between the basic educational level for officer cadets and the more advanced professional education level of a staff college, is conducted at the Officer School. The Company Commander Course, for first lieutenants and captains, is only two weeks long, which is comparatively short. However, during the two weeks the military students use SIRA for two days, which is a major part of the actual course.³⁸³

Control & veiling

Concerns over unrealism seem prioritised at the Army Warfighting Simulation Centre. The purpose of each computer-based simulation system is to produce a realistic representation of time and space. To increase the perception of realism, and hence credibility, any sort of artificial intelligence (AI) is thoroughly rejected. One explicit viewpoint is that AI cannot portray the human brain. In view of that, human activity within the exercise needs to be credible in order to be accepted by unit commanders. Results produced by only computers are simply 'not accepted'. This concern is, however, not one-dimensional since human factors, such as luck, are perceived to be difficult to model.³⁸⁴ This explicit concern corroborates with the concept of control & veiling, which, instead of relying on the simulation system, relies on a 'Director' to control the process. In addition, physical veiling prevents the training audience from becoming disturbed by results from a computer-based simulation system. The veiling

³⁸⁰ Observation: 2015-04-16.

³⁸¹ Interview: Gonnermann, 2015-04-13.

³⁸² Interview: Nöhmeier, 2015-04-14.

³⁸³ Interview: Knorr, 2015-04-14.

³⁸⁴ Interview: Neuber, 2015-04-16.

allows the 'Director' to separately contemplate how to handle issues that are likely to be perceived as unrealistic without feeling immediate pressure from the training audience.

One indicator of the property suppression of gamification is that the activity is not considered 'wargaming'. This is indicated in the attitude that 'we do not do wargaming here'. This attitude exists at the Army Warfighting Simulation Centre since 'wargaming' was explained as specific wargaming forms (COA and discussion-based) conducted at higher levels. The specific reference of higher levels was the Command and Staff College (III).³⁸⁵ Accordingly, there is a perceived difference between 'simulation-based exercises' and 'wargaming'. It can be argued that the use of VBS differs from SIRA and KORA since the former is named a virtual simulation while the latter two are referred to as constructive simulations. Another difference is that using VBS is working at a lower tactical level, where a Platoon Commander constitutes the main training audience, rather than the levels of Brigade/Battalion in SIRA, and Corps/Division in KORA. Accordingly, such differences may indicate potential incidents of gamification in the use of VBS. However, the opposite seems to be the case. VBS is referred to as a 'serious simulation' – and not as a 'serious game' – which indicates a suppression of gamification, such as any form of 'free play', fun and competition. Furthermore, the organised layout of a VBS-exercise involves different rooms rather than one large gaming hall. This physical separation indicates that VBS is similar to SIRA and KORA regarding the control aspect of the 'Director'.

Simple standardising

In the German Army 'wargaming' denotes 'comparing different options on maps and whiteboards'. This kind of wargaming is supposedly learned at the Command and Staff College. Accordingly, it is not normally conducted at the Army Warfighting Simulation Centre, where all simulations are done in real-time.³⁸⁶ At the tactical level, the German Army provides a clear definition of wargaming in official doctrine, specifically the Land Forces Command and Control System, *Führungssystem der Landstreitkräfte* (2010). The purpose is to analyse your own courses of action (COA). The exact method on how to do this kind of wargaming is not explicitly mentioned in the German documents. Instead, the wargaming form is referred to NATO documents. At the operational level, the wargaming form is focused on role-play (red vs. blue side). This is a method based on the COPD (*Comprehensive Operational Planning Doctrine*) in NATO, and is practised as an 'interactive talk' for one day at the Command and Staff College.³⁸⁷ The purpose and form of this wargaming differ from the historical

³⁸⁵ German Army Warfighting Simulation Centre (2015).

³⁸⁶ Interview: Neuber, 2015-04-16.

³⁸⁷ Interview: Neuber, 2015-04-16.

German use of *Kriegsspiel*, which was an integrated part in military education as well as planning.³⁸⁸ Still, while 'wargaming' is seen as a specific method for higher levels, indications of adherence to doctrine exist in the sense that 'simulation-based exercises' are systematically conducted for all units, and hence all officers. One incident in particular that supports this inference is that units themselves are responsible for their simulation-based exercises. This indicates an attitude that 'we have to do wargaming'. In Germany, though, the correct phrase is 'we have to do simulation-based exercising'.

The role of the game director, and what kind of individuals serve as game directors, is an indicator that concerns both simple standardising and control & veiling. At the Army Warfighting Simulation Centre, the role of the 'Director' and his ability to steer the exercise towards the learning objectives is a central feature of the three computer-based simulations. This is somewhat similar to the command training facility (LTA) and the 'command training exercise' (LTÖ) in Sweden, albeit in the case of Germany, a unit actually brings its own 'Director'. Regarding the German Army Warfighting Simulation Centre, the use of many individuals rather than a few selective experts as 'Director' is one indicator of simple standardising. Hence, each unit attends and controls their exercise, albeit with some expertise support from the Army Warfighting Simulation Centre. This expertise support means, however, that there is an existing framework on how to conduct an appropriate 'simulation-based exercise'. This rigidity is reinforced by limitations, such as a limited number of computers, the number of available facilities and the relatively few support personnel, who altogether act as a framework on how to conduct the exercise. The requirements for support personnel are, for example, so substantial that only one simulation-based exercise can run at the same time.³⁸⁹ This does not indicate simplicity as this form of wargaming cannot be set up with short notice: a simulation-based exercise is the result of long preparation and planning which requires expertise in support personnel as well as computers and prepared facilities. It is not a form of wargaming that 'works in the field' with ordinary maps.

The system of units bringing their own operators, who receive a short preparative course for operators at the Army Warfighting Simulation Centre, seems efficient and in line with simplicity. The simulation-based exercises of KORA, SIRA and VBS are arguably efficient simulation systems when officers who have recent experience of the system operate it. This should also be the case, since every army officer cadet becomes trained to operate SIRA at the Officer School. However, one instructor only used SIRA once after the Officer School (OF2), which may indicate that the amount of veiling is deterring learning how to operate the system – at least for the training audience. Consequently, it is considered a waste of time to have more senior officers as operators of SIRA. For example, during a three week course for

³⁸⁸ Vego (2012).

³⁸⁹ Interview: Neuber, 2015-04-16.

staff officers in 2014 at the Officer School a SIRA exercise was cancelled as it was deemed unsatisfactory to spend an entire day to learn how to operate the system. Hence, a major perceived drawback of the 'simulation-based exercise' is the need to provide operators. Full-time expert operators are simply not an option due to cost-effectiveness since they would only be needed for a limited number of days each year.³⁹⁰ At the Army Warfighting Simulation Centre, operators provided by each unit solve this problem. While this level of participation is arguably an indicator of simplicity, a 'simulation-based exercise' is far from simple.

Innovative active learning

The emblem of the Army Warfighting Simulation Centre indicates the possibility of an awareness of the game aspect since it depicts a chess playing piece superimposed on a background of two crossed swords. However, there are few signs of any reliance on gamification. In fact, gamification is arguably suppressed rather than promoted. In comparison to KORA and SIRA, the training audience has direct access to VBS. The use of VBS is, however, referred to not as a computer game but as a 'serious simulation'. This term is, however, not similar to 'serious games' – the opposite is true: 'free-play' with VBS is not allowed as this is seen as 'non-serious'.³⁹¹



Illustration no. 8: the Coat of Arms of *Das Gefechtssimulationzentrum des Heeres*.³⁹²

Incidents of certain limitations by the Army Warfighting Simulation Centre seem to indicate suppression of gamification. However, there are signs that the visiting units, the entities responsible for their exercise, have different views. Some, if not most, seem to be willing to increase the level of

³⁹⁰ Interview: Knorr, 2015-04-14.

³⁹¹ Observation: 2015-04-16.

³⁹² Deutsche Heer (2015).

gamification in various forms. Since 2013, high intensity warfare scenarios have become the main effort rather than low intensity counter-insurgency ones. In those high intensity scenarios, the unit commander responsible for the exercise wants 'free play' rather than a scripted result. This kind of 'free play' is, however, limited and not a proper double-sided exercise where OPFOR is equally manned. Thus, 'free play' is more about letting an event play out rather than having a scripted result. Gamification, such as the question of 'winning or losing', is deemed a side product rather than an integrated part of the process. It is possible to conduct double-sided exercises but it is not done. This is a deliberate choice for the reason that OPFOR is seen as a tool to achieve the objective of the exercise, and not to test and consequently criticise commanders' performances.³⁹³ For this particular reason, gamification is suppressed rather than promoted.

³⁹³ Interview: Neuber, 2015-04-16.

5.3 Die Führungsakademie der Bundeswehr

The Command and Staff College, *Die Führungsakademie der Bundeswehr*, was established in 1957 and represents the highest level of military education in Germany. It has two major courses. The senior course is the General/Admiral Staff Officer Course with about 100 participants and a duration of 24 months (in 2015). The junior course is the Staff Officer Qualification Course. The latter course is much shorter, about three months, and serves as a qualification course for officers to work in a higher staff organisation. Hence, every officer (from the rank of captain) slated for staff duty is assigned to attend this course. Only about 15 percent of that intake is later selected for the General/Admiral Staff Officer Course, which is the literal flagship course of the Command and Staff College. At the General/Admiral Staff Officers Course, the students study all three levels: the strategic, the operational and the tactical levels (army: Division/Brigade). In essence, the General/Admiral Staff Officer Course is a course in 'military doctrine'. There are also some additional minor courses: a subsequent course to the Staff Officer Qualification Course is the Junior Staff Officer Course. It is, however, only three weeks long. Besides the military courses above there are a variety of modules and seminars for officers and civilian leadership personnel, for example, leadership.³⁹⁴

Contemporary wargaming

The wargaming conducted at the Command and Staff College has a distinct position in the German Army, since by all accounts it is here that 'wargaming' is taught and practised.³⁹⁵ In 2004-06, the College published guidelines on 'operational wargaming' for the General/Admiral Staff Officer Course. Those guidelines were introduced by General Helge Hansen, and offer a contemporary foundation on two matters regarding the utilisation of wargaming. The first matter is a definition of wargaming, and the second matter refers to how wargaming should be conducted. 'Wargaming' is seen as 'an analysis technique and used to assess friendly courses of action.'³⁹⁶ This form of wargaming is seen as wargaming within the NATO planning process, and consequently it is deemed necessary for the Bundeswehr to be proficient in this form of wargaming, as most future operations are deemed to be done in co-operation with other NATO-countries. The wargame methodology, the elementary component of a course of action (COA) wargame, is centred on recurring interaction between two parties, red and blue, in order to develop, compare and improve the blue side's COA. The form is a manual seminar-based form with a fixed process (action/reaction/counter-action) with a 'Coordinator' to prepare the wargaming session, and a 'Director' to run the session.³⁹⁷ A COA-wargame is done within

³⁹⁴ Führungsakademie der Bundeswehr, 2016-02-04.

³⁹⁵ Interview: Michel, 2015-04-14, and, German Army Warfighting Simulation Centre (2015).

³⁹⁶ Führungsakademie der Bundeswehr (2016).

³⁹⁷ Führungsakademie der Bundeswehr (2016).

an ordinary classroom. The photograph depicts a typical COA-wargaming set-up used at the Command and Staff College, with the blue and red sides sitting at different tables facing each other. As the photograph infers, a COA-wargame is an explicit 'wargame' by the manifestation of 'rules' and the acknowledgment that the activity is in fact a 'game'.



Photograph no. 11: COA-wargaming at *Die Führungsakademie* (in 2003).³⁹⁸

At the Command and Staff College in Hamburg, there is a specially designed facility for wargaming, namely Building 11, *Gebäude 11*, also known as the Manfred Wörner Zentrum (MWZ). The building was completed in 2000 as a centre for planning exercises, hence its name in German *Planübungszentrum* (Centre for Planning Exercises). The building encompasses a large auditorium and eight separated planning rooms with as many as 200 computer workplaces for several simulation systems. All technical systems are controlled centrally in one control room, also known as the 'Bridge of the [Starship] Enterprise'. The specifications of building the MWZ were based on a particular system of simulation system, JOANA (Joint Operational Army Navy Air Force Simulation System). However, it is no longer in use. In fact, it was never put into use as each service continues to use their own simulation systems. Compared to the USA, Germany never implemented a joint (land-navy-air force)

³⁹⁸ Interview: Neuber, 2015-04-16.

simulation system for three reasons: high license fee, need for personnel and instructor dissatisfaction.³⁹⁹ Hence, numerous simulation systems exist for each single service.

According to a report in 2013 there are several simulation systems in use at the Manfred Wörner building. These systems are used to support education and are referred to as: constructive simulations, operational analyses, wargaming, decision/planning support and command & information systems. Notably, 'wargaming' is only one label of many. Four computer-based simulation systems support land operations. These four simulation systems are: SimoF, KORA/OA, GAMMA-L/LAMBDA-L and ZETA.⁴⁰⁰ KORA/OA (*Das Korpsrahmen Simulationsmodell zur Offizierausbildung*) is used to support exercises in land operations (Corps to Brigade level), such as the DECISIVE WARRIOR, and COA analysis. SimoF (*Das Simulationsmodell für Übungen operative Führung*) is used at the Corps level. GAMMA-L (*Global Aggregated Model for Military Assessment-Land*) is used to rate different options in a land operation by incorporating all actors, while LAMBDA-L (*Land-Air-Maritime Determination Algorithms-Land*) is used to calculate various data in an army operation on a day-to-day basis. Operational analysts use GAMMA-L and LAMBDA-L during the exercises JOINT ENDEAVOUR I (for concept development) and JOINT ENDEAVOUR II (for campaign synchronisation). This is in line with NATO's COPD (*Comprehensive Operations Planning Directive*). Finally, ZETA (*Zoran Effects Based Tool For Asymmetric Analysis*) is a simulation on a governmental level, dealing with asymmetric threats such as terrorist attacks. ZETA is used by operational analysts to identify risks in order to recommend certain courses of action (COA) during the exercises JOINT ENDEAVOUR I and JOINT ENDEAVOUR II. Yearly utilisation is rather constant and in 2014-2016 was as follows:⁴⁰¹

- KORA/OA: seven exercise days (DECISIVE WARRIOR),
- SimoF: six exercise days,
- GAMMA-L/LAMBDA-L/ZETA: seventeen exercise days (JOINT ENDEAVOUR I and II).

Focus is on supporting exercises with COA-analytical tools to see if a certain COA is feasible.⁴⁰² For example, KORA/OA, designed in the mid-1990s as a force on force simulation, is used for time and space calculation. It visualises assumptions, for example, percentage decreases during a defending battle or a frontal assault. This ability to display the situation is a major advantage of KORA/OA and is done with a 2D map view.⁴⁰³ Another example is the use of SimoF during the exercise COMMON TRAIL in 2013. It was aggregately used and provided overlays for COA-analysis. The simulation was done

³⁹⁹ Interview: Kodalle, 2015-06-23, and, Email: Kodalle, 2016-03-23.

⁴⁰⁰ Die Führungsakademie der Bundeswehr (2013), pp. 6, 13.

⁴⁰¹ Die Führungsakademie der Bundeswehr (2013), pp. 23-33.

⁴⁰² Interview: Kodalle, 2015-06-23.

⁴⁰³ Interview: Kodalle, 2015-06-23.

separately by the different services: the Air Force did their simulation before the Army, and the results were not integrated. One reason for not integrating the simulation systems further is that classroom teachers are not interested since they risk getting personally surprised by the output from the simulations.⁴⁰⁴

Beside the computer-based simulations and COA-wargaming an additional form of wargaming was also discovered: the use of commercial board games in the education of leadership skills. In quantity, this covers one week in the General/Admiral Staff Officer Course as well as one module for both military students from the General/Admiral Staff Officer Course and some well-qualified civilians. This wargaming form was developed by a handful of officers. The form is manual, with two sides who conduct a cycle of actions ('planning – conducting – live with the results'). In comparison, such a sequence of action is rare in other courses and modules at the Command and Staff College. The learning purpose is threefold: team building, practising issuing orders, and experiencing the principle of mission command. In one of the commercial board games used, *Crusader Rex*, which depicts the Third Crusade (1187-1193), the objective is to practise principles of land warfare. Hence, the students may make an assumption based on operational analysis on the consequences of attempting to storm a certain castle, or the consequences of refraining from doing so.⁴⁰⁵

Currently (2015), three different commercial board games are used: *Command and Colors: Ancients* (tactical level, used for three days), *Castle Panic* (for team building only, one afternoon) and *Crusader Rex* (operational level, used during one week).⁴⁰⁶ The reasons the scenarios are distant historical cases is because of Germany's modern history and the Second World War. Wargames about that recent era are deemed non-acceptable in Germany. Some modern fictional games are also unacceptable, such as, for example, a wargame about a contemporary war in East Asia. There exists an underlying, sometimes articulated, obligation to be 'politically correct'. Consequently, wargames which are perceived to risk criticism by the press and/or public are avoided. However, many recently published commercial wargames are acceptable and several of those are sufficiently complex to be used in professional military education in Germany.⁴⁰⁷

⁴⁰⁴ Interview: Kodalle, 2015-06-23.

⁴⁰⁵ Interview: Kodalle, 2015-06-23.

⁴⁰⁶ Interview: Anonymous A2, 2015-06-23.

⁴⁰⁷ Interview: Anonymous A2, and, Anonymous B2, 2015-06-23.



Photograph no. 12: COTS-games in use at *Die Führungsakademie*.⁴⁰⁸

In summary, three forms of wargaming exist at the Command and Staff College. The first is seminar-based COA-wargaming. The second is various computer-based simulations, which seem to be primarily used for COA-analytic support as simulation-based exercises, such as, for example, SiTA at the Officer School. The third form constitutes commercial board games. The impression from interviews and observations is that the initial wargaming forms are in decline, or stagnant, while the third type is on the rise (albeit from a small number).

Control & veiling

Instructors do not consider the various simulations, such as KORA/OA, 'wargaming'. This attitude is one indication of control & veiling. However, the actual use of simulation systems, such as KORA/OA, is not akin to a 'simulation-based exercise' as at the Officer School and the Army Warfighting Simulation Centre. Instead of focusing on decision-making, the focus at the Command and Staff College is on analysis: an external operational analyst inputs data and provides feedback. Specifically, the analyst enters the data of the students' solutions into a simulation system and then sometimes lets the computer run the simulation overnight. Instead of a 'Director', an analyst presents the results. On the other hand, simulation systems provide support for exercises, such as DECISIVE WARRIOR. However, teachers seem disconnected from the simulation process as they lack control over the simulation systems. In fact, it is visiting personnel from the Army Warfighting Simulation Centre that operate the simulation systems. As an additional complicating matter, technical limitations do not

⁴⁰⁸ Observation: 2015-06-23 (photograph by author).

allow data transfer between different computer-based simulation systems. Data has to be transferred manually, which is time consuming and limits the utilisation of simulations.⁴⁰⁹

The absence of physical veiling and instructor control at the Command and Staff College may have reinforced instructors' lack of enthusiasm for the simulation systems. Students sometimes interact with the simulation systems which is a difference compared to the Officer School and the Army Warfighting Simulation Centre. However, this accessibility has arguably contributed to a situation where teachers are concerned about realism: instructors have voiced reservation about combat results generated by the simulation in full view of the students. Consequently, students reportedly do not input data directly into the simulation systems as the teachers are not in favour of that. One reason is that teachers supposedly neglect the output by the simulations systems since the teachers seem to have difficulties accepting results due to perceptions of unrealism. Since the simulations are computer-based, the well-known 'black box syndrome' of computer-based combat calculations is likely to have affected the instructors' perception of unrealism. One interesting remark is, however, that students generally are more used to, and thus more positive to, simulations systems than the teachers, as some systems have been used in recent military operations, such as Afghanistan.⁴¹⁰

Simple standardising

It is up to individual instructors to implement wargaming in the form of COA-wargaming. However, the challenge is not only to 'convince your boss' as a teacher, but also to influence students, in order to be able to introduce and implement wargaming.⁴¹¹ **Instructor buy-in**, while clearly dependent on the individual teacher, is thus also connected to the individual's milieu, which includes hierarchy buy-in and participants' buy-in. Such buy-in connects to adherence to doctrine: existing regulations in the Germany Army on how to do wargaming and when. In comparison to the USA, the German Army's policy is to do COA-wargaming at the operational level, and not at the tactical level. Specifically, 'wargaming' in the German Army is about identifying risks/chance in a specific COA, and not several COAs as in the US Army.⁴¹² One reason for this difference is that wargaming is deemed time-intensive, and that the process is staff-driven in Germany and commander-driven in the USA. Since not everyone is convinced of its value, there is supposedly less wargaming conducted in the German Army. Hence, the German Army seems to have lost old lessons of wargaming. One instructor concluded that 'Germany is the only army that is not using wargaming on a tactical level'. The reasons are that there

⁴⁰⁹ Interview: Kodalle, 2015-06-23.

⁴¹⁰ Interview: Kodalle, 2015-06-23.

⁴¹¹ Interview: Trobisch, 2015-06-23.

⁴¹² US Army (2011), and, German Army (2010), and, Interview: Trobisch, 2015-06-23.

are no clear regulations. Consequently, 'wargaming' does not fit into the German military decision-making process, and as a result there is a lack of trained personnel in 'wargaming'.⁴¹³ In other words, traditional German skills in wargaming are gone. This point was emphasised with the illustration below, which was presented to the author as an example of previous historical and extensive use of wargaming within the German Army.

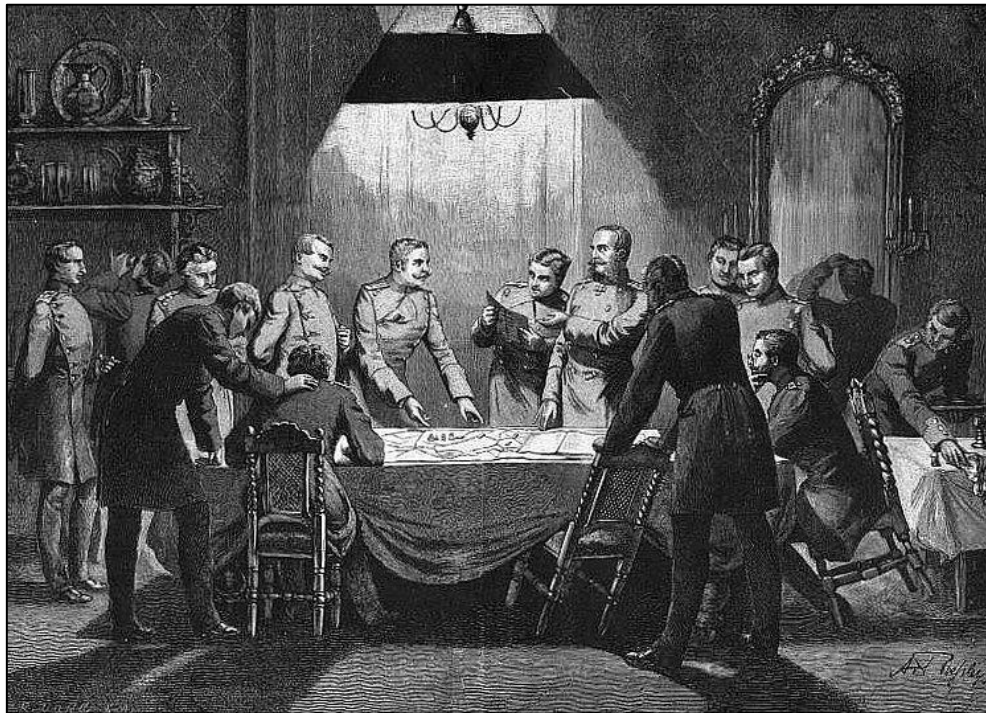


Illustration no. 9: traditional German military wargaming.⁴¹⁴

The use of COA-wargaming at the Command and Staff College seems to be more limited than might have been expected considering the presence of a simulation centre and a well-known manual on COA-wargaming. One example is the education in tactics. While the General/Admiral Staff Officer Course is a joint course, the three services learn tactics separately. There are three blocks within the army department: Corps, Division and Brigade levels. Neither of them contain COA-wargaming. While it is the seminar leaders who decide if wargaming should be used, a lack of time is seen as a major obstacle impeding COA-wargaming.⁴¹⁵ In addition, according to Lieutenant Colonel Kodalle who ran the Manfred Wörner Zentrum in 2006-08 and then again in 2012-14, since 2006 there has been a decline

⁴¹³ Interview: Trobisch, 2015-06-23.

⁴¹⁴ Observation: 2015-06-23.

⁴¹⁵ Interview: Trobisch, 2015-06-23.

in the use of simulation systems at the Command and Staff College. This decline is attributed to staff reluctance and lack of acceptance. This explicitly indicates challenges of achieving **instructor buy-in**. Furthermore, personnel that were trained in using simulation systems in 2006 have since left. Since it is time-consuming to learn how to use simulation systems the knowledge is therefore lost. This then becomes a structural and circular problem: no knowledge in simulation systems means that simulation systems are not used. In conjunction with reorganisation in 2015-16, that saw the Manfred Wörner Zentrum absorbed into the communication section (S-6), use of simulation may diminish even more.⁴¹⁶

This perceived lack of wargaming stands in contrast to clear indicators of the property adherence to doctrine. The manual on COA-wargaming in Germany was written and published at the Command and Staff College as recently as 2004-06.⁴¹⁷ Education on COA-wargaming based on this manual continues at the Command and Staff College. This is in line with the indicator that 'we have to do wargaming'. However, simplicity envisages that 'every officer must manage wargaming'. This does not seem to be the case. In fact, during the study visit to the Command and Staff College, one – only one – officer was named 'the expert' on COA-wargaming.⁴¹⁸ Unfortunately, during the author's visit that officer was not available for an interview. Another inference is that while there are indications of 'we have to do wargaming', it does not seem that any COA-wargaming is done at the tactical level. Instead, the German form of COA-wargaming is applicable to the operational level, and consequently much more limited than would be the case if it were also applicable to tactical levels. In short, while there are potentially ample opportunities to conduct COA-wargaming, there are indications that it is utilised more rarely than the author had envisaged based on previous visits to the Officer School and the Army Warfighting Simulation Centre. One reason may be found in the limited number of personnel with sufficient knowledge of COA-wargaming. However, the main reason behind the limited application seems to be that German doctrine limits the use of 'wargaming'. There are other instructors, with specific knowledge of COA-wargaming, but they do not practise it with their classes. In other words, there is a potential to increase COA-wargaming. This, however, entails a modification in doctrine as well as more simplicity. One German instructor, with knowledge of COA-wargaming at the tactical level in the USA, expressed the following: 'A handbook entails more experts. However, to use such a manual you also need experience.' Simply put, a manual is in itself not enough: you also need personnel who have the ability to make it work, by knowing how wargaming 'really works'.⁴¹⁹ This viewpoint indicates that wargaming is for anyone: accordingly, 'you' as an army officer must be able to do it. Simply put, while relying on doctrine, i.e. manuals and regulations, this adherence must be backed-up by

⁴¹⁶ Interview: Kodalle, 2015-06-23, and, Email: Kodalle, 2016-03-23.

⁴¹⁷ Die Führungsakademie der Bundeswehr (2006).

⁴¹⁸ Interview: Kodalle, 2015-06-23.

⁴¹⁹ Interview: Trobisch, 2015-06-23.

numerous experienced personnel, who are able to conduct and understand the inner workings of a straightforward and regulated form of wargaming. While the German form of operational COA-wargaming is straightforward, the property of simplicity is based on the indicator that every officer has the ability to conduct wargaming. This can be questioned since the operational COA-wargaming is arguably more expert-led than the opposite. In addition, while the operational COA-wargaming practised at the Command and Staff College is arguably in accordance with the property of doctrinal adherence, its use is also constricted by doctrine.

Innovative active learning

Indications of promotion of gamification exist at the Command and Staff College. During the data collection wargaming activities were discovered that were different, compared to the ubiquitous 'simulation-based exercise' at the previous levels (I, II) and to COA-wargaming (III). These activities were the use of COTS board games. This usage is connected to incidents, such as references to articles, individual expertise in games and the phrase 'serious gaming', that indicate the property promotion of gamification. Such incidents were discussed in detail with several instructors, who strongly believed in the usefulness of educational games for learning. The rationale behind the use of commercial (COTS) board games is that in essence they function as a double-sided staff exercise but without any expensive computer simulation system. This viewpoint is attributed to one individual, Colonel Uwe Heilmann, who is described as 'the father of the idea'. This idea is as follows: 'if a board game is good, it can be applied'.⁴²⁰ However, while an application of a board game can be described as a substitute for a computer simulation system for a staff exercise, it is not used in a similar way. In other words, the manual board game is not veiled but put right in front of the training audience. This is because a central feature is the interaction between the game and the players. In other words, the players' symbolic interaction by physically touching game pieces. This physical interaction was compared by one instructor to the use of LEGO blocks in education: 'when the player can actually move units by hand, this creates a feeling that is very important for communication and to explain things'.⁴²¹ This visualisation of game design features explicitly connects to the promotion of gamification.

One indicator of the presence of the property promotion of gamification is the use of theories such as game-based learning: in other words, 'how to learn'. Such connections to theory was indicated in the preference for manual wargames. One example is the utilisation of the COTS wargame *Command & Color: Ancients*. This wargame is organised as a double-sided wargame. Each side's commander (and

⁴²⁰ Interview: Kodalle, 2015-06-23.

⁴²¹ Interview: Anonymous A2, 2015-06-23.

staff) also have subordinate commanders, who are all together in one large room. In one of the conducted games, the commander chose to replace one of his subordinate commanders. The new subordinate commander looked at his forces, paused, and then remarked to the umpire 'The table looks completely different from when I was an onlooker'.⁴²² This emphasis on roles, which often change during the game, and the awareness of winning or losing, have the purpose of getting the players 'out of their comfort zone'.⁴²³ The instructor's subsequent feedback on the player's soft skills seems important. Soft skills encompass, for example, communication, motivation and situational awareness. This feedback is combined with the allowance of failure as a form of learning. This was verbally explained as 'whatever happens during the game stays in the room' – a rule explicitly alluded to an Abbey's 'Rose of Silence'. The basic and underlying concept is to 'try again and fail better'.⁴²⁴ The focus is on 'how to learn' during the process, which in turn generates spin-off effects. For example, in *Crusader Rex* the participants learned the geography of Israel although that was not an articulated learning objective.⁴²⁵ While learning objectives, or expressed training goals, are present in any of the three theoretical concepts, the indicator of innovative active learning concerns the process of the participants' construction of their actions – in German the expression is *Handlung*. While this action-oriented and constructive form of learning is part of 'serious gaming', it is combined with an open admittance that it is alright to play a game, have fun, and learn.⁴²⁶ The instructors interviewed clearly believed this way of learning is how future learning will be constituted and that they are part of a 'grass-root movement' for the use of 'serious gaming' in military education.⁴²⁷

One indicator of individual innovativeness is the implicit, or explicit, expression that 'no one understands wargaming'. This attitude is articulated in this example. For example, one instructor revealed that the word 'play' is hard for their superiors to comprehend. However, in the instructor's view, 'game' means 'play', as in game-based learning. The counter-argument is that 'a soldier does not play games'.⁴²⁸ This argument is overcome by the instructors by reliance on theory, specifically gamification from the civil sector, as a counter-weight.⁴²⁹ A central challenge is to find the 'right balance between play and topic'. Notably, gamification necessitates an emphasis on 'free play' and that the players have to 'live with the results', which are more or less instantly delivered.⁴³⁰ The emphasis on being allowed to fail was brought up repeatedly by the instructors as a big advantage of

⁴²² Interview: Anonymous B2, 2015-06-23.

⁴²³ Interview: Anonymous A2, 2015-06-23.

⁴²⁴ Interview: Anonymous A2, 2015-06-23.

⁴²⁵ Interview: Kodalle, 2015-06-23.

⁴²⁶ Interview: Anonymous B2, 2015-06-23.

⁴²⁷ Interview: Anonymous A2, 2015-06-23.

⁴²⁸ Interview: Anonymous A2, 2015-06-23.

⁴²⁹ Interview: Kodalle, 2015-06-23.

⁴³⁰ Interview: Anonymous A2, 2015-06-23.

this conceptual form of wargaming. This is based on a conviction that there is a steeper learning curve for losers than winners. And, 'losing is natural.'⁴³¹ Furthermore, since two of the board games depict historical conflicts rather than fictional modern ones, participants do not raise the issue of unrealism. The emphasis on doing, and the possibility to fail (and lose), also allows this use of board games for team building. This is considered important since the participants tend to be both military and civilian students.⁴³²

One further indicator of individual innovativeness is the presence of self-design features in the wargaming form. Individual innovativeness is not about taking a commercial wargame 'off the shelf' and putting it to immediate use. Instead, a commercial board game can be modified to a certain extent. For example: instead of the designed one person per side, there are 6-12. Moreover, instead of drawing random combat cards which determine activation of units in *Command & Color: Ancients*, the commander and his staff may choose from every available combat card. One card is selected and then given to the subordinate commanders together with a written note, since verbal communication is not allowed. This rule was implemented to simulate historical battle conditions. However, its practical feature is that it allows observations of the players' behaviour. As one instructor puts it: 'We want to see how the team works [and who will become the leader] (...) In each staff [red and blue] we have two observers, one officer and one civilian psychologist. When they realise something, they can stop the simulation at any time, for a 15 min inbrief. (...) [Since] the game is only a tool, a way to experience. (...) the aim is not to win/lose, if you end in the middle of a battle, then you end there.'⁴³³

While the teachers' views diverge about the amount of instructor control to *steer* the wargame – players' behaviour *drives* the wargame – this usage is nonetheless a good example of a wargaming form centred on individual innovativeness and promotion of gamification. This form of wargaming is used during two occasions (in 2015): one week during the General/Admiral Staff Officer Course and in one independent module. This somewhat limited amount of usage indicates the direct relations to certain instructors, who are knowledgeable in theories of game-based learning and accept the premises of this approach of learning. In other words, they achieve their **instructor buy-in** by adhering to the concept of innovative active learning.

⁴³¹ Interview: Anonymous B2, 2015-06-23.

⁴³² Interview: Kodalle, 2015-06-23.

⁴³³ Interview: Anonymous A2, 2015-06-23.

Conclusion

Two units, the Officer School (I) and the Army Warfighting Simulation Centre (II), indicate adherence to control & veiling. This concerns the use of computer-based simulations (SIRA and SiTA) in the form of 'simulation-based exercise'. The indicator of physical separation – veiling – is clearly present. So is also the control aspect of a 'Director', who suppresses gamification by a 'halt and restart' process. In addition, the attitude of 'we are not doing wargaming here' is another indication of control & veiling. There are two reasons behind this attitude. First, the historical word for wargame, *Kriegsspiel*, is not a politically correct word in today's Germany. Second, the contemporary term 'wargaming' is delimited to course of action (COA) wargaming, which only occurs at the Command and Staff College (III)).

The concept of control & veiling was not the only indicated concept at the Officer School (I) and the Army Warfighting Simulation Centre (II). The property of simplicity, regarding the concept of simple standardising, was indicated in how instructors learn to work as a 'Director'. This concerns the determination that every classroom teacher should be able to work as a 'Director' with SiTA and SIRA. To achieve this, individual instructors learn from each other. Besides simplicity, there were indications of adherence to doctrine since every officer cadet participates in SIRA and SiTA exercises, which are deemed very important in the German Army educational curriculum. Accordingly, while the concept of control & veiling seems to dominate, there are also indications of simple standardising.

The situation at the third embedded unit of analysis, the Command and Staff College (III), is different. Here elements of all three concepts are involved. First, 'wargaming' is formally delimited as COA-wargaming, which is an indicator of adherence to doctrine. However, this doctrinal support was found to limit the use at the tactical level. Consequently, there are few educational occasions with COA-wargaming at the Command and Staff College. In addition, while COA-wargaming by itself is a rather straightforward form of wargaming as it resembles a combination of a seminar- and map-based wargame, conducted within a single room, there were few indications of simplicity. Instead, only one officer at the Command and Staff College was referred to as the 'expert' in COA-wargaming. While adherence to doctrine was clearly indicated, there were less indications of simplicity regarding COA-wargaming

The second example of the Command and Staff College (III) concerns computer-based simulations, which were not used in a similar fashion compared to the Officer School (I) and the Army Warfighting Simulation Centre (II). Instead of decision-making the focus was on analysis. In addition, the simulation systems were visible to students. Teachers were critical of the computer-based simulations because of perceptions of unrealistic combat adjudication. In addition, the individuals who actually worked the simulations were brought in from the Army Warfighting Simulation Centre. The choice not to veil the

simulations, in conjunction with little instructor control over the simulation, are likely to have contributed to non-acceptance among instructors – arguably, **instructor buy-in** was not achieved because control & veiling was not fully implemented. Teachers simply did not accept the results from the simulations and were thus not interested in using them, let alone handling the systems themselves.

The third example from the Command and Staff College (III) concerns how instructors achieve **instructor buy-in** by adherence to the concept of innovative active learning. This adherence was indicated in the use of COTS wargames in the form of modified board games, such as *Crusader Kings*, which cover a historical military campaign. While enthusiastic in their application of game-based learning and promotion of gamification, the instructors were nonetheless wary that other officers would have difficulty accepting this form of wargaming since it has connotations of ‘play’, which is perceived to be non-serious for professional military education. Notably, adherence to the concept of innovative active learning was also found to be the least common concept in Germany.

The results from the exploration of the three embedded analytical units in Germany indicate that one concept dominates a particular form of wargaming. This domination is best exemplified by the computer-based SIRA regarding control & veiling (I and II) and COTS board games regarding innovative active learning (III). It can, however, be stated that educational wargaming activities in German military education for army officers and officer cadets in general occur according to the concept of control & veiling. The major exception is the Command and Staff College (III), where COA-wargaming indicates adherence to simple standardising while the concept of innovative active learning is utilised for instructors to achieve **instructor buy-in** for modified COTS board games. This is not to say that a wargaming form must be exclusively connected to one concept only. For example, the findings demonstrated that it is possible for two or more concepts to exist within the same educational facility and that some wargaming forms, for example SiTA, include indicators of both control & veiling *and* simple standardising. When **instructor buy-in** is not achieved, which was indicated with teachers and computer-based simulations at the Command and Staff College (III), the educational usefulness of these simulations seems to decline – *despite* the presence of a dedicated simulation facility and the use of external experts.

6. United Kingdom

Introduction

The initial step in the British Army's professional military education is the Royal Military Academy Sandhurst (RMAS). After a one-year successful education at RMAS as an officer cadet, the individual receives an officer commission as a second lieutenant. After some years of service at an army regiment, the officer attends various shorter courses at the Land Warfare Centre, for example the Captains Warfare Course. Both the RMAS and the Land Warfare Centre are organisationally part of the Sandhurst Group: two of the three embedded units of analysis in the UK thus belong to the same organisational hierarchy. The third unit is the Joint Services Command and Staff College (JSCSC) where selected officers receive education in tactics and staff work. However, there is also another military educational establishment in the United Kingdom beyond the Joint Command and Staff College. This is the Royal College of Defence Studies. It is not further investigated since it is beyond the scope of education in tactics and educates only a small number of senior officers. Accordingly, the embedded units of analysis in the UK are:

- The Royal Military Academy Sandhurst, RMAS (I),
- The Land Warfare Centre (II),
- The Joint Services Command and Staff College, JSCSC (III).

Since 2003 all three embedded units, the Royal Military Academy Sandhurst, the Land Warfare Centre and the Joint Services Command and Staff College, have been affected by an initiative to promote wargaming. Those efforts became tangible for the author following the initial annual UK Connections wargaming conference in London in 2013, which was arranged by Professor Philip Sabin and Major (reserve) Graham Longley-Brown. The promotion of wargaming is connected to certain individuals, such as, for example, Major General (ret.) Andrew Sharpe, Lieutenant Colonel Ivor Gardiner, Major Tom Mouat and Major (reserve) Graham Longley-Brown, who are outspoken proponents of an increased use of military wargaming.⁴³⁴ The drive towards an increased use of educational wargaming was particularly articulated during a British Army wargaming symposium on 9 May 2014, for British Army officers with the rank of captain or major, at the UK Defence Academy in Shrivenham (in close proximity to the JSCSC). This symposium came about after an initiative by Lieutenant Colonel Ivor Gardiner. Almost 100 army officers were introduced to different wargaming forms during this day, in particular manual wargaming. The purpose was to spread 'best practice' and thus increase the use of

⁴³⁴ UK Connections (2013), and, Gardiner (2016).

wargaming.⁴³⁵ The photograph indicates that this introduction gave every participant a possibility for a quick (15 minutes) hands-on wargame consisting of a double-sided board game designed by Professor Philip Sabin on the German land offensive into France in 1914. The author also participated in this symposium and subsequently, a year later, visited the three embedded units of analysis. The drive for an increased use of military wargaming continued during the entire course of this research. In fact, in august 2017, during the final writing up period for thesis, a doctrinal wargaming handbook was published with Major (reserve) Graham Longley-Brown as the lead author.⁴³⁶ The purpose of the handbook is to introduce wargaming and provide guidance with different examples.⁴³⁷ Those examples, regarding educational wargaming, are covered in this chapter.



Photograph no. 13: The British Army Wargaming Symposium in 2014.⁴³⁸

⁴³⁵ British Army Wargaming Symposium (2014).

⁴³⁶ UK Connections (2017).

⁴³⁷ Ministry of Defence (2017).

⁴³⁸ British Army Wargaming Symposium (2014).

Royal Military Academy Sandhurst (RMAS)

Sandhurst is one of the world's best known military educational establishments for army officer cadets. About 1,000 officer cadets enter Sandhurst per year (three intakes) and more than 80 percent subsequently graduate successfully after the three terms. In total, the length of education constitutes about ten months. The main course at Sandhurst is the Regular Commissioning Course where future officers are 'intellectually grounded'. The Regular Commissioning Course is divided into three terms: junior, intermediate and senior. Each lasts three months. The junior term consists of three modules, provides basic soldier skills and lays the foundation of professionalism. The intermediate term covers two specific modules: offensive and defensive. In this term officer cadets are introduced to military decision-making and the military planning process. Finally, the senior term covers two modules with increased complexity, including stabilisation operations. The academic context is provided by the three academic departments at RMAS: War Studies, Defence and International Affairs, and Communication and Applied Behaviour Science. Formal assessment, however, focuses on the officer cadets' command appointments in exercises. Approximately 46 % of allocated time is spent on exercises that are conducted either outdoors in the field or in classrooms. This combination of military training and academic studies aims to develop a 'keen intellect'. In order to develop this 'intellectual warrior', learning starts with explanations in lectures and expands to the application of practical knowledge in order to further understanding of relevant issues that the officer cadet may face in the future. For example, military history is used to exemplify military decision-making.⁴³⁹

Contemporary wargaming

Based on presentations at the UK Connections wargaming conference in 2013 and 2014, as well as the British Army's wargaming symposium in 2014, there was an expectation by the author that there would be few, if any, examples of contemporary wargaming at Sandhurst. Information prior to the visit indicated an ongoing (2015-2016) initiative to introduce manual forms of wargaming. However, the author discovered an additional form of wargaming during the visit to Sandhurst. During a walk around with one of the military support staff, the author was introduced to facilities that supported a form of exercise that can be considered a form of wargaming. This form utilises eight specially designed classrooms. Each classroom represents a Company Command Post, specifically named 'Coy Ops Room'. Accordingly, the activity was referred to as a 'Coy Ops Room Exercise'.⁴⁴⁰

⁴³⁹ Interview: Anonymous A3, 2015-10-07.

⁴⁴⁰ Observation: 2015-10-07.



Photograph no. 14: the 'Coy Ops Room Exercise'. Visible on the back wall are the two computer screens (VBS) for UAV and ISTAR.⁴⁴¹

A 'Coy Ops Room Exercise' is a form of wargaming since it is a playable simulation for educational purposes. Notably, the 'Coy Ops Room Exercise' was never referred to as a Command Post Exercise (CPX). Instead, it was described as an 'exercise' that relies on a computer-based simulation system, the *Virtual Battlespace* (VBS), to practise communication skills and decision-making. A third purpose of this exercise is pre-training before the start of an outdoor field exercise: the terrain in the simulation covers the same area as the upcoming outdoor field exercise. A fourth and educational purpose, besides practising communication skills, decision-making and pre-training preparation, is that the exercise makes the officer cadets realise how quickly a plan falls to pieces.⁴⁴² The physical layout of a Coy Ops Room involves at least five officer cadets who man the following roles: the second-in-command of the company (2IC) who functions as leader and battle captain; the controller of the Predator UAV (unmanned aerial vehicle) via a VBS-station; the controller of ISTAR (miscellaneous UAV and intelligence assets) via a VBS-station; and two signallers. The other half of the class is in a nearby classroom and controls aggregated platoons in the company: there is one officer cadet per platoon as LOCON. HICON (in this case the Battalion HQ) is played by instructors behind a divider in the same

⁴⁴¹ Observation: 2015-10-07 (photograph by author).

⁴⁴² Observation: 2015-10-07.

sectionalised classroom as the Coy Ops Room. An exercise is run for six hours, and the officer cadets change positions around half-time: Platoon Commanders switch to the Coy Ops room, and the members of the Coy Ops room switch to Platoon Commanders. A 'Coy Ops Room Exercise' is run twice: once during the intermediate term and once during the senior term.⁴⁴³

In 2015 a wargame in the form of a board game was introduced to military instructors in order to be tested before a formal introduction in the curriculum for officer cadets. The name of the wargame was *Exercise Aldershot Skirmish RMAS Wargame*, which can be described as a manual board game akin to traditional hobby wargaming of historical battles. The in-game interaction is focused on the adversarial aspect since there are two players: one plays the blue force while the other plays the red force in a turn-based order. Gamification is explicit in the 'victory conditions', although those are also based on formal military expressions, such as 'destroy' and 'deny'. The map is hexagonally gridded. It is however not an ordinary map with a hexagonally grid superimposed. There are no contour lines on the map as instead hexagons graphically represent different terrain and visualise lines of sight.⁴⁴⁴ *Aldershot Skirmish* was developed for the first module in the second (intermediate) term. The intermediate term is when the officer cadets are to start thinking about decision-making, based on the military planning process. The first module entails four weeks with a focus on offensive actions, followed by an additional four weeks on defensive actions. If the test of the *Aldershot Skirmish* were to go well, there was an impetus to develop another, quite similar wargame, for the defensive module as well. Regarding the third and senior term, where 'human terrain' is introduced, there was supposedly not enough time for wargaming. In addition to this apparent concern of lack of time, the senior term was also deemed 'complex enough'. However, in 2015 the testing of *Aldershot Skirmish* by the instructors did not lead to the implementation of this particular wargame in the intermediate term as planned. Instructors did not like this wargame and consequently it was not used in the module. The reason given for this was that 'in the real world, officers do not use dice and counters. Instead we use sand table and use things in our pockets to mark units.'⁴⁴⁵ For that reason, *Aldershot Skirmish* was deemed not suitable. Instead, wargame development was restarted with a focus on keeping the wargaming form adversarial, but remodelling the wargame to be simpler: i.e. by allowing for potential use in the outdoor terrain with ordinary military maps.⁴⁴⁶

⁴⁴³ Observation: 2015-10-07.

⁴⁴⁴ Farren (2014).

⁴⁴⁵ Interview: Anonymous A3, 2015-10-07.

⁴⁴⁶ Interview: Anonymous A3, 2015-10-07.



Photograph no. 15: a player aid card in *Exercise Aldershot Skirmish*.⁴⁴⁷

Following *Aldershot Skirmish* a subsequent wargame was initiated. This new wargame, *Sandhurst Free Kriegsspiel*, was developed by a different and external individual, Major Tom Mouat, from the Defence Capability Centre with the UK Defence Academy in Shrivenham. Details concerning this development were later publicised by the website PAXsims, which covers military and civilian educational games and simulation-based learning. In regard to the *Sandhurst Free Kriegsspiel*, it made all the files relating to the wargame accessible.⁴⁴⁸ The main part of what was developed, or in fact re-developed, was the application of ‘common-sense rules’. This concerns ideas that offer suggestions on how an instructor may run the wargame, rather than relying on *rigid* rules. The core of the wargame design remains double-sided and adversarial: two opposing teams and each team controls about one platoon of troops. What is new is that this wargame consists of two ordinary (enlarged) maps and some simple counters to represent the units (squads or single vehicle). To immerse the officer cadets in a fog of war the two teams are located with some distance between them, while the instructor moves to each team in turn for adjudication. Each team is organised as a student group with no command structure. Decisions are supposed to be made through team discussions, which entail reaching a ‘consensus after a discussion’. The *Sandhurst Free Kriegsspiel* was run for the first time at Sandhurst with the officer cadets in early 2016. The military instructors were initially trained in the wargame themselves for five hours by Major Mouat in order to function as game directors. The wargame was then implemented immediately after an outdoor tactical exercise without troops (TEWT). Initial feedback from the

⁴⁴⁷ UK Connections (2015), (photograph by author).

⁴⁴⁸ Mouat (2016).

military instructors, who ran the wargame, said that the officer cadets were positive when they engaged with the game. The two-room approach (in reality each team sitting at a different end of the same classroom) was 'surprisingly effective'. However, another instructor remarked that this wargame would not prepare them for the later wargames they would encounter in their army careers, such as at the Land Warfare Centre's Junior Officer Tactical Course (JOTAC) and Captains Warfare Course (CWC) as well as at the Battlegroup and Brigade levels.⁴⁴⁹



Photograph no. 16: the use of *Sandhurst Free Kriegsspiel* at RMAS.⁴⁵⁰

Finally, the curriculum of Sandhurst offers indications of exercises which include role-playing and decision-making. For example, during a well-known study trip to Normandy, the officer cadets are instructed on the historical action of how a German coastal artillery battery was captured by a British battalion during the Normandy landing in June 1944. This example is used to exemplify the need for quick decision-making when faced with an uncertain situation. Therefore, the officer cadets have to run from the historic landing beach to the starting position for the attack and are faced with a similar dilemma: they must develop an improvised plan to capture the battery. As an aid for this task, the officer cadets use the '7-questions combat estimate' which is a decision-making tool used throughout the British Army. After this phase, the story of what really happened historically in 1944, at the same location, is revealed.⁴⁵¹ However, there is no interaction since each officer cadet only presents what orders he or she would issue. This order is then compared to what orders were issued historically. In Sweden military instructors would recognise this kind of activity as a 'verbal combat exercise'. At

⁴⁴⁹ Email: Mouat, 2016-09-08.

⁴⁵⁰ Ministry of Defence (2017), pp. 85-86.

⁴⁵¹ RMAS (2011).

Sandhurst however, the exercise is run by civil academics rather than military instructors.⁴⁵² This activity is not called a wargame and neither would this thesis consider a study trip with no contingent interaction a wargame. In other words, the historical narrative is not a playable simulation. Nor does the 'role-playing' aspect of the study trip to Normandy place it within this thesis's definition of wargaming. In comparison, the 'Coy Ops Room Exercise' is a wargame although it is labelled as something else.

Control & veiling

The name of the 'Coy Ops Room Exercise' is an indicator of the attitude that 'we do not do wargaming'. Furthermore, the indicator of director control is present as the director has a firm grip of the exercise as he is also the HICON, in this scenario the Battalion Commander. As the director is in the same room he can, and will, overhear the main training audience's conversation during their actions. However, such a physical presence does not in itself indicate that a 'halt and restart' process is actually used. The property suppression of gamification is nonetheless further indicated by a physical separation of the simulation system from the training audience. However, this separation is only partially fulfilled. The LOCON (Platoon Commanders) are located in a separate room and are only fed information by the means of a communication system to the Company Command Post. However, the command post has access to the simulation system, VBS, by the means of two workstations that control the UAV and ISTAR video feed. Hence, the visual feeds allow those present in the Company Command Post to receive real-time information about their own forces as well as other actors. Since this is the case, the 'Coy Ops Room Exercise' arguably does not entirely veil the simulation system since the actual visualisation produced by the simulation is not *concealed*. It is only the subordinates themselves, and their views in the simulations, that are hidden.

There are indications that suppression of gamification is present in a 'Coy Ops Room Exercise' since the emphasis is on the exercise being realistic. One indication of this is that instructors, who promote emphasis on realism, play the red cell. For example, the officer cadets have to use real radios to call for medevac, rather than just verbally put that request directly to the adjacent instructor, who represents the Battalion HQ. The temptation to verbally ask teachers in the same room is thus to be avoided by the use of a specific – and realistic – communication system. In combination, the officer cadets in the physical Coy Ops Room are only to observe visually in the wargame what they would observe visually in reality. They must communicate with their LOCON by genuine army

⁴⁵² Interview: Anonymous A3, 2015-10-07.

communications systems. Overall, these efforts can be categorised as ways of handling instructor concerns about the training audience's potentially unrealistic behaviour.

In comparison to the 'Coy Ops Room Exercise', *Aldershot Skirmish* and *Sandhurst Free Kriegsspiel* do not offer indications of control & veiling. Both of these wargaming forms are explicitly exposed to the training audience. While the *Sandhurst Free Kriegsspiel* takes the form of a two-room wargame (typically within the same classroom) the purpose of this physical separation is to increase the fog of war. This separation does not hide the wargame itself from the training audience. While *Aldershot Skirmish* is akin to a hobby manual board game laid out on a table and played with *rigid* rules, *Sandhurst Free Kriegsspiel* is a *free* map-based wargame with two competing teams (red and blue). Hence, while there are differences, there are no indications of the property suppression of gamification in either form. This is because a key element in both wargames is adversarial interaction.

Simple standardising

There seem to exist different views among British Army officers on what a 'wargame' actually is. One inference is that adversarial wargaming, often referred to as '*Kriegsspiel*' by proponents of more wargaming, is not understood within the British Army. Proponents of wargaming describe 'wargaming' as similar to a 'rapid decision-making exercise', where the wargame does three things: 1) allows the plan to be tested in an adversarial environment, 2) makes officers/officer cadets better decision-makers, 3) enhances understanding of doctrine. What is understood among most officers, however, is the use of wargaming to test the validity of a developed plan. This understanding is because of doctrine. For this reason, 'wargaming' in the British Army is an integral part in military planning. This doctrinally supported understanding envisages that a wargame is used as a tool to evaluate one or several courses of action (COAs) within the military planning process. This use of wargaming occurs at the Land Warfare Centre, specifically at the Junior Officer Tactical Course (JOTC) and the Captains Warfare Course (CWC).⁴⁵³ Based on this account, it may be possible to argue that 'testing the plan' is what 'wargaming' at RMA is supposed to do. The reasons are that such a use is supported by doctrine and occurs at the next level of officer education. However, of the three wargaming forms discovered at Sandhurst – 'Coy Ops Room Exercise', *Aldershot Skirmish* and *Sandhurst Free Kriegsspiel* – none seem to be used for evaluation of COAs according to doctrine.

There are indications of a lack of adherence to doctrine regarding potential use of wargaming at Sandhurst. On the other hand, there is support for wargaming from the organisational hierarchy: a

⁴⁵³ Interview: Anonymous A3, 2015-10-07.

statement from the RMAS former Commanding General in 2014 endorsed wargaming as ‘important’. This was stated in conjunction with the display of a photograph of a specific and historic wargaming form (‘Operation SEA LION’) from 1974.⁴⁵⁴ This hierarchical support is in line with the attitude that acknowledges wargaming as ‘something we have to do’. Consequently, this support offers credibility even though such forms of wargaming lack the formal connections to doctrine. On the other hand, this form of hierarchical support for credibility may not be enough for individuals to achieve **instructor buy-in**. For example, *Aldershot Skirmish* may have suffered from a lack of formal doctrinal support in addition to a perception by instructors of being too complicated. In other words, absence of the property simplicity.

In a comparison between *Aldershot Skirmish* and *Sandhurst Free Kriegsspiel* the latter arguably relies on simple standardising to achieve **instructor buy-in**. The property simplicity is arguably a core feature of *Sandhurst Free Kriegsspiel*, which physically consists only of a pair of ordinary maps and a few basic pre-manufactured unit markers. However, since the wargame is to be conducted as a two-room wargame with two teams of about ten officer cadets each, this raises the level of complexity – the instructor must constantly move between the two adversarial teams in order to present the latest positions and possible detection and/or encounter of enemy units. The issue of controlling the wargame in this wargaming form becomes apparent. However, ordinary instructors directed the wargame. Based on the initial feedback from instructors, there does not seem to have been any major setback. Feedback from the military instructors of their initial implementation in 2016 found that most, if not all, instructors managed to successfully run *Sandhurst Free Kriegsspiel*. This seems to have been accomplished by the inclusion of ordinary maps and the *free* combat adjudication, that may be tweaked by each instructor. Furthermore, another indicator of simplicity can be found in the fact that a senior colleague and experienced wargaming instructor, Major Mouat, the wargame designer himself, taught the instructors. This makes this wargame an educational activity that every officer should manage. This inclusiveness is supported by the rulebook that states that an outdoor TEWT (Tactical Exercise Without Troops) is a preparatory activity for a wargame. Accordingly, just like any officer is supposed to manage a TEWT, so they are to conduct a wargame exercise. Since the wargaming form is dependent on the individual instructor, it is reasonable to argue that the form will evolve based on the preferences of the instructor. The rulebook also emphasises that the *Sandhurst Free Kriegsspiel* ‘[is] actively umpired, with decisions being arbitrated on the military experience of the umpire.’ Accordingly, ‘there aren’t any rules per se, just military common sense and a few guidelines’. However, the rulebook also asks: ‘are you senior enough to receive automatic suspension of disbelief?’

⁴⁵⁴ Skeates (2014).

regarding the instructor's direction vis-a-vi the training audience's perception of the wargame.⁴⁵⁵ This affirms the central position of the individual as a director and relevance of the supporting core categories of control, credibility and comfort. For example, one instructor added discussions of details, quite similar to the 'reasoning wargame' in Sweden regarding details about handling weapons, i.e. what can be reasonably expected and where certain weapons are actually located in a specific situation.⁴⁵⁶

In comparison to *Sandhurst Free Kriegsspiel*, neither *Aldershot Skirmish* nor the 'Coy Ops Room Exercise' is synonymous with simplicity. *Aldershot Skirmish* may in theory have been simple to grasp, since it consisted of only a few written pages of rules and a limited number of playable units. Nonetheless, teachers were hesitant to use it. Ultimately, the instructors rejected it. One of the reasons for this rejection might be that its particular form – board game – is not supported by any doctrinal documents. It is simply not part of the 'military culture'.⁴⁵⁷ Hence, it would be relatively unknown and consequently perceived as complicated to most instructors, unless they use such wargames as a hobby and at their own initiative. The 'Coy Ops Room Exercise', on the other hand, is substantially similar to a CPX. Therefore, this configuration is arguably more familiar to officers and thus perceived as less 'complicated'. On the other hand, the arrangement of a 'Coy Ops Room Exercise' is also somewhat complicated since it relies on a multitude of systems (VBS and military communication systems) for realism in order for the participants to experience immersion. Consequently, a 'Coy Ops Room Exercise' is not a simple form of wargaming but a fixed and bulky installation with several integrated systems. On the other hand, it seems that every officer should manage it, which indicates similarity to the *Sandhurst Free Kriegsspiel*.

Innovative active learning

The prototype wargame *Aldershot Skirmish* is a good example of a wargame that offers several indications of the concept of innovative active learning. Promotion of gamification is indicated in several game elements, such as victory conditions and turn sequences. This wargame design also connects to a view, held by some officers, that competition is relevant since it is an indicator for enjoyment and thus good for education.⁴⁵⁸ Competition is a part of gamification, which is evident in the board game form of *Aldershot Skirmish* and the competitiveness of two players facing each other. However, *Aldershot Skirmish* failed to achieve **instructor buy-in** by the military instructors who

⁴⁵⁵ Curry, Price & Farren (2016), pp. 9-16.

⁴⁵⁶ Email : Mouat, 2016-09-08.

⁴⁵⁷ Email: Farren 2017-02-09.

⁴⁵⁸ Gardiner (2016).

evaluated the wargame for the purpose of finding out if it was a good way to teach tactics to the officer cadets. The fact that the military instructors did not approve of *Aldershot Skirmish* is akin to the concern raised in the 19th century by Colonel von Verdy. He believed that ‘a fundamental flaw is exposed when an officer fluent in operations is intimidated by the prospect of administrating a wargame – the dissonance being that if a wargame is truly supposed to train officers for war, how can seasoned officers lack the capability to conduct wargames?’.⁴⁵⁹ Officers are supposed to be experts on combat, if this skill is not transferable into the ability to conduct a wargame, the deductive reasoning entails that such a wargame should not be used. Instead, explicit control mechanisms by a game director to allow control, such as ‘halt and restart’, in order to clarify rules and to avoid drastic results based on misunderstanding the rules seem to be a desired need of military instructors.⁴⁶⁰ This connects to a perceived need to pause and discuss certain issues. Consequently, this would arguably transform the wargaming form into a ‘reasoning wargame’, a form that was exemplified in Sweden, or to a veiled form, such as SIRA in Germany. This need of explicit control indicates that the perception of achieving control of a wargame is essential, which highlights a latent suppression of gamification.

The issue of gamification is somewhat connected to the issue of achieving the right balance in complexity versus simplicity. For military officers, it is sometimes perceived as good to include every small detail instead of too much abstraction. A key general concern extrapolated from a British Army officer tasked to test play the *Aldershot Skirmish* is that ‘complexity gets you engaged but also turns you off’.⁴⁶¹ Notably, this view is from a British officer who is familiar with the relatively complex wargame form of *Advanced Squad Leader* (ASL). This is because his Battalion Commander, Lieutenant Colonel Gardiner, mandated that particular wargame, a COTS hobby wargame in the form of a board game, as an educational tool for officers in his battalion. Lieutenant Colonel Gardiner is a hobby wargamer and decided to use wargames as an educational tool in order to move beyond the ordinary mandated COA-wargaming and to ‘give the enemy a vote’. Notably, however, Lieutenant Colonel Gardiner himself proposes a simpler wargame for Sandhurst rather than the ASL, which he chose because of his familiarity with ASL as a part of his hobby wargaming.⁴⁶² Most officers are ‘non-wargamers’ and thus certain wargaming forms, such as board games, are perceived as too complex and/or alien.⁴⁶³ This potential issue of a perception of too much complexity can be interpreted as detrimental for an instructor to achieve **instructor buy-in**. Complexity is not an unknown issue in educational wargaming. Professor Philip Sabin has described this dichotomy between accuracy and

⁴⁵⁹ Peterson (2012), p. 246.

⁴⁶⁰ Interview: Barrow, 2015-01-15.

⁴⁶¹ Interview: Barrow, 2015-01-15.

⁴⁶² Gardiner (2016).

⁴⁶³ Email: Farren 2017-02-09.

simplicity as a delicate balance since a wargame must be both ‘realistic’ and ‘playable’ for the players to learn.⁴⁶⁴ With such a dichotomy inherent in any wargame design, the successor of *Aldershot Skirmish*, the *Sandhurst Free Kriegsspiel*, leaves it to the instructor to decide the level of complexity. This avoids a *rigid* wargaming form’s inflexible level of complexity inherent in *rigid* rules and/or unfamiliar features, such as victory points, likely to be considered ‘complicated’ by instructors. Nonetheless, both forms feature double-sidedness.

Two particular similarities of the *Sandhurst Free Kriegsspiel* and *Aldershot Skirmish* indicate adherence to the concept of innovative active learning. First, both wargaming forms are designs by an individual military instructor. This is an indicator of individual innovativeness. Second, both forms are centred on the element of double-sided adversarial interaction. *Sandhurst Free Kriegsspiel* requires a two-room configuration and two teams, with one map for the blue side and another map for the red side. Consequently, this increases the adversarial aspect, which is also inherent in the board game design of *Aldershot Skirmish*. This focus on competition indicates promotion of gamification. However, the difference between those two wargame designs is the emphasis on *free* adjudication in *Sandhurst Free Kriegsspiel*. In other words, some key aspects, such as the combat adjudication, are left to the discretion of the instructor, which are thus indications of simplicity. Accordingly, *Sandhurst Free Kriegsspiel* seems to achieve **instructor buy-in** by adhering to innovative active learning in combination with the property simplicity of simple standardising.

Finally, the property promotion of gamification was not discovered regarding the ‘Coy Ops Room Exercise’. There were neither explicit references to learning theories nor any obvious game design elements by individual instructors. The wargaming form is also one-sided as the instructors themselves control and play the red cell. Based on observation of the facilities and a conversation with an instructor, the ‘Coy Ops Room Exercise’ is devoid of explicit gamification.⁴⁶⁵ Nor is there any indication that a certain individual is responsible for the wargaming form. On the contrary, the wargaming form seems enduring with many involved instructors as directors.

⁴⁶⁴ Sabin (2012), pp. 19-28.

⁴⁶⁵ Observation: 2015-10-07.

Land Warfare Centre

The Land Warfare Centre in Warminster was originally the School of Infantry, which then became the Combined Arms School, which later became the Land Warfare Centre. This development is somewhat similar to the history of the Swedish Land Warfare Centre. Both Centres also have a similar focus, which is on the education and training of junior officers as well as entire army units. While there are other army branch schools in the UK their focus is on specialty arms courses – accordingly those schools are ‘schools of trade’. The Land Warfare Centre, on the other hand, has two focus areas: individual career courses and collective training courses. The latter include activities such as CATT, CAST and field training.⁴⁶⁶ CATT stands for Combined Arms Tactical Training, and involves the use of 140 linked vehicle simulators, while CAST stands for Command and Staff Training, which is comparable to ‘command training’ and the use of the computer-based simulation CATS at the Swedish Land Warfare Centre. Regarding the individual career courses there are three major and two minor courses. The three major courses are the JOTC (Junior Officer Tactical Course), the CWC (Captains Warfare Course) and the CATAC (Company Commanders Tactical Course). The additional two minor courses do not involve tactics as they focus on administrative tasks at the battlegroup and brigade level.

Contemporary wargaming

One issue that appeared right away during data collection in the UK relates to the generally vague definition of a ‘wargame’. There is a plethora of activities at the Land Warfare Centre and many of those could potentially be referred to as wargaming activities within the general range of military simulations. While the general attitude in the British Army seems to accept that ‘wargaming’ is a good idea, there is actually no definitions of ‘wargaming’. The closest equivalent to a definition would be found in the widely distributed Staff Officer Handbook. However, only a minor section in this British Army communal handbook concerns wargaming.⁴⁶⁷ Consequently, as was the case with Sandhurst, wargaming activities are possibly referred to as non-wargaming activities. For this reason, the discovered activities at the Land Warfare Centre are contextualised by the application of this thesis’s refined definition of military educational wargaming. While a playable simulation encompass different physical forms, absence of contingent symbolic interaction between participants would negate an educational activity to be considered as a wargaming activity.

Several wargaming activities at the Land Warfare Centre were discovered in the three courses for officers. The initial course, the Junior Officer Tactical Course (JOTAC), covers four to six weeks. Officers

⁴⁶⁶ Interview: Bourne, 2015-10-06.

⁴⁶⁷ Interview: Bourne, 2015-10-06.

attending this course belong to the combat arms: armour/cavalry and infantry. Some officers from the army air corps also attend, in addition to selected artillery and engineer officers. The focus of the JOTAC is to educate Platoon Commanders in the use of different arms. There are supposedly no wargaming activities within JOTAC, which is also the initial course in an educational progression of courses. The second and subsequent course is the Captains Warfare Course (CWC). This course is especially noteworthy for the reason that every captain in the British army enters this course, which lasts for a total of twelve weeks. The CWC is the first instance of formal staff training ('staff duties and tactics') and is an essential step for an officer in order to become an adjutant at a Battlegroup or Brigade headquarters. In the second half of the CWS, COA-wargaming is conducted three times as part of the planning process. The COA-wargaming form is directly linked to the Staff Officer handbook (section 3.6.5) and the focus during a COA-wargame is on force ratio, risk and rewards.⁴⁶⁸ The CWC thus supposedly introduces British Army officers to a doctrinal view of wargaming in the form of COA-wargaming.

The third course is the Company Commanders Tactical Course (CATAC). It was developed from a combined arms tactical course. This course used to cover six weeks, but it has been reduced to only two weeks. There is reportedly no wargaming in this course. One of the reasons seems to be the brevity of the course. However, during discussions on implementing wargaming one major concern was that a future wargame has to be realistic and therefore 'acceptable'. For example, map-based wargaming was deemed to not provide sufficiently good visualisation in comparison to 3D-shaped landscapes with a sand table design. However, the latter form was believed to be too time-consuming to create. While there is an option to use an existing computer-based simulation system, such as VBS or CATS, such a design would entail only one individual being trained in the role of a Company Commander, as these particular computer-based simulation systems require input from many people, for example, to drive individual vehicles.⁴⁶⁹

Existing activities beyond COA-wargaming can be classified as wargaming. This concerns the use of computer-based simulations, which supposedly occur in the JOTAC and the CWC. Instructors do not, however, consider such activities to be 'wargaming'. In JOTAC a computer-based virtual simulation system (VBS or CATS) is utilised. However, there are concerns about inefficiency since most students man supporting roles, such as controlling individual vehicles, rather than engage in decision-making at the proper level of command.⁴⁷⁰ For the CWC, the *Battlegroup Command and Control Training* (BC2T) computer-based simulation is utilised. This constructive simulation allows plans to be tested in the

⁴⁶⁸ Interview: Bourne, 2015-10-06.

⁴⁶⁹ Interview: Bourne, 2015-10-06.

⁴⁷⁰ Interview: Bourne, 2015-10-06.

form of tactical activities, which means that one group of students mans a battlegroup HQ while the majority of the students operate in a separate room as LOCON and different cells, including a small enemy cell. This activity is connected to the COA-wargaming, which is conducted before a BC2T-session. The purpose of BC2T is to execute plans. However, the necessity to operate many roles outside the HQ means that not every student has 'a meaningful role'.⁴⁷¹ Such limitations of computer-based simulations, including too much focus on digital visualisation, can be criticised.⁴⁷² The BC2T, which includes about 20 computer laptops and the BOWMAN communication system, is present at about 50 British Army locations. However, the BC2T is supposedly only used as a simulation at the Land Warfare Centre. This is arguably so because contractors are handling the system at the Land Warfare Centre. Accordingly, the use of external contractors is a way of ensuring that a computer system is actually used as a simulation, since, alternatively, it may not be used at all.⁴⁷³

Besides classroom-based simulations in courses, two large-scale activities are in use for collective training (units and unit headquarters) at the Land Warfare Centre. These systems are connected to two specific training exercises: CATT (Combined Arms Tactical Training), which has a network of 140 vehicle simulators, and CAST (Command and Staff Training), which is used as a command training exercise. CAST is a headquarters (HQ) exercise that uses ABACUS, *Advanced Battlefield Computer System*, a constructive simulation. In comparison to CAST, CATT is a 'battlegroup trainer' with a 'virtual battlefield' that integrates manoeuvre elements with combat support. The main difference between CATT and CAST is that CATT uses vehicle simulators for LOCON to enable input to the main training audience at the Battlegroup level, while CAST uses a constructive simulation that allows four different training levels (Battlegroup, Brigade, Division and Corps).⁴⁷⁴

A third exercise exists which is a combination of CATT and CAST. This third activity is the Combined Staff Tactical Training Exercise (CSTTX). Based on presentations received during a visit to the Land Warfare Centre, it seems that this third activity actually constitutes the main activity, as the other two activities are first and foremost meant for LOCON in order to generate input for the command level in focus for the exercise.⁴⁷⁵ Regarding the CSTTX layout, the Battlegroup Headquarters (BG HQ) – the primary training audience – is physically separated from subordinate units (LOCON) and vehicle crews, who are placed with the vehicle simulators. Hence, in a CSTTX, the virtual battlefield is for LOCON eyes. In addition, *within* a CSTTX a CAST is conducted with the purpose of assessing staff ability to support the unit commander. This is examined during a CSTTX, which usually lasts for three weeks. During the

⁴⁷¹ British Army (2012).

⁴⁷² Interview: Bourne, 2015-10-06.

⁴⁷³ Interview: Mouat, 2015-02-19.

⁴⁷⁴ British Army Land Warfare Centre (2015a), and, British Army Land Warfare Centre (2015b).

⁴⁷⁵ British Army Land Warfare Centre (2015a), and, British Army Land Warfare Centre (2015b).

third week three different planning and execution events occur.⁴⁷⁶ The focus of a CSTTX is to expose the training audience to the ‘friction of execution’.⁴⁷⁷ Based on observation during the visit, there is a small red cell (OPFOR) of one or two operators.⁴⁷⁸ On the blue side there are indications of dynamic interaction between the BG HQ and the LOCON. This dynamic interaction, within the overall adversarial framework, is probably sufficient for this activity to be considered a form of wargame, at least for the primary training audience. On the other hand, use of scripted event-lists would arguably transform the activity into non-wargaming.



Illustration no. 10: overview of the Combined Staff Tactical Training Exercise (CSTTX).⁴⁷⁹

While CATT, CAST and CSTTX belong to a grey zone regarding wargaming activities, ‘wargaming’ actually constitutes an explicit part *within* a CAST as part of planning sessions. This concerns ‘COA-wargaming’, with the purpose of ‘stress-testing’ the developed plan. Such a COA-wargame is conducted in accordance with a doctrinal manual and uses a characteristic action/reaction/counter-

⁴⁷⁶ British Army Land Warfare Centre (2015a).

⁴⁷⁷ British Army Land Warfare Centre (2015b).

⁴⁷⁸ Observation: 2015-10-06.

⁴⁷⁹ British Army Land Warfare Centre (2015b).

action/consolidation and judgement procedure. It also features a 'robust' adversary played by the intelligence section of the visiting HQ.⁴⁸⁰ The presence of an explicit wargame within an overall exercise is not limited to CAST. One interesting feature that CATT uses since 2015 is what can be described as a wargame opportunity *within* the overall activity. A force on force engagement occurs on the last day of the initial visiting week. The battlegroup is divided into two competing teams: one tank and one mechanised coy vs. one tank and one mechanised coy. The reason behind this competitive approach is that it is believed to be beneficial for learning 'since no one likes to lose'. To avoid losing, the participants need to learn how to handle the vehicle simulators. Apparently, the Coy Commanders stimulate the competitiveness by a promise of free beer if their company wins. The belief in the educational effectiveness of competitiveness was likened to the sport of ice hockey: 'if it is a game, and not just training, the focus is not on how to skate but on team play in order to win.' Because of this reasoning by the officer in charge of CATT, this force on force activity was introduced in 2015.⁴⁸¹ A classic force on force simulation is a good example of a wargame session. While CAST, CATT and CSTTX are examples of activities that are only potentially 'wargames' because of the likelihood of limited (and possible scripted) interaction, the discovered 'wargame within a wargame' offers interesting examples. There are also ideas of introducing further wargames. A manual wargame under development, the *Camberley Kriegsspiel*, is contemplated to be used as a wargame activity *within* CAST and/or a CATT, in order to achieve better results and to further understanding of co-ordination, team-training, observation of communication and improvement in tactical performance by replaying, and thus refighting, a bad outcome in *another* wargaming format.⁴⁸²

The CWC is where a manual wargaming form is contemplated to be introduced as 'formal wargaming'. This is an initiative by General Major (ret.) Andrew Sharpe, head of the British Army's Centre for Historical Analysis and Conflict Research (CHACR). General Major (ret.) Sharpe was a key speaker at the British Army wargaming symposium in 2014 where he promoted his views on the necessity of adversarial wargaming.⁴⁸³ The wargame *Camberley Kriegsspiel* was subsequently developed in 2015 and there were plans to introduce it in the CWC in 2016.⁴⁸⁴ This would make it the second increment of wargaming since the initial opportunity for wargaming at the Royal Military Academy Sandhurst. This initial step became the *Sandhurst Free Kriegsspiel* in 2016. The contemplated second step would be the *Camberley Kriegsspiel* while a third potential step concerns another wargame under

⁴⁸⁰ British Army Land Warfare Centre (2015a).

⁴⁸¹ Observation: 2015-10-06.

⁴⁸² Interview: Bourne, 2015-10-06.

⁴⁸³ Sharpe (2014), and, Connections (2013).

⁴⁸⁴ Interview: Bourne, 2015-10-06.

development. This third step involves the potential use of the *Rapid Campaign Analysis Toolset* (RCAT) for junior majors at the Joint Services Command and Staff College (JSCSC).⁴⁸⁵



Photograph no. 17: the prototype of the *Camberley Kriegsspiel* in 2015.⁴⁸⁶

The initial development of the *Camberley Kriegsspiel* was finalised in early 2016. Instead of an umpire, the wargame uses the term ‘observer-controller’. This is because the form of the wargame is a manual three-room wargame: one table for the blue team/commander, one for the red team/commander, and a third, in the middle, for the control team with all units visible. Accordingly, the observer-controller of the control team informs each team of observations and combat results. They also receive orders for upcoming adjudications, which are conducted by *rigid* rules that are available for the players to read. Hence, the observer-controller is not the umpire, as ‘the losing side will blame that person’. However, the observer-controllers need to be capable individuals in order to impose rigour on both sides. The training audience’s acceptance of the observer-controllers’ information and reasons is deemed a crucial part of getting the wargame accepted.⁴⁸⁷ This indicates concerns related to control,

⁴⁸⁵ Interview: Bourne, 2015-10-06.

⁴⁸⁶ UK Connections (2015), (photograph by author).

⁴⁸⁷ Interview: Bourne, 2015-10-06.

credibility and comfort, i.e. **instructor buy-in**. However, similar to the initial Sandhurst initiative with the *Aldershot Exercise*, there are no data from actual use in courses. In addition, the *Camberley Kriegsspiel* was re-developed in late 2016 by a different developing team led by Lieutenant Colonel Gardiner.⁴⁸⁸ Reports from testing by real army units (battalion to division) in late 2016 and early 2017 indicate more flexibility in the game design, i.e. a possibility for *semi-rigid* adjudication and adapted rules as well as maps.⁴⁸⁹

Control & veiling

Of the wargaming activities discovered at the Land Warfare Centre arguably only the CSTTX (Combined Staff Tactical Training Exercise), achieves **instructor buy-in** by adhering to the concept of control & veiling. The property suppression of gamification is indicated by the physical separation between the main training audience and the simulation systems: constructive computer-based simulation (CAST) and virtual simulators in mock-ups (CATT). These simulation systems are handled by LOCON (Lower Control). It is possible to perceive that the LOCON/vehicle crew constitutes the main training audience, since the LOCON/vehicle crew interacts directly with the simulation systems. Instead, it is the opposite: the primary training audience are the officers in the headquarters above the LOCON. Those officers do not directly input instructions into the simulation/simulator. Instead they use ordinary map overlays and ordinary communication system. This approach is akin to the Swedish and the German approaches at their embedded units at the intermediate level of education.

One of the indicators of suppression of gamification is the attitude that ‘we are not doing wargames here’. CSTTX, including CAST and CATT, are not referred to as wargaming exercises. CSTTX, including CAST and CATT, seemingly indicate suppression of gamification. A central indicator of the property suppression of gamification is that ‘free play’ is not allowed in conjunction with the director supervising the red cell (OPFOR). In the case of CSTTX, OPFOR does not seem to be totally controlled and scripted with a pre-planned response list. This is supported by the willingness to use a force on force session during CATT, which encourages completely free play. This may, however, constitute an exception that indicates that the opposite is generally true for CAST and CATT. In any case, collected data indicate that the red cell is indeed supervised and controlled by the director. Another indicator of the suppression of gamification is that the training audience’s immersive credibility is safeguarded from potential concerns of unrealism related to the models of the wargame. This is achieved because the training audience itself does not directly interact with the simulation system, which is hidden from

⁴⁸⁸ Email: Mouat, 2016-09-08, and, Connections (2016).

⁴⁸⁹ Ministry of Defence (2017), pp. 82-84.

view. This assertion is, however, contingent on the designation of primary and secondary training audiences since parts of the training audience do interact with the simulation system: the mock-up simulators in CATT. Another indicator of the property suppression of gamification is that the director controls and interrupts the wargaming by the use of 'gas and brake' or 'halt and restart'. Regarding CAST, CATT and CSTTX, this direction is explicit and conditional on a 'default model' schedule that limits the week to three scenarios, each within an allocated and limited time block.⁴⁹⁰ The need to achieve training objectives within limited time thus requires director control.

The use of BC2T is arguably in many ways similar to a CAST. There is an indication of some, if not full, physical veiling. It seems that only one laptop with the computer-based simulation BC2T is located in the room for the HQ while the other laptops are placed in a separate room for LOCON and other cells.⁴⁹¹ This might indicate some form of veiling since it would be impractical for the eight students in the HQ to use only one laptop. This amount of veiling seems similar to the 'Coy Ops Room Exercise' at Sandhurst. In fact, the two exercises seem rather similar. The differences are that BC2T is for a higher level (BG rather than Coy), involves more students, and utilises contractors that support and/or operate the BC2T-laptops.

Simple standardising

Indications of adherence to doctrine are found in the recurrent incidents of COA-wargaming. This particular wargaming form is practised three times in the Captains Warfare Course (CWC). COA-wargaming also occurs as an integrated activity within CAST. The wargaming form is regulated and organised in accordance with official manuals, such as the British Army Staff Officer Handbook.⁴⁹² COA-wargaming is arguably perceived by British Army Officers as the only official form of 'wargaming' since it forms an integrated part in the military planning process. Consequently, COA-wargaming therefore 'has to be done' in order to produce a product: the refinement of a military plan. In comparison, the prototype of the *Camberley Kriegsspiel*, does not indicate adherence to doctrine with one exception: the manifestation of an attitude that 'we have to do wargaming.' This support was exemplified during the UK Connections wargaming conference in 2015, when *Camberley Kriegsspiel* was promoted by British Army generals.⁴⁹³ However, there are no indications of support for this particular wargaming form, i.e. 'classic *Kriegsspiel*', in formal doctrine. Such supports cover COA-wargaming only.

⁴⁹⁰ British Army Land Warfare Centre (2015a).

⁴⁹¹ British Army (2012).

⁴⁹² Interview: Bourne, 2015-10-06.

⁴⁹³ UK Connections (2015).



Photograph no. 18: 'COA-wargaming' during CAST.⁴⁹⁴

As indicated in the photograph, and based on instructions provided in the received presentations, there are several indications of simplicity in COA-wargaming: the wargame runs in straightforward sequence (action/reaction/counter-action). Record keeping is done in accordance with instructions from the Staff Officer Handbook. In short, every single British army officer should manage the wargaming form of COA-wargaming – any British staff officer has to be able to organise and run this form of wargaming. COA-wargaming is indeed conducted multiple times during education in the CWC. Significantly, this course is for every captain in the British Army. Consequently, the CWC constitutes an opportunity to implement a specific form of wargaming, which in this case is COA-wargaming. Accordingly, this course offers the possibility for every officer to learn a common form of wargaming. Indeed, this seems to be the case with COA-wargaming. Notably, the CWC has also been suggested as the course where the recently (2015-2016) developed map-based wargame *Camberley Kriegsspiel* should be introduced.⁴⁹⁵

The somewhat complicated wargaming form of *Camberley Kriegsspiel* raises questions if this wargame is connected to the property of simplicity in order to achieve **instructor buy-in**. One indicator of

⁴⁹⁴ British Army Land Warfare Centre (2015a).

⁴⁹⁵ Interview: Bourne, 2015-10-06.

simplicity is that any officer can manage it. The actual form of *Camberley Kriegsspiel* is a three-room wargame with limited information, a form that is more complicated than a single map (one-room), as in a COA-wargaming. Hence, this may leave less possibility of intra-professional transfer of practical wargaming direction knowledge. The *Camberley Kriegsspiel* uses ordinary maps, albeit with specific terrain-based square overlays to categorise mobility. However, the overlay, in conjunction with the three-room configuration and the necessity of observer-controllers, who rely on *rigid* sets of rules for combat adjudication, makes it arguably a more complicated form of wargaming than the COA-wargaming form envisaged in the Staff Officer Handbook. Consequently, there is little indication of the property of simplicity regarding *Camberley Kriegsspiel*. This assertion, however, is based on a preliminary design prototype (2015) not yet implemented in courses. Recent developments (2016-2017) seem to have led to more flexibility and, arguably, more emphasis on simplicity, i.e. every officer must be able to manage it.⁴⁹⁶

Innovative active learning

Two wargaming forms at the Land Warfare Centre seem to indicate the concept of innovative active learning. The first concerns the *Camberley Kriegsspiel* while the second wargame is the force on force wargame exercise within CATT. Both examples indicate the property promotion of gamification, which concerns explicit reference of – or reliance on – learning theory as justification for the actual wargaming form. The force on force exercise is particularly noteworthy since the concept of winning or losing is central to why it is done at all: the belief is that learning is increased ‘since no one likes to lose’.⁴⁹⁷ Competition is seen as an essential feature, which is a strong indication of explicit gamification. While the force on force exercise is limited to a certain place and time within the framework of CATT, and used as a form of preparatory exercise, the intention of the *Camberley Kriegsspiel* is more ambitious. The *Camberley Kriegsspiel* aims to make the participants understand co-ordinated warfare. Since the *Camberley Kriegsspiel* is designed for the Battlegroup level (BG), it has been proposed to be used as a wargame specifically for the BG Commander and to be used *before* a CATT in order to increase understanding of the inner workings of a particular BG HQ. In short, the *Camberley Kriegsspiel* offers collective and team-based training akin to a Command Post Exercise. It is also envisaged that a COA wargame could be run in combination with the *Camberley Kriegsspiel*. The intended result would be improved battlegroup performance at CAST/CATT.⁴⁹⁸ In other words, a belief in wargaming as an efficient educational tool was fundamental in the development of the *Camberley Kriegsspiel*.

⁴⁹⁶ Ministry of Defence (2017), pp. 82-84.

⁴⁹⁷ Observation: 2015-10-06.

⁴⁹⁸ Interview: Bourne, 2015-10-06.

The property of individual innovativeness is indicated in the force on force wargame *and* the *Camberley Kriegsspiel*. One indicator of the property of individual innovativeness is that an individual, or a few individuals, have designed the actual wargaming form. The force on force wargame is connected to a single officer. The development of the *Camberley Kriegsspiel* is connected to a handful of individuals. The sponsor, and proponent of adversarial wargaming, is Major General (ret.) Andrew Sharpe. Three additional people conducted the initial development and design work: Professor Philip Sabin at King's College London, retired British Army Major General John Drewienkiewicz and Major Gary Bourne at the Land Warfare Centre. The prototype was developed in 2015 and the initial design was finalised in early 2016. Individual innovativeness is further indicated by the fact that different individuals, led by Lieutenant Colonel Ivor Gardiner, further developed the wargame in 2016-17.⁴⁹⁹

Another indicator of the property of individual innovativeness is the attitude that 'no one understands wargaming'. There are indications that concerns over **instructor buy-in** of the *Camberley Kriegsspiel* have influenced the actual wargaming form. This can be seen in the opinion that the *Camberley Kriegsspiel* has to 'reflect the conditions on how participants view war', and hence, the *Camberley Kriegsspiel* needs to be close to a form that looks like a 'map table' at Battlegroup level. The wargame design uses an ordinary map with an overlay. This is intentional, as the 'medium of gaming has to reflect reality', i.e. how the commander actually fights a war.⁵⁰⁰ This particular concern of **instructor buy-in** connects to a wider spectrum: the participants (training audience), the organisational hierarchy (commanders) and the actual instructors. It is, however, the instructors who will ultimately use the wargame as a tool. The ambitions behind the *Camberley Kriegsspiel* imply that any army officer should be able to run it – hence the perceived need of the wargame form to be akin to a 'map table', which would be familiar and arguably offer better comfort and credibility to an officer tasked to run this particular form of wargaming. Nonetheless, the initial (2015) design arguably adhered more to the concept of innovative active learning than simple standardising. However, a later design (2016-17) has arguably emphasised simple standardising to gain acceptance from 'initially-sceptical' army officers, who are supposed to run it as directors and umpires.⁵⁰¹

⁴⁹⁹ Ministry of Defence (2017), pp. 82-84.

⁵⁰⁰ Interview: Bourne, 2015-10-06.

⁵⁰¹ Ministry of Defence (2017), pp. 84.

Joint Services Command and Staff College

In 1997 the three single-service staff colleges were combined into the Joint Services Command and Staff College (JSCSC). Since 2000, the JSCSC is located at Shrivenham and is organisational separately from the Royal Military Academy Sandhurst (RMAS) and the Land Warfare Centre. The JSCSC is organised within a general framework of the Defence Academy of the United Kingdom, which is responsible for post-graduate education and ‘the majority of command, staff, leadership, defence management, acquisition and technology training for members of the UK Armed Forces’.⁵⁰² Cranfield University as well as King’s College London (KCL), in particular the Department of Defence Studies, provide the academic credentials of the JSCSC.⁵⁰³

There are two courses of interest for this thesis at the JSCSC. The first one is the Intermediate Command and Staff Course (Land), ICSC (L), which consists of 30 weeks of formal staff training for junior majors. The officers receive their promotion to majors shortly before entering the ICSC (L). There are actually three separate ICSCs as each service is responsible for their own course (Royal Navy, Army and RAF Divisions). Notably, the facilities are not located in the main JSCSC building but in the case of the Army Division, in the nearby Roberts Hall. The second course of interest is the Advanced Command and Staff Course (ACSC), which follows approximately eight years after the ICSC. The ACSC is a joint course and covers 46 weeks. The military participants have the rank of major or lieutenant colonel (OF-3 and OF-4). Civil servants may also attend this course and King’s College London accredits the course to academic standards. An MA degree is offered as an option for those attending the full course.⁵⁰⁴ Finally, there is a third course, the Higher Command and Staff Course (HCSS), which spans 17 weeks. The HCSS is, however, only superficially included since this course is on a higher strategic level. Only a few and very qualified officers attend the HCSS: about 24 UK officers yearly with the ranks OF-5 and OF-6 (colonel and brigadier).⁵⁰⁵

Another part of the Defence Academy, and adjacent to the Shrivenham compound of the JSCSC, is the interim Defence Simulation Centre (iDSC). This is an interim organisation to assess a possible future permanent Defence Simulation Centre. The reason behind this approach is to create ‘more effective, cheaper and environmentally sustainable enabling capability for Defence’. This is to be accomplished by the creation of ‘a single point of access for all Defence M&S [Modelling and Simulation] matters’. The modelling and simulation include, for example, *Virtual Battlespace* (VBS) and various developed models, such as terrain databases, for use in computer-based simulations.⁵⁰⁶ The focus of the iDSC is

⁵⁰² Defence Academy of the United Kingdom (2016).

⁵⁰³ King’s College London (2016).

⁵⁰⁴ Defence Academy of the United Kingdom (2016c).

⁵⁰⁵ Defence Academy of the United Kingdom (2016d).

⁵⁰⁶ Interim Defence Simulation Centre (2016).

on virtual rather than constructive simulations. As part of the defence virtual simulation programme, the intent is 'to exploit commercial games-based technology to provide the common virtual simulation software component to Defence systems'.⁵⁰⁷

Contemporary wargaming

The Intermediate Command and Staff Course (Land), ICSC (L), covers two terms, each involving 15 weeks of studies. The initial term concerns staff routines. The second term is referred to as the 'operational term', with a focus on brigade operations within a divisional framework. There are reportedly five wargaming occasions during the second term.⁵⁰⁸ Four of those occasions are conducted in accordance with the Staff Officer Handbook. The focus is on planning and the wargames are referred to as course of action wargaming, i.e. COA-wargaming. The wargaming form is manual and based on ordinary maps. The four occasions of COA-wargaming constitute 'formal teaching of wargaming' with the purpose of refining courses of action.⁵⁰⁹

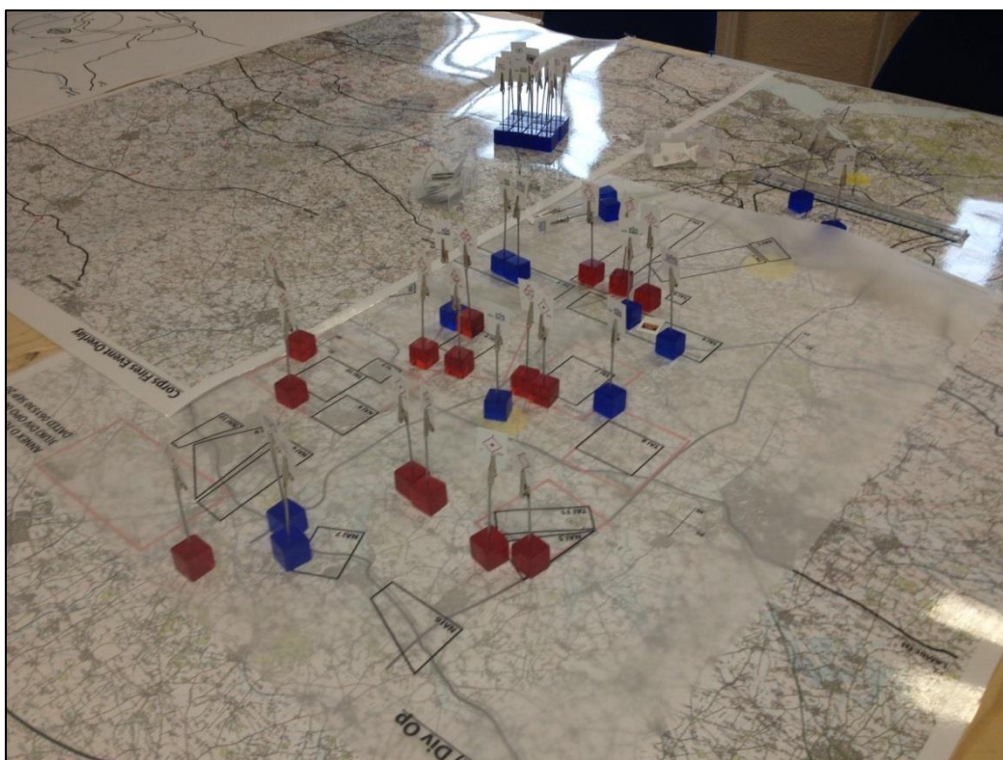
There are concerns among instructors that COA-wargaming is not done properly. One reason mentioned by one respondent is that not enough time is allotted to wargaming in the military planning process. Compared to the USA, where the planning process is staff-driven, military planning in the UK is driven by the commander. Consequently, wargaming within planning is dependent on the personality of the individual commander. In addition, a 'rock drill' is allegedly sometimes understood as 'wargaming' although that should not be the case. 'Wargaming' is connected to doctrine by the Staff Officer Handbook, which in sections 3.6.5.2 and 3.6.5.8., gives instructions on the 'COA-wargaming' process and force ratio probabilities. However, if wargaming is not properly done, as one respondent claims often is the case, the wargame merely validates one's own assumptions while ignoring any objections: a wargame must answer 'what if' questions. During this conversation with a respondent concerned about how wargaming is conducted, the author also observed, in the same room, a table layout which was referred to as an 'informal wargame' by the same respondent. This form of wargaming consisted of a map with a tactical overlay and specially made pins to symbolise units. The specific purpose of this 'informal wargame' was to visualise a brigade assault and the option of either doing it simultaneously or sequentially: both alternatives also included a deception plan.⁵¹⁰ This simple wargaming form indicates a grey zone of wargaming activities that arguably includes COA-wargaming.

⁵⁰⁷ Defence Academy of the United Kingdom (2016b).

⁵⁰⁸ Interview: McLellan, 2015-02-19.

⁵⁰⁹ Interview: McLellan, 2015-02-19.

⁵¹⁰ Interview: McLellan, 2015-02-19, and, Observation: 2015-02-19.



Photograph no. 19: the 'informal wargame' at ICSC (L) in 2015.⁵¹¹

In addition to four occasions of COA-wargaming, which include the 'informal wargame', the fifth wargame activity in the ICSC (L) is focused on execution-training. This concerns an exercise named FEARFUL EYE. This exercise is organised as a CAST (Command and Staff Training) with participating students organised as a brigade headquarters. FEARFUL EYE is considered to be a double-sided exercise since there is a red cell, supposedly composed of three persons. Over a span of six days, planning and subsequent execution-training are conducted. Operational analysts are brought in for combat adjudication and results are subsequently input into ARCADIA, a computer-based simulation run by civilian operational analysts from the Land Warfare Centre. Notably, units in FEARFUL EYE are actually moved on an ordinary map, albeit in accordance with the output from the computer-based simulation. Furthermore, the simulation is supplemented by a genuine communication system, BOWMAN, widely used by the British Army in real operations. The exercise has traditionally run in four parallel sessions.⁵¹² There are, however, different options on how to run FEARFUL EYE beyond 2016. One option is to go for a manual approach, while another option is to use computer-based simulations, such as VBS for an ISTAR observational view for the training audience. The wargaming form might thus

⁵¹¹ Observation: 2015-02-19 (photograph by author).

⁵¹² Interview: McLellan, 2015-02-19.

change, but this change is arguably dependent on several factors, such as the availability of facilities for computer-based simulations at Shrivenham.⁵¹³

The Advanced Command and Staff Course (ACSC) is a longer course of 46 weeks compared to the 30 weeks of the ICSC (L). Four wargaming activities occur during the ACSC. The most noteworthy is the 'Theatre Wargame', which lasts for three weeks and uses the computer-based simulation JOCASTS for combat resolution. Accompaniments for JOCASTS are additional supporting simulation systems in order to replicate the support available to a one/two star CJTF HQ. JOCASTS is provided by an external contractor, the company NSC (Newman and Speer Consultancy).⁵¹⁴ JOCASTS is an acronym for *Joint Operations Command and Staff Training System*. The purpose of JOCASTS, a constructive computer-based simulation, is to provide 'realistic strategic training for staff officers in the conduct of joint and combined operations within complex environments'.⁵¹⁵ JOCASTS is used as turn-based simulation with six hour turns. It also features a small red cell. However, since the ACSC is undergoing changes, in the future only one third of the ACSC may participate in the 'Theatre Wargame'.⁵¹⁶ Besides the 'Theatre Wargame' with JOCASTS there are also three occasions of COA-wargaming at the ACSC. The wargaming form is derived from the Staff Officer Handbook and is adapted for the joint operational level. Since the Staff Officer Handbook mandates wargaming, it 'must be done' during the planning process.⁵¹⁷

In addition to the ICSC (L) and the ACSC, the Higher Command Staff Course (HCSC) also runs a one week 'Theatre Wargame' at the 'Strat/Pol/Mil level' based on a dynamic real world/real time scenario. In this wargame, conflict resolution is achieved through 'applied judgement drawing on a wide range of experienced and senior supporting staff'.⁵¹⁸ Since this wargame is on a higher strategic level, it is beyond the comparative scope of the tactical level. Consequently, this particular 'Theatre Wargame' at the strategic level will not be further explored, with the exception of one feature. This feature is that an external contractor seems to be contributing everything: the red team, the green cell, LOCONs etc.⁵¹⁹ This use of an external contractor is somewhat similar to the use of JOCASTS at the ACSC.

External support to wargaming activities at JSCSC potentially encompasses the adjacent Defence Capability Centre (DCC) at Shrivenham. The DCC is an overarching organisation to the aforementioned interim Defence Simulation Centre (iDSC) and delivers education and training.⁵²⁰ The facility used for education and training is named the Development Training Facility, which began as the C2 battle lab

⁵¹³ Interview: McLellan, 2015-02-19.

⁵¹⁴ Email: Simon, 2015-02-27.

⁵¹⁵ NSC (2013).

⁵¹⁶ Interview: McLellan, 2015-02-19.

⁵¹⁷ Interview: Longley-Brown, 2016-09-06.

⁵¹⁸ Email: Simon, 2015-02-27.

⁵¹⁹ Interview: Knight, 2015-02-19.

⁵²⁰ Defence Academy of the United Kingdom (2016e).

in 2009. Any virtual software can be used in the facility while scenarios and LOCONs are provided by training audiences.⁵²¹ While as many as 6-8 large exercises may be delivered per year, two were scheduled in 2015. Those exercises were, however, not conducted for the JSCSC since they, according to the DCC, conduct their own wargaming. However, the Defence Academy, of which JSCSC is part of, does sometimes use the facilities as classrooms, for example, regarding cyber training. There are ideas to offer practical exercises to the JSCSC in the future. Such support may concern exercises equivalent to the aforementioned FEARFUL EYE at the ICSC (L).⁵²² This acknowledges the importance of external contractors, outside of the Defence Academy, for large wargaming exercises at the JSCSC.

In an innovative development a new wargaming form was recently introduced (2015-2016) at the ICSC (L). This concerns a manual wargaming form generally known as the *Rapid Campaign Analysis Toolset* (RCAT).⁵²³ RCAT is loosely based on COA-wargaming form in regard to the action-reaction process. RCAT was developed from 2013 by Cranfield University contracted by the Centre for Defence Enterprise (CDE) and driven by the Defence Science and Technology Laboratory (Dstl). RCAT is described as an analytical wargame, and not as an educational wargame, with a focus on a level between the operational and the strategic ones.⁵²⁴ Developments since 2013 seem to have advanced RCAT to the higher tactical and operational level, as indicated by the use in the British Army divisional headquarter exercise IRON RESOLVE in 2014. Based on the discovered initiative to introduce new and innovative forms of wargaming, such as the *Aldershot Skirmish* at Sandhurst and the *Camberley Kriegsspiel* at the Land Warfare Centre, indications are that RCAT is considered to be the third step in a potential triad of recently developed wargames for the professional military education of British Army officers. RCAT has also been informally used *within* the 'Theatre Wargame' at the ACSC in order to stimulate discussion between individuals tasked with exercise control. Notably, while the use was informal and not referred to as 'RCAT', all elements including force ratio and combat calculations were used. One reason why this manual wargaming form is used *within* a larger wargaming exercise is arguably to enhance the director's control over the exercise. In other words, the wargaming exercise is steered by the director in order to meet the exercise objectives.⁵²⁵ This manual simulation, by many simply referred to as RCAT, warrants a more detailed exploration.

RCAT was originally developed as an analytical tool but has since been adapted for educational use. Since RCAT was designed as an analytical tool it entailed a verification and validation process including

⁵²¹ Interview: Knight, 2015-02-19.

⁵²² Interview: Knight, 2015-02-19.

⁵²³ Interview: Bourne, 2015-10-06.

⁵²⁴ Smith & Longley-Brown (2013).

⁵²⁵ Interview: Longley-Brown, 2016-09-06.

peer review.⁵²⁶ Jeremy Smith, one of the game designers, describes the beneficial points of RCAT as: adversarial and oppositional game play, dynamic and imaginative scenario development, military-strategic consequences, non-kinetic soft effects and human terrain, look ahead (24 hours in advance), guidance and parameters to support computer simulation, and, finally, flexibility.⁵²⁷ Some of these points are inherent elements in wargaming, for example, dynamic game play. This list of benefits, however, indicates that one of the key functions of RCAT is to support computer-based simulation systems. This was the case during the exercise IRON RESOLVE, which provides a good example of a wargame *within* another wargame/exercise.

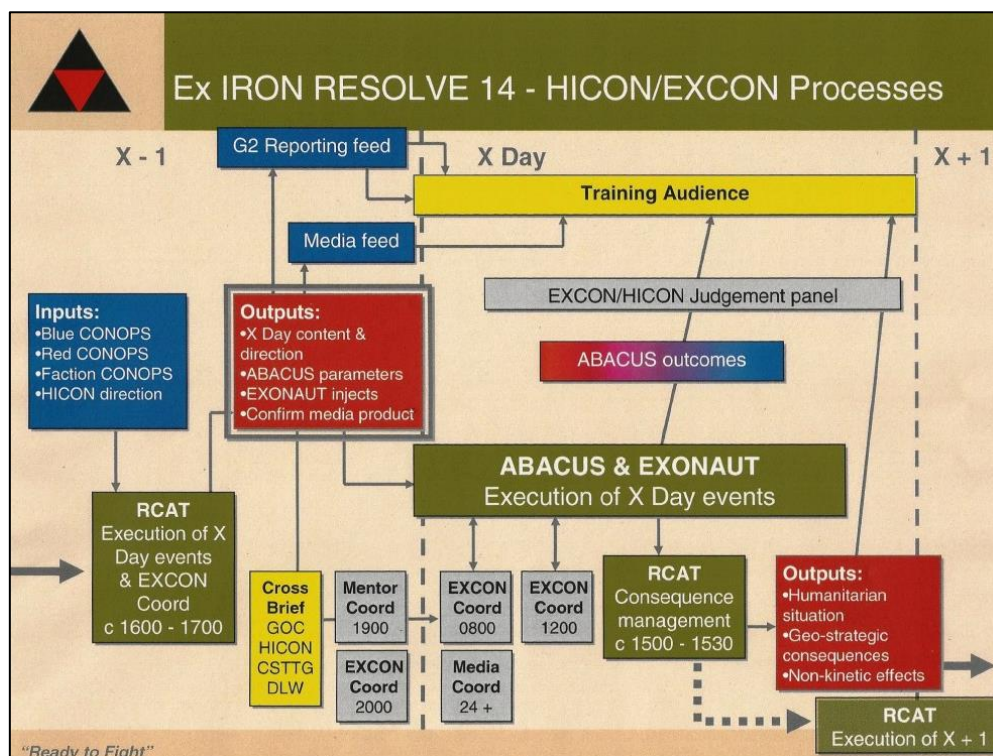


Illustration no. 11: the use of RCAT and ABACUS in a British Army Exercise (2014).⁵²⁸

The picture indicates a physical separation of the training audience from the actual wargaming. From the perspective of the training audience they are not aware of the presence of RCAT even though they are affected by it. The same can also be said for the computer-based simulation system, ABACUS, which was used for the exercise IRON RESOLVE and run by a defence contractor. RCAT was used to support ABACUS, a constructive computer simulation that handled kinetic effects only. The role of RCAT was

⁵²⁶ Interview: Longley-Brown, 2016-09-06.

⁵²⁷ Interview: Smith, 2015-02-19.

⁵²⁸ Longley-Brown (2014).

to explore the narrative and the 'soft effects'.⁵²⁹ In short, the central function of RCAT in this example concerns 'the ability to pre-consider events 24 hours in advance and thereby shape the exercise to best achieve the TOs' [training objectives]. The RCAT 'estimates' proved sufficiently accurate to allow the game controller to adjust game play and identify and carefully monitor real-time outcomes that might have adversely affected the exercise.'⁵³⁰ This provides a good explanation of how RCAT is used as a control mechanism. However, RCAT has three different modes: *facilitation*, *manual game* and *advanced (detail rules)*. These three wargaming forms are all a manual form of wargaming.



Photograph no. 20: RCAT in process (OA estimate) at a British Army Exercise (2014).⁵³¹

RCAT is connected to concerns related to weaknesses of computer-based wargaming forms. RCAT was developed as a lesson from the rapidly developing situation in Libya in 2011 as there was a need to plan new contingencies for strategic planning which was something a computer programme, that takes years to develop, could not deliver.⁵³² In essence, this reconnects to a belief that manual wargames are underutilised even though they have an inherent flexibility to allow the participants to experiment freely as 'everything can be implemented'. In comparison, an assessment of a computer-based

⁵²⁹ Interview: Smith, 2015-02-19.

⁵³⁰ Longley-Brown (2014).

⁵³¹ Longley-Brown (2014).

⁵³² Discussion: Sabin, June 2016.

simulation's ability to accurately model, for example, a Challenger II main battle tank often ends up in how realistically the modelled object is portrayed *visually* in the simulation. What is arguably missed in this comparison is that both manual- and computer-based wargames rely on models. Such models are connected to a relevant and identified concern which entails loss of credibility. This is accentuated when a costly technology-driven computer simulation cannot be used to answer a military question.⁵³³ Consequently, according to Smith, the key factor in 'player acceptability' – which connects to the overarching issue of credibility – lies in human engagement. This is an argument for a manual wargaming approach and an argument for the need of a well-trained game director to run the wargame.⁵³⁴ In short, RCAT is a manifestation of a belief in the effectiveness of manual wargaming forms, by the accentuation of the director's ability to control the wargame.

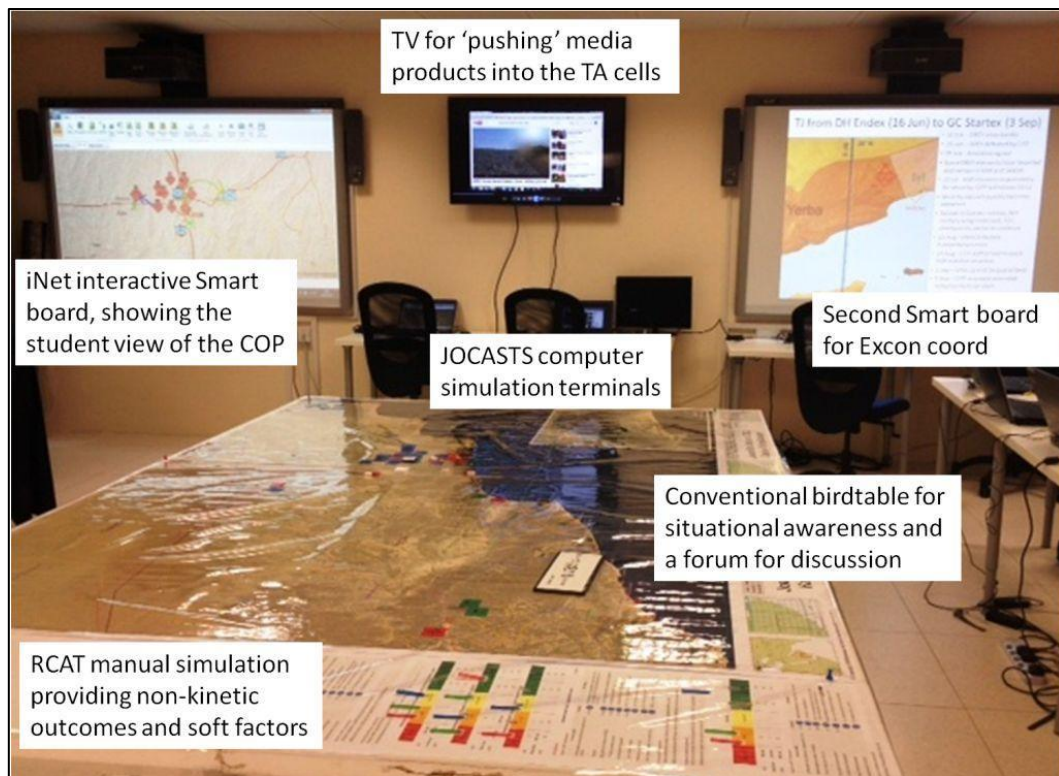
Control & veiling

Two wargame exercises at the JSCSC indicate suppression of gamification. First, the exercise FEARFUL EYE during the ICSC (L) is organised as CAST (Command and Staff Training). Combat adjudication is conducted by a combination of operational analysts and a computer-based simulation system, ARCADIA. Notably, combat results and unit movements are presented to the participants on an ordinary map. Hence, combat adjudication occurs separated from the training audience. In addition, FEARFUL EYE is neither called wargaming nor offers direct interaction between the training audience and the actual simulation system (ARCADIA). This separation is arguably connected to the indicator of safeguarding the training audience's immersion by sidestepping issues with the combat resolution that may clash with the training audience's perception of realism. Secondly, the 'Theatre Wargame' during the ACSC uses the computer-based simulation system JOCASTS for combat resolution. While there was no opportunity to observe this exercise there are examples accessible on the internet that exemplify the use of JOCASTS by the same contractor. The contractor, the NSC, was also represented at the UK Connections 2016 where they presented one of their 'lessons learnt': namely the need to 'hide the simulation' in a computer-assisted exercise. The reasons for this explicit assertion, which ties directly into the property suppression of gamification, is that separation creates more power to analysts who, in a control mode, can 'override' the simulation and thus allow 'rollback'.⁵³⁵ This 'halt and restart' procedure is an explicit indication of suppression of gamification.

⁵³³ Interview: Smith, 2015-02-19.

⁵³⁴ Interview: Smith, 2015-02-19.

⁵³⁵ NSC (2016).



Photograph no. 21: integration of JOCATS and RCAT.⁵³⁶

The 'Theatre Wargame' during the ACSC seems to be a good example of control & veiling. While the photograph is not from said exercise, it offers a visualisation of JOCAT integrated with RCAT. The photograph depicts the room of game control. The participants, the training audience, have a different perspective. Each exercise-day the students are shown only one or perhaps two map updates, shown as the iNet screen in the photograph. The reason stated for this limitation of information, related to the presentation of a Common Operational Picture (COP), indicates concern over the vulnerability of the training audience's (TA) immersion in perceptions of unrealism:

In an educational context (most Staff College wargames), a once- or twice-daily COP update is sufficient, especially with a TA working at the operational level. Using a real-time COP results in a 'Nintendo effect' whereby the TA become fixated with the unfolding picture at the tactical level, and do not maintain the correct planning horizon.⁵³⁷

⁵³⁶ Longley-Brown (2014).

⁵³⁷ Longley-Brown (2014).

Control is essential to avoid this latent ‘Nintendo effect’ from occurring for the training audience, and consequently to protect instructors’ comfort and credibility from complaints of unrealism. Hence, the quote below is a good example of adherence to control & veiling by exercise control (Excon):

Excon coordination meetings ensure the coherence and credibility of all products and injects presented to the TA, irrespective of the means or interface. Any inconsistencies or contradictions detract from the ‘reality’ of the situation and threaten the TA ‘suspension of disbelief’. This matters, and should be avoided if at all possible. (...) JOCASTS outcomes were adjudicated by Excon and, where necessary, amendments made to ensure the resulting COP satisfied the TOs and the Game Controller’s D&G [Direction and Guidance].⁵³⁸

The above quotes indicates that the *facilitator mode* of RCAT is a good example of adherence to control & veiling. This concerns the use of RCAT *within* another wargame exercise to increase control of the overall exercise. Incidentally, RCAT is not referred to as a ‘game’ but as a ‘tool’. It should, however, be emphasised that the *facilitator mode* is one of three modes of RCAT. Besides the *facilitator mode*, the other two modes are the *manual game* and the *advanced adjudication* (detailed rules). If one of the two latter modes allow the participants (the training audience) direct interaction, such a mode of RCAT would arguably no longer adhere to control & veiling.

Simple standardising

The ‘informal wargame’ used during the ICSC (L) to visualise different courses of action on a map may arguably be a physical element of a COA-wargame or, more likely, function as a stand-alone activity before the ‘formal’ COA-wargaming. In both cases, the wargaming form is constructed by adherence to doctrine which is made clear by the explicit connection to the Staff Officer Handbook. The focus is on a tangible product. In-house military instructors at the JSCSC run this form of wargaming and the instructors use the Staff Officer Handbook as a guide. This indicates simplicity: i.e. the idea that every officer should manage these wargaming forms. Furthermore, the use of ordinary maps etc. also indicate simplicity as the wargame does not need special facilities etc.

While the actual wargaming form of the ‘informal wargame’ is straightforward with the use of an ordinary map, overlay and pins symbolising units, one concern is if this form of wargaming is done correctly. One reason for this concern is that this form of wargaming is driven by personality: commanders are passionate about their own plans and there is thus a risk that the wargame is not

⁵³⁸ Longley-Brown (2014).

properly done – it may be biased.⁵³⁹ Those concerns are reinforced by a general belief that wargames are ‘misapplied, misused and misunderstood’: meaning wargaming is sometimes perceived as a rock drill, while it is instead a process, which is always at risk of being dismissed or maligned. A wargame may become a non-wargame activity. For a wargame to be successful the instructor must be skilful and the wargame design tested.⁵⁴⁰ In regard to the COA-wargaming and the ‘informal wargame’ at the JSCSC, a potential risk is that the wargaming form becomes *too simple*. In other words, it is no longer a question of a wargame but instead of teaching tools used for visualisation of a plan, or courses of action, rather than actually wargaming. This risk is primarily indicated by the development of the ‘informal wargame’, which otherwise is a good example of adherence to simple standardising, if it is utilised as a wargame and not just as a visualisation tool.

Innovative active learning

Regarding the indicator of individual innovativeness, one opinion is that there is no ‘Mr Wargaming’ at the JSCSC. Expertise in wargaming is instead brought in externally, either in the form of contractors, or operational analysts from other military establishment such as the Land Warfare Centre. In the latter case these operational analysts arrive in civilian garb, thus being a recognisable symbol of external and non-officer expertise for the military students.⁵⁴¹ There is, however, military expertise in wargaming at the facilities, a fact that was also acknowledged during this visit. At the nearby Defence Capability Centre (DCC) in Shrivenham, Major Tom Mouat is a well-known proponent of wargaming for education and training. Over the course of many years Major Mouat has acquired much experience in different wargaming methods and game designs. He is therefore relatively well-known in the UK’s military educational establishments as an expert in military wargaming.⁵⁴² Because of this indication of individual innovativeness, it is essential to consider Major Mouat’s concerns in more detail.

According to Major Mouat military educational wargaming faces two common issues: educational effect and cost. It is deemed difficult to measure the educational effect of different forms of wargaming. Cost, on the other hand, is more tangible, such as the personnel ratio between trainers and training audience. The issue of cost alone would arguably favour simpler (i.e. manual) forms of wargaming, such as board games, or innovative game designs, such as ‘mega-games’. Such manual forms of wargames are connected to individuals. Hence, the issue of credibility appears more of a concern than the issue of cost. One anecdote from the RMAS was that they (in the 1970s) used to run

⁵³⁹ Interview: McLellan, 2015-02-19.

⁵⁴⁰ Interview: Marston, 2015-02-19.

⁵⁴¹ Interview: McLellan, 2015-02-19.

⁵⁴² UK Connections (2013-2016), and, British Army Wargaming Symposium (2014).

‘experimental wargames’ relevant to courses. These wargames were self-designed by a single individual. Some of these wargames were, however, ‘utter failures’. Consequently, this approach of relying on one innovative individual comes with a risk. Some form of quality control is necessary for educational military wargaming. One solution offered by Major Mouat is to use a straightforward test named the ‘Jonathan test’: ‘if the time to set up is longer than effective training time then it cannot be used in education.’ While acknowledging the risk of ‘utter failures’, Major Mouat nonetheless has a positive attitude to innovative manual wargaming for the following reasons: manual wargames are reliable, cheap and good for learning.⁵⁴³

The main drawback of innovative manual wargames is the issue of credibility since instructors perceive manual wargames as ‘fragile’. This becomes an issue especially if the wargame includes rolling dice. Accordingly, such a wargame is perceived to be ‘a game of chance’, which means that the wargame is open to superficial ridicule if the participants are not happy with how the concept of risk is modelled. Therefore, from a game design perspective, it is better to focus on decisions rather than on dice-rolling. Notably, this is arguably an issue that is inherent in any transparent manual game since a computer-based simulation seldom displays actual digital dice-rolls during combat adjudication. One explicit suggestion by Major Mouat on how to overcome ridicule would be by the creation of wargaming departments.⁵⁴⁴ The idea is that a better organisational solution would allow **instructor buy-in** because of formal organisational and hierarchal support. This would go beyond merely doctrinal support as in the case of simple standardising. Instead, a wargaming department could rely on a theoretical underpinning of game-based learning, in other words, the property promotion of gamification. Nonetheless, the continuous use of COA-wargaming, as well as the recent development of RCAT, indicate that manual wargaming is viable. However, this does not entail adherence to innovative active learning.

The example of RCAT indicates adherence to different concepts rather than innovative active learning only. Specifically, this adherence becomes evident in a playtesting event with the Canadian Armed Forces in 2015 with RCAT as a *manual game*. Suppression of gamification, the property of control & veiling, was indicated by the control and interruption of the wargame by the director in terms of ‘gas and brake’. This reliance on the skills of the director is an essential part within the concept of control & veiling. However, it can also be argued that the skill of the instructor is central for *any* form of wargaming, and consequently all three concepts, since control is a supporting core category of **instructor buy-in**. The issue of control is especially apparent in RCAT:

⁵⁴³ Interview: Mouat, 2015-02-19.

⁵⁴⁴ Interview: Mouat, 2015-02-19.

The RCAT team knew exactly when to play the rules-as-written, and when to tweak the system on the fly to best model the unfolding situation. They also had the wisdom and experience to keep the game flowing despite potential distractions (including incessant comments and suggestions from me!)—and, conversely, also knew when to slow things down to allow for a deeper-dive or extended discussion.⁵⁴⁵

The above quote may suggest an incident of interruption, which is an indicator of the property suppression of gamification. However, the focus of the control was to keep the flow of the game rather than a ‘halt and restart’ routine. In addition, the example above does not support any of the additional three indicators of the property suppression of gamification. Instead the opposite is true: free play is allowed, physical veiling does not occur and the attitude of ‘we are not doing wargaming’ is clearly not applicable. The participants interact around one table, the red cell is allowed to dynamically conduct their actions according to their objectives and RCAT seems to be acknowledged as a ‘wargame’. Consequently, in the mode of *manual game*, RCAT arguably indicates more adherence to innovative active learning than to control & veiling. This is because of the clear indications of promotion of gamification and individual innovativeness.

⁵⁴⁵ Brynen (2015).

Conclusion

The case of the UK is particularly interesting because of the efforts to invigorate military educational wargaming. Many of the respondents are either proponents of, or sympathetic to, manual wargaming. Preference of manual wargaming is arguably accompanied by adherence to the concept of innovative active learning. The preference is centred on the tangible human engagement and interaction around the game table. The human dimension is also connected to physical factors, such as a belief that the human eye prefers a physical map and real figures as game pieces.⁵⁴⁶ This support of manual wargaming by enthusiasts is to a certain extent supported by army officers. The majority of army officers are, however, not hobby-wargamers with various experiences in, for example, board games. As a case in point, the wargaming club at Sandhurst, which was reactivated in 2015, neither had officer cadets nor military instructors attending the various wargames events (approximately one every second month) in 2015.⁵⁴⁷ Hence, officers' perception of 'wargaming' is the in-house army definition of wargaming found in the Staff Officer Handbook and referred to as 'COA-wargaming' – a straightforward manual wargame. Arguably, the majority of army officers therefore seem likely to adhere to the concept of simple standardising. In contrast, the category of enthusiastic individuals adhere to innovative active learning. Accordingly, while both categories of individuals support manual wargaming each category seems to prefer adherence to a different concept.

Two different preferences became apparent at RMAS (I), a unit which the author was initially told involved 'no wargaming'. The *Aldershot Skirmish* did not achieve a sufficient degree of comfort and credibility to enable buy-in with the military instructors while the *Sandhurst Free Kriegsspiel* apparently did. This can be interpreted as a rejection of the concept of innovative active learning, and an acceptance for simple standardising as the concept for implementing 'wargaming' in the curriculum. However, the *Sandhurst Free Kriegsspiel* also indicates adherence to the concept of innovative active learning. The difference is that the *Aldershot Skirmish* has few indications of simple standardising while the *Sandhurst Free Kriegsspiel* indicates adherence to *both* concepts. Arguably, instructors who preferred adherence to the concept of simple standardising rejected the *Aldershot Skirmish*. There was a lack of comfort in understanding how to run an unfamiliar form of wargame, which in turn arguably generated a perceived risk of loss of credibility in front of the officer cadets. The absence of simplicity in particular was reportedly an explicit concern among instructors, as they preferred a wargaming form they felt comfortable with.

⁵⁴⁶ Interview: Marston, 2015-02-19.

⁵⁴⁷ Observation: 2015-10-07.

In military culture there seems to be an aversion to miniature, board and tabletop wargaming. In particular, hex-based board games are ‘very alien’ to an army officer.⁵⁴⁸ Such forms of wargaming generally indicate promotion of gamification and thus the concept of innovative active learning. Accordingly, the majority of army officers in the UK seem to adhere to either simple standardising or control & veiling to achieve **instructor buy-in**. This is indicated by evolutions in wargame design. One example is the indication that a wargame ‘must work in the field’. Accordingly, designers of the prototype *Camberley Kriegsspiel*, a wargame design designed for courses at the Land Warfare Centre (II), opted to use regular military maps since this was deemed more acceptable. An even more tangible evolution can be ascertained regarding the *Sandhurst Free Kriegsspiel*. This wargame design is devoid of *rigid* rules and thus leaves much of the details up to the individual instructor to decide upon. Furthermore, the instructors learned how to conduct the wargame by intra-professional learning – a senior officer teaches junior colleagues – which supports the property of simplicity. The other property of simple standardising concerns adherence to doctrine, which is inherent in the multiple examples of COA-wargaming at the Land Warfare Centre (II) as well as at the JSCSC (III).

Acceptance applies to not only the wargaming instructors, but also to the participating players and superiors (hierarchy). Importantly, commanders will not buy-into a wargame form if the wargame does not proceed according to doctrine and does not produce expected results.⁵⁴⁹ Acceptance thus seems to materialise from the fact that the actual wargaming form is not at odds with doctrine. Notably, while the issue of acceptance is a factor regarding the above case of the *Aldershot Skirmish*, the outcome of non-acceptance did not lead to a complete rejection of ‘wargaming’ by instructors. Support from the hierarchy seems to have contributed to a continuation of the wargaming efforts at Sandhurst (I). This support can be traced to the presence of British Army generals, such as the Commandant of RMAS, at the British Army Wargaming Symposium as well as the annual UK Connections conference. This also indicates an underlying belief in simple standardising: ‘every officer’ has to wargame since ‘we have to do it’. Nonetheless, acceptance of a specific wargaming form is up to each individual instructor. The importance of individual instructors was further ascertained in their rejection of the *Aldershot Skirmish* at Sandhurst (I).

Control & veiling is arguably an alternative concept for instructors that consider a wargaming form either too complex or too alien. Furthermore, suppression of gamification can pre-empt the raising of concerns of unrealism by the training audience, colleagues or superiors (hierarchy). In the UK, control & veiling is applicable to a number of wargaming exercises of which many are located in a grey zone

⁵⁴⁸ Email: Farren, 2017-03-09.

⁵⁴⁹ Interview: Bourne, 2015-10-06.

of wargaming. At Sandhurst (I), the 'Coy Ops Room Exercise' offers similarities to the use of SIRA at the German Officer School (I). Both seemingly use ordinary instructors as directors and concentrate the main effort to actors within a single command post. The main difference is of level and scale: the 'Coy Ops Room Exercise' aims to realistically wargame tactical action from the perspective of a company, rather than a battalion. In addition, in SIRA, the training audience has no direct interaction with the simulation system at all, whereas this is actually the case with the 'Coy Ops Room Exercise'. What is similar is the presence of indicators such as a desire to avoid perceptions of unrealism. The control aspect by the director enhances and enables this desire. The *modus operandi* of veiling computer-based simulation also exists in the other two embedded units of analysis (II and III). However, here external contractors handle the actual simulations. This might be essential for **instructor buy-in** because of the combination of large-scale activities with many students and limited time to achieve objectives. Mishandling of the computer-based simulations during such activities would be detrimental and very likely result in no further use of such activities. Hence, there is a need for external contractors, or a standing support organisation, concerning wargaming with a large number of students in combination with computer-based simulations. At the Land Warfare Centre (II) this concerns the CSTTX (with CAST and CATT) and the BC2T. At the JSCSC (III) control & veiling is achieved by the use of external contractors regarding the FEARFUL EYE and the Theatre Wargame. The external contractor bring their method for combat adjudication, which is hidden from the training audience because of concerns that they would otherwise find aspects unrealistic, and/or, begin to act unrealistic. Such concerns by instructors is manifested in the stated concern of a 'Nintendo effect'. This concerns a situation when the training audience is in direct interaction with the simulation system and gets into too much detail and loses the overall picture.⁵⁵⁰ In other words, they start to play the game. A 'Nintendo effect' is thus somewhat analogous to 'gamer mode' when players become short-sighted and only aim to win the game.⁵⁵¹ The *facilitator mode* of RCAT is a good example of how such concerns are avoided by the suppression of gamification and firm control of the entire wargaming exercise.

Evolutions of game designs, including the possibility to switch between alternative modes, manifest a tangible movement towards increasing **instructor buy-in** at the potential expense of the wargame ending up as a non-wargaming activity. This risk especially applies to wargaming forms that may be categorised as 'non-wargaming' and thus belong to a grey zone. Examples are the CSTTX at the Land Warfare Centre (II) and the 'informal wargame' at the JSCSC. A greater emphasis on control & veiling, manifested in an attitude of 'we are not doing wargaming here', may drive the wargame into a scripted exercise to such a degree that it would no longer be possible to consider it a wargame. Suppression of

⁵⁵⁰ Longley-Brown (2014).

⁵⁵¹ Frank (2014).

gamification may thus become self-fulfilling. A scripted red team (OPFOR), in combination with a situation where player decisions would have no or negligible impact on the flow of events, would constitute a non-wargaming exercise. There are indications that the potential regress of a wargame into non-wargaming is an issue of concern among some instructors.⁵⁵² On the other hand, flexibility in the wargame design may preserve the activity as a wargame. RCAT is an interesting example since it has different modes. The *facilitator* mode indicates control & veiling whereas the *manual* mode, indicates the concept of innovative active learning. It is open to question if the *facilitator* mode may change the wargame into an exercise control tool only – RCAT is after all presented as a *tool* rather than a wargame. Another example, the ‘informal wargame’, can be said to exemplify the risk of a wargame form becoming *too simple*. In other words, absence of contingent interaction between players results in it no longer being a wargame supported by the concept of simple standardising, but instead a teaching tool for visualisation of a plan or courses of action. Such concerns of misuse of wargaming were indicated at the JSCSC (III) and can be manifested in the existence of the ‘informal wargame’. This is not to say that a visualisation method is bad for learning. It is simply no longer a wargame.

⁵⁵² Interview: Knight, 2015-02-19.

7. United States

Introduction

The initial embedded unit of analysis consists of the United States Military Academy, simply known as West Point, located in the state of New York. West Point, however, educates only a minority of US Army officer cadets, since the ROTC (Reserve Officer Training Corps) educates the majority. West Point is nevertheless a symbolic and elite school, which produces a disproportionate portion of officers who eventually reach the rank of General. West Point is also the equivalent of other cases' military educational establishments for officer cadets, such as the Swedish Defence University and the Royal Military Academy Sandhurst in the UK. The Maneuver Center of Excellence at Fort Benning, Georgia, where junior army officers (armour and infantry branch) receive education and training in tactics, represents the intermediate level in the USA. This unit is a relatively clear-cut equivalent to the other country cases' selected intermediate embedded unit of analysis, such as the Land Warfare Centre in the UK. The third embedded unit is the Command and General Staff College at Fort Leavenworth, Kansas, where junior US Army majors receive their education.

This thesis delimits the focus to army educational wargaming at the tactical level for officers and officer cadets. For this country case, this limitation becomes palpable because there are other military educational facilities in the USA where educational military wargaming takes place. In addition, the USA as a case is significantly larger than the other cases. For example, in comparison to other cases such as Sweden, there is no specific and required formal course in the US Army for an officer to become lieutenant colonel. Such a senior course would arguably fit as the concluding course in the higher level embedded unit of analysis. However, in the US Army, the 'difficult gate' in the military education is to become full colonel.⁵⁵³ This sets it apart from other cases where this 'gate' is arguably at the rank of lieutenant colonel. In the USA, the military education for the rank of colonel is at the US Army War College (USAWC) in Carlisle, Pennsylvania. The USAWC curriculum is focused on strategic leadership. Because of this focus, and the high-ranking level of officers (colonel), this facility falls outside the scope of this thesis as a potential embedded unit of analysis. Nonetheless, the Strategic Wargame Project by the Simulation Division exemplifies tangible educational wargaming activities at the USAWC.⁵⁵⁴ Hence, this exclusion does not entail the suppression of possible influences from the USAWC on the embedded units of analysis in the USA.

⁵⁵³ Interview: Sterrett, 2014-10-17.

⁵⁵⁴ PAXsims (2016).

The limitation to army officers excludes other armed services such as the US Air Force. This is similar to the other country cases. However, the US Marine Corps is also excluded although it is primarily a *land* force. Hence, there are no embedded units of analysis of the US Marine Corps. This is not only to ease comparison between the other country cases. Similar to the USAWC, this exclusion is not a total exclusion since flexibility is part of the selected method for this thesis. Specifically, exploratory case studies, informed by grounded theory, allow the addition of sources if explored data finds worthwhile connections.⁵⁵⁵ For this reason, the author considered including an example of educational wargaming at the US Marine Corps War College (MCWAR) in Quantico, Virginia, in this chapter. This thought occurred because of the author's exploration of military educational wargaming activities in the USA during the initial data collection.⁵⁵⁶ This in turn brought the author to visit MCWAR in 2014 in accordance with the research method, which encourages a broad exploratory approach during data collection. However, the findings indicated that this educational wargame was focused on senior officers (lieutenant colonels and colonels) and on strategy rather than tactics.⁵⁵⁷ For this reason, it is not further included in this chapter.

⁵⁵⁵ Glaser (2011), p. 72, and, Hartman (2011), p. 74.

⁵⁵⁶ Interview: Lacey, 2014-08-08, and, Lacey (2016).

⁵⁵⁷ Barrick & Lacey (2014).

United States Military Academy (West Point)

West Point, officially known as the United States Military Academy (USMA), was founded in 1802. After acceptance to West Point, the officer cadet enters a four-year programme. The USMA has about 4,300 officer cadets enrolled, of which about 1,000 graduate each year (an 80 % success rate). After a successful graduation from West Point, the officer cadet receives an engineering undergraduate degree, a bachelor in science, regulated by educational standards. The educational focus is to mentor leaders. Of the overall officer corps in the US Army, about 20 percent come from West Point. The rest, almost 80 percent, come from the ROTC.⁵⁵⁸ In addition, a few officers are added from officer candidate schools, where selected enlisted non-commissioned officers, and civilians with an academic degree, are offered an officer career after a short 12 week course.⁵⁵⁹

Contemporary wargaming

There are two named facilities for 'simulation' at West Point. The first is named the West Point Simulation Center. Its stated mission is to 'educate, train, and inspire the Corps of Cadets through design, development and application of full spectrum simulation training programs'. The following simulation systems are available: *Engagement Skills Trainer 2000* (EST 2000), *Follow me*, *Virtual Battlespace* (VBS) and *Call For Fire Trainer* (CFFT II).⁵⁶⁰ The West Point Simulation Center is, however, a small and rather unique entity at West Point. Basically, it provides only one individual who supports the entire USMA.⁵⁶¹ Based on information from the West Point homepage there is in addition to the Simulation Center a facility named the Combat Simulation Lab. This, however, concerns research rather than education: the Combat Simulation Lab 'provides faculty and officer cadets the opportunity to investigate a wide range of interdisciplinary, systemic issues and to apply simulation software to visualise and test projects from the classroom and research'. The following software is listed as available for officer cadets and classroom use: *Infantry Warrior Simulation* (IWARS), *Joint Conflict and Tactical Simulation* (JCATS), *One Semi-Automatic Force* (OneSAF), and *Virtual Battlespace* (VBS).⁵⁶² Based on the author's observation during the visit to West Point, the listed software supports the individual officer cadet's study project by being experimentation tools, i.e. this is mathematical modelling for officer cadets' research projects rather than educational wargaming. The purpose is 'to apply simulation software to visualise and test projects from the classroom and research.' For example,

⁵⁵⁸ Interview: Matthews, 2015-12-08.

⁵⁵⁹ US Army (2016).

⁵⁶⁰ USMA (2016).

⁵⁶¹ Interview: Castro, 2015-12-08.

⁵⁶² USMA (2016b).

VBS is used to rehearse tactical missions and conduct AARs of training sessions.⁵⁶³ Consequently, this is not wargaming but non-playable simulation for analysis and visualisation, as well as computer modelling, to answer hypotheses. For this reason, the Combat Simulation Lab at the Department of System Engineering is not further explored.



Photograph no. 22: officer cadets and the West Point Simulation Center.⁵⁶⁴

Educational wargaming is carried out in the Department of Military Instruction. This specifically concerns the course MS200, which has 17 instructors and 33 student classes (530 officer cadets). The Military Science Programme is built on three courses: MS100 Introduction to War-Fighting, MS200 Tactical Decision Making and MS300 Platoon Operations. Teaching techniques include 'heavy use of Tactical Decision-Making Games' and simulation exercises.⁵⁶⁵ The use of simulation is integrated in the education by the use of the 'tactical example' (TE), which covers four activities during three days:

- 1) Lectures (including videos),
- 2) Tactical Decision Exercise (TDE) preparation roughly similar to a map exercise. The output is to come up with a plan,
- 3) An outdoor terrain-walk for one day,
- 4) The 'simulation-day'. In a classroom the developed plan is put through a simulation.⁵⁶⁶

⁵⁶³ USMA (2016b).

⁵⁶⁴ USMA (2016).

⁵⁶⁵ USMA (2016c).

⁵⁶⁶ Interview: Carter, 2015-12-08.

The simulation system in use for the 'simulation-day' is *Virtual Battlespace* (VBS). A few classrooms are equipped with VBS for 14-18 officer cadets, who are divided into roles such as platoon-sergeant, squad-leader and special weapons (machine guns, anti-tank weapons). The room layout basically consists of five tables with computers. During a 'simulation-day', there are typically 2-3 runs conducted per class. Verbal communication is used since they are all in same classroom. A double-sided concept has been tested with a minor red cell run by three officer cadets. However, only 13 officer cadets are then left to control the blue platoon. There have been ideas to run a force on force simulation (between two platoons), but all cadets would have to be in the same classroom. Issues of practicality, such as available facilities and the difficulty of de-conflicting the scheduling of 33 classes, have ruled out the idea of force on force.⁵⁶⁷

Besides the use of VBS in classrooms, there are indications of additional educational wargaming activities. One of the first things mentioned to the author at the start of the visit to West Point was that there used to be a wargaming club for officer cadets. This club, the Wargame Committee, involved extra-curricular wargaming activities, such as hobby wargames and participation in game conventions:

The Wargames Committee promotes the development of tactical skills by conducting military simulations of both actual and fictitious military engagements using both tabletop miniatures and board wargames. These wargames cover all historical periods from ancient Greeks and Romans to modern Middle Eastern warfare. We attend wargame conventions hosted by the Historical Miniatures Gaming Society such as Fall-In and Cold Wars and we host our own wargaming convention, POINTCON, each spring.⁵⁶⁸

The photograph below is allegedly from POINTCON 2011, 'the annual wargaming event of the Cadet Wargames Club at the United States Military Academy at West Point'. It depicts one of the officer cadets at West Point directing a wargame based on the 'Battle of Neumarkt' in 1809 using 25 mm Napoleonic miniatures. However, based on data obtained in early 2016, there 'is no longer sufficient cadet support to justify the amount of work involved to plan and execute the convention [POINTCON]'.⁵⁶⁹ While POINTCON has been discontinued, the so-called Wargames Committee still seems to exist as an official club.⁵⁷⁰ However, another source claims that no wargaming club is in existence since in 2013 the number of cadet clubs (190) was reduced by 50 %. One concern was that

⁵⁶⁷ Observation: 2015-12-08.

⁵⁶⁸ USMA (2016c).

⁵⁶⁹ POINTCON (2011).

⁵⁷⁰ USMA (2016c).

such activities took away time for evening studies.⁵⁷¹ A wargaming club may still exist but with much less publicity.



Photograph no. 23: Battle of Neumarkt, 1809, POINTCON XXXIV, 9 April 2011.⁵⁷²

Another club for officer cadets explicitly uses the term ‘simulation’. This is the West Point Forum / Model UN. Activities are centred on conferences, where officer cadets use their debating skills in ‘simulations which address contemporary international security and socio-economic issues’.⁵⁷³ This is a very competitive club. The conferences take place in summer, and one purpose is to allow the participating officer cadets to gain experience of learning the role of leader.⁵⁷⁴ However, while an interesting activity, this is not a clear-cut case of wargaming. Furthermore, since the focus is on diplomacy and debating skills, the UN debating team falls outside the scope of this thesis. This makes this activity comparable to the Bundeswehr University in München and their involvement in a ‘Planspiel’ to simulate diplomacy at the United Nations.⁵⁷⁵

⁵⁷¹ Interview: Matthews, 2015-12-08.

⁵⁷² POINTCON (2011).

⁵⁷³ USMA (2016d).

⁵⁷⁴ Interview: Matthews, 2015-12-08.

⁵⁷⁵ Bundeswehr (2013).

Another example of an activity at West Point that may constitute educational wargaming is ‘Leader Challenge’ (LC). This is a method for developing leaders. In short, a session ‘engages participants in a difficult leadership decision as described by the junior officer who actually experienced it’. LC is done in a small group with participants that reflect on a real case visualised as a sequential video interview of the actual junior officer. In the end, it is about reflecting on ‘what would you do next?’, while listening to other perspectives in the group.⁵⁷⁶ LC is part of the professional development of the officer cadets at West Point. However, it is not a wargame. The main difference to a wargame is that LC is not a playable simulation. Instead of constructing a narrative, LC lets the participants reflect on another person’s, a junior officer’s, real narrative.⁵⁷⁷ The use of LC nonetheless indicates that experimental and active learning is promoted, and developed, at West Point. Accordingly, this raises expectations of indications of innovative active learning in the use of educational wargaming.

An indication of the use of theories for ‘effective learning’ and wargaming at West Point is the use of Tactical Decision Exercises (TDE).⁵⁷⁸ Major John Schmitt (USMC) developed this form of exercise in the early 1990s as a so-called Tactical Decision Game (TDG).⁵⁷⁹ This raises the possibility of the TDE being a form of wargaming. However, a TDE offers a tactical situation (dilemma) that the officer cadet needs to address and provide a course of action. While the instructor may incrementally provide further information, a TDE is not a wargame since there are no turns, i.e. the opposing side does not respond to the presented course of action. However, a wargame (‘combat simulation’) generally occurs *after* the TDE to examine a course of action.⁵⁸⁰ The use of VBS is a clear example of this sequential order.

Control & veiling

The explicit use of VBS within a classroom and with officer cadets does not indicate complete adherence to control & veiling. There are, however, several indicators of suppression of gamification that are in need of further exploration. One is the intervention of the game director regarding control and interruptions, i.e. ‘halt and restart’. Regarding the specific use of VBS, a high degree of director control is indeed how an instructor in the classroom conducts wargaming. The reason for this level of control is arguably a perceived risk of loss of instructor credibility. Control of the classroom during a VBS-session is done in order to rein in gamification: VBS is seen as a ‘videogame’ and therefore the instructor has to ‘ride the cadet very hard’ in order to control the classroom. Consequently, ‘if the

⁵⁷⁶ USMA (2015).

⁵⁷⁷ USMA (2010).

⁵⁷⁸ Viator (2010).

⁵⁷⁹ Schmitt (1994).

⁵⁸⁰ Sonstein (2010).

instructor does not have total buy-in he loses the class'.⁵⁸¹ One key aspect for this effort of control to succeed is the category of comfort – the instructor needs to be comfortable in the direct use of VBS in the classroom. However, it takes time, even years, for an instructor at West Point to learn to comfortably utilise VBS for learning.⁵⁸²

Another indicator of the suppression of gamification is that free play is not allowed. The reported use of VBS indicate that free play is limited: if a red cell is utilised, it is supervised and much smaller than the blue side. In most of the 'simulation-days', however, only the instructor controls the opposing force in VBS. This control to suppress gamification is augmented by the view of 'we are not doing wargaming here'. The use of VBS is exclusively referred to as a 'simulation'. Nonetheless, there is still an awareness that VBS is akin to a game. To suppress a potential eagerness by officer cadets to play VBS as a game, officer cadets are actually allowed – but only in *one* lecture – to compete against each other in a match where they can shoot at each other. This is arguably a force on force activity and thus somewhat comparable to the British force on force exercise within CATT (Combined Arm Tactical Training) at the British Land Warfare Centre. In Britain this was done for subordinate personnel (LOCON) to quickly learn how to work the simulation (mock-up combat vehicle simulators). At West Point, the stated reason is to get rid of the officer cadets' eagerness to shoot at each other in a 'game'.⁵⁸³ Another step to reduce, or even eliminate the fun factor, is to grade each officer cadet's performance during the VBS exercise. As a result, the seriousness of grades 'takes the fun out of the game' for the officer cadet.⁵⁸⁴ This particular incident of grades, without the elements of fun and competition, is an explicit indication of suppression of gamification and a form of control.

One final indicator of suppression of gamification is that the training audience's immersive credibility is safeguarded from potential concerns of unrealism by the physical separation of the simulation system from the training audience. No such indications were found. While there are some elements of hiding, such as the covering of the administrative workstation's screen, which is utilised for 'leader recon' when only the Platoon Commander is allowed to take an initial look thus representing a realistic personal recce mission, the VBS is clearly used directly by all the students. Consequently, the most obvious form of suppression of gamification, the actual veiling of the simulation system, is not indicated. On the other hand, limited free play, interruptions by the director and an attitude of 'we are not playing games' are present.

⁵⁸¹ Interview: Carter, 2015-12-08.

⁵⁸² Interview: Carter, 2015-12-08.

⁵⁸³ Interview: Castro, 2015-12-08.

⁵⁸⁴ Interview: Carter, 2015-12-08.

Simple standardising

At West Point, there are indications of organisational and doctrinally underpinnings to the use of VBS, which indicate an attitude that ‘we have to do wargaming’. A major effort has been made to make simulation exercises, such as VBS, part of the curriculum. A certain level of success has been achieved, especially since one course director – Major Carter – has bought into the use of VBS. It is not a coincidence that VBS is used. The recommendation from the Simulation Center at West Point is to ‘stay away from COTS’ as they want to introduce officer cadets to simulation systems they will later encounter and use in the US Army. VBS, which arguably *is* a modified COTS virtual simulation, is considered to be valid since it is used at US Army simulation centres.⁵⁸⁵ Thus, there is organisational US Army support for this particular simulation system. Indeed, during a ‘simulation-day’ with VBS, ‘instructors emphasise the principles that underlie US Army Doctrine while avoiding reliance on checklists, set processes and approved solutions.’⁵⁸⁶

One indicator of simplicity is that the wargaming form should be encompassing, i.e. every instructor should be able to use it. It seems that not every instructor is happy with VBS as an educational tool, especially since it takes a rather long time to be proficient in the management of VBS in a class. On the other hand, the versatility of VBS, represented by its real-time editing capability, is a key reason why VBS is used for learning purposes.⁵⁸⁷ A major weakness in this form of wargaming seems to be in possible technological mishaps regarding the computer-based simulation. Hence, one conclusion is that if issues with technology create friction for an exercise for the officer cadets then the simulation system, *and* the instructor, will lose credibility.⁵⁸⁸ This problem might be reduced by employing civilian experts on VBS and letting them run the exercise. However, the author was emphatically told that ‘the military instructors are necessary for acceptance’ as (civilian) experts from the West Point Simulation Center cannot deliver this solution by themselves.⁵⁸⁹ This emphasis on military instructors is comparable to other cases, such as the use of SiTA at the German Officer School and the use of *Sandhurst Kriegsspiel* at RMAA. Accordingly, **instructor buy-in** by army officer instructors is essential. However, the use of VBS is not a simple task, i.e. it is not a *free* map-based wargame such as *Sandhurst Kriegsspiel*. Instead the use of VBS in a ‘simulation-day’ is rather similar to the computer-based SiTA in Germany. It is a challenge for instructors to be proficient at this form of wargaming (it takes years). For this reason, instructors seemingly learn it from their colleagues rather than from formal instruction.

⁵⁸⁵ Interview: Castro, 2015-12-08.

⁵⁸⁶ USMA (2016c).

⁵⁸⁷ Interview: Castro, 2015-12-08.

⁵⁸⁸ Interview: Carter, 2015-12-08.

⁵⁸⁹ Interview: Castro, 2015-12-08.

Innovative active learning

The use of VBS at West Point indicates individual innovativeness and a belief in the importance of the wargaming process for learning. The use of VBS in one course is related to the course director's interest in improving education. For example, instead of grading plans only simulation results are graded. Simulation results entail specific criteria, such as 'destroy all four enemy vehicles'. Hence, the idea is that the outcome is more important than the plan. The use of simulation in the classroom is, however, not about testing the plan, it is to show why the plan failed. Hence, VBS is used as a tool with which the officer cadet can actually see why it failed. The after-action review functions in VBS are thus important to emphasise teaching points. One trick is to pick just one or two vital points during the after-action review (AAR), conducted by the instructor at the end of the exercise.⁵⁹⁰ Accordingly, the best feature of VBS is its real-time editing capability, which is utilised by the classroom instructor. This gives the instructor the opportunity to inject his/her expertise to show learning points.⁵⁹¹ In this process, it might arguably have been sufficient with an experienced instructor simply saying 'this is not going to work' based on his or her veteran-experience such as from Afghanistan and/or Iraq. However, the modus operandi of the instructor is instead to say 'let's run it'.⁵⁹² This entails learning by experience generated by experiments with the use of a simulation. Hence, this process connects to active learning, attainment of experience by experiment, an element in game-based learning. This is manifested in the ability 'to teleport' officer cadets into a certain map area from where they can try to spot and shoot. This experience becomes tangible since it is the surrounding training area at West Point that is modelled as the 3D map in VBS. This realistic visualisation promotes understanding of capabilities of weapons and personnel. Furthermore, the use of VBS as a wargame makes the officer cadets feel pressure and miscommunicate, which visualises intangible features.⁵⁹³

Perhaps the most significant answer to why VBS, as a form of educational wargame, has entered the curriculum is because the course director mandated it. According to the course director, Major Carter, he emphasised the need to think outside the box regarding education since he himself is not fond of classroom education. Notably, he initially tried another simulation system, *Follow Me*, before VBS. However, VBS was later mandated for all classes in the course since it allows 3D while *Follow me* is visualised in 2D only. It was deemed important to visualise the Platoon Commander's eye-perspective as well as line-of sight from certain deployed weapons. Hence, the ability for visualisation was found to be a key reason behind the use of VBS as an educational tool. However, it seems that not every instructor is supportive. Accordingly, to generate additional support for this particular form of

⁵⁹⁰ Interview: Carter, 2015-12-08.

⁵⁹¹ Interview: Castro, 2015-12-08.

⁵⁹² Interview: Carter, 2015-12-08.

⁵⁹³ Interview: Castro, 2015-12-08.

simulation exercise, researchers are present in the classroom to study the learning process. This ongoing (2015) research is done by surveys of officer cadets and by the collection of video data. This arguably allows alignment and comparison of what is happening in the simulation to what is at the same time going on in the classroom.⁵⁹⁴ It also indicates an attitude that ‘no one (else) understands wargaming’. Accordingly, this form of wargame is to be supported by additional research of its educational effects in order to increase its – and subsequently the instructor’s – credibility.

It can be argued that the use of VBS during the ‘simulation-day’ of tactical exercises (TE) is the epitome of adherence to innovative active learning. For example, the use of VBS is seen as a progression from previous 2D map-based tactical decision-making exercises. With the support of VBS and its 3D view the officer cadets ‘play out their plan into the game’ and can, with the real-time editing capability of the instructor, instantly receive feedback. For example, ‘here is your view for your machine gun’. The instructor would then let the officer cadet pause and think, in order to reflect on their choice. The VBS exercise was found to generate learning in a broader understanding of terminology, which is in line with the learning purpose for the individual officer cadet: to understand concepts and how to apply them.⁵⁹⁵ The question of how you learn is arguably the foundation to how the VBS is used in the classroom. By playing out the effects and allowing the officer cadets to try things, the instructor facilitates learning by demonstrating battle effects. For example, officer cadets can actually see the effects from 155 mm artillery fire in the simulation.⁵⁹⁶ Promotion of game-based learning is thus evident in the use of experimentation as a way of gaining experience. However, and this is significant, competition is arguably unwanted. For example, there is seldom a red cell as the instructor runs the opposing force himself. On the other hand, the officer cadets are graded on how well they perform in the wargame. This would seem a form of competition in itself as grading actually ranks the officer cadets. However, the seriousness of grades ‘takes the fun out of the game’ for the cadet.⁵⁹⁷ Hence, the VBS exercise is a ‘serious activity’ and not ‘videogame’. This desired seriousness is reinforced by the grading system in combination with the control of the room by the instructor. The absence of fun and of competition indicates suppression, rather than promotion, of gamification.

The concept of the use of VBS in classrooms at West Point in accordance to the military instructional curriculum seems to have come about by a successful pairing of simulation support personnel and military instructors. One indicator of the property individual innovativeness is that one or a few individuals have created or modified the specific wargame in use. In the case of VBS at West Point, a

⁵⁹⁴ Interview: Carter, 2015-12-08.

⁵⁹⁵ Interview: Castro, 2015-12-08.

⁵⁹⁶ Interview: Carter, 2015-12-08.

⁵⁹⁷ Interview: Carter, 2015-12-08.

technical solution in the form of a computer-based simulation system supports the idea from the course director on how to achieve learning. However, the support from the West Point Simulation Center concerns only the initial set-up and consecutive running of technical systems. The actual administrative control of VBS in the classroom is up to the instructor. Since technical hitches occur with the hardware a military instructor has to know the system very well.⁵⁹⁸ If the instructor does not know how to administer VBS in class the instructor's credibility is at risk. Notably, while not every instructor seems to attain **instructor buy-in** of this particular form of wargaming, the majority of military instructors do seem to accept this form of wargaming.⁵⁹⁹ Buy-in of military instructors in this use of VBS seems indispensable for the actual concept to work. Without military instructors, the Simulation Center would not be able to deliver this actual form.⁶⁰⁰ Accordingly, the exact application in class is dependent on the individual military instructor.

⁵⁹⁸ Interview: Carter, 2015-12-08.

⁵⁹⁹ Interview: Castro, 2015-12-08.

⁶⁰⁰ Interview: Castro, 2015-12-08.

Maneuver Center of Excellence (Fort Benning)

The Maneuver Center of Excellence, formed in 2010 by the merger of the US Armor and Infantry Schools, is an educational organisation. According to instructors, initiatives developed at the Maneuver Center of Excellence are 'spread around' to other US Army Centres of Excellence such as aviation, engineers, and military intelligence. The central position of the Maneuver Center of Excellence in the education of US Army officers is affirmed by the fact that the School of Advanced Leadership Tactics (SALT) at Fort Leavenworth accredits the curriculum. The main course at the Maneuver Center of Excellence is the 22 week long Maneuver Captains Career Course. This course accepts 150 military students each year. The Maneuver Captain Career Course (in 2015-2016) has different phases: an initial company phase, a mid-course exam (85 % pass rate) and a final battalion phase. Within the different phases, sub-modules (A1, B1 etc.) focus on different organisational types (armour, infantry, Stryker). The common core of the curriculum prescribed by Fort Leavenworth is a total of eight weeks, but it is spread across the 22 weeks to avoid becoming a separate block.⁶⁰¹

The main subject in the Maneuver Captains Career Course is tactics. The Tactics Division is responsible for the main subject with three teaching teams and eleven instructors in each team. Turnover for an instructor is two and a half years, and to become an instructor, an officer has to be nominated and vetted. Each teaching team usually includes one field artillery, one engineer and one or two aviation officers besides officers that belong to the armour and infantry branches. Each teaching team is in charge of one class with 15 students per class. The teaching philosophy is 'small group instruction' and each class consequently has its own designated classroom. Education is centred on visualisation of how enemy and friendly mechanised forces fight. This is considered a challenge since most of the students have a professional background in dismounted infantry. Hence, they are not used to the much faster way of combat, i.e. mechanised 'move and fight'. For this reason, the instructors need to 'break them' from bad habits in order to handle a mechanised infantry company. An additional challenge is that the students' previous military experience is considered weak since it usually concerns counter-insurgency (COIN) with weak enemy opposition. After graduation (2015), almost every one of the captains is assigned to a staff position (battalion/brigade). Then, after about one year, they become Company Commanders.⁶⁰²

⁶⁰¹ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶⁰² Discussion: the Maneuver Center of Excellence, 2015-12-10.

Contemporary wargaming

A multitude of simulations is in use in the Maneuver Captain Career Course. The different modules involve specific use of simulations. For example: the *Virtual Battlespace* (VBS) is used in sub-module A1 and the *Close Combat Tactical Trainer* (CCTT) is used in sub-module A3. These sub-modules concern dismounted infantry combat. The general focus of all the simulation-based activities is on two aspects: practice – i.e. the students are to solve tactical problems – and visualisation of terrain and different actors such as civilians. The students' tactical solution is communicated by a standardised order-format. This is part of the Military Decision-Making Process (MDMP), which is used as the framework for what is called 'formal wargaming'.⁶⁰³

The simulation-based activity of 'formal wargaming' is part of a planning session of eight hours (one day) where wargaming is one step of eight that is executed. Such sessions occurs in sub-modules B1, B2 and B3, which belong to the battalion phase in the final part of the Maneuver Captain Career Course. This particular form of wargaming spans across two parts: an initial analysis of Centre of Gravity and then a wargame – comparison – of possible Courses of Action (COA). The 'formal wargame' is supposed to identify critical events and is conducted by the common action/reaction/counter-action process. To save time and keep focus, delimitation consists of a wargaming technique of three physical concepts: BOX, BELT and AVENUE. A BOX concentrates on one area only, for example, the area of the final assault, or a river crossing. A BELT concerns actions synchronised in time at different places in a sequential order. This makes this concept logical and is thus considered the best concept for beginners. Synchronisation is also the case with an AVENUE, however, it is more geographically limited and sequentially covers one route of activity only. These three concepts all delimit the map area where actions occur. The wargaming process is 'walked through' during the first battalion module (B1) with an instructor as the executive officer (XO) in charge of all staff activities, including the wargame. This 'formal wargame' is also known as a COA-wargame. During a discussion session with the actual instructors, they argued that their main focus in this form of wargame is to control the wargame in order to get output and to keep things realistic: wargaming is not about 'playing', but to 'control chaos' and fit in the action/reaction and counter-action process. It is essential to visualise the plan and outcome of actions manifested in time and space. For that specific reason, a relatively straightforward terrain model laid out on the classroom floor seems to be the common method of visualisation as part of this 'formal wargame'.⁶⁰⁴

⁶⁰³ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶⁰⁴ Discussion: the Maneuver Center of Excellence, 2015-12-10.



Photograph no. 24: a classroom terrain model of a 'formal wargame'. The Maneuver Captains Career Course (Fort Benning, 2016) provided the photograph.

The person responsible for running a 'formal wargame' is a field grade officer. Specifically, this is the executive officer (XO), also known as S3, usually a major in a battalion headquarters. However, since such officers are 'not very good at wargaming', captains with more recent education take a larger role in the actual running of a 'formal wargame'. In essence, the S3 plan officer and the S2 intelligence officer have to play the wargame and apply all steps in the Military Decision-Making Process since the XO has 'no idea of wargaming' and the S3 is usually away together with the Battalion Commander.⁶⁰⁵ The implication from this statement is that the Maneuver Captains Career Course is the place where COA-wargaming is actually learned.

Students are taught how to facilitate a 'formal wargame' at the Maneuver Captains Career Course. Fundamentally, the Military Decision-Making Process (MDMP) is the bedrock on how to conduct a 'formal wargame'. However, there is slight variation – within 'left and right limits' – based on the individual instructor. For example, deciding which one of the three physical limitation concepts (BOX, BELT or AVENUE) to use. This choice by the wargame facilitator depends on several factors. One instructor, for example, favours the BOX in conjunction with sketch notes since this allows more focus. This is, however, contingent on how large the BOX is. In the course, the BOX concept tends to be used for the company phase while the BELT concept is used for the battalion phase. This is because instructors believe that the BELT concept is better for synchronised events rather than critical

⁶⁰⁵ Discussion: the Maneuver Center of Excellence, 2015-12-10.

events.⁶⁰⁶ In addition to the instructors, former Battalion Commanders are brought in to supervise in classrooms. Furthermore, at mid-point in the course, all study groups are changed while instructors are switched. The underlying reason for allowing input from many individuals is to help the military students visualise by the use of COA-wargaming.⁶⁰⁷ In addition, the students get different perspectives from different instructors.

Military instructors are concerned that many students do not spend enough time on wargaming. COA-wargaming in the military decision-making process occurs during an eight hour coached procedure that begins with a task and ends with the issue of orders. The time limit of eight hours, however, causes only the top ten percent of the students to do wargaming properly. One indication of properly done planning is that the student, as a wargame facilitator, includes the enemy action. One indicator of failure to do the process properly is that the military students spend too much time with the COA development step. This results in no time for rehearsal and often no wargame. The instructors offered two insights into this problem: first, there is an inherent challenge to determine *the scope* of wargaming and, second, to determine *how* to wargame. The latter issue specifically concerns the battalion level and a scenario with many critical events.⁶⁰⁸

Beside the COA-wargame there are three other examples of simulation-based activities. The first concerns the use of VBS and dismounted infantry operations. One student acts as the Company Commander. The purpose is to visualise time and space and to demonstrate a potential lack of COA-analysis in the previous COA-wargaming. An instructor controls the enemy force (OPFOR) in VBS. Specifically, OPFOR is used to visualise a gap in the plan, for example, a flank threat, a contingency that was not envisioned in the plan. The idea is that the student has to worry about ‘the next thing’: for example, the blue force’s transition from attack to defence as the OPFOR reserves may counterattack. Based on a classroom observation, one student is assigned to the enemy side, and is the individual who actually moves the avatars in the VBS. The classroom instructor is observing both sides in the wargame – and thus has control of the class – within the same classroom.⁶⁰⁹

⁶⁰⁶ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶⁰⁷ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶⁰⁸ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶⁰⁹ Observation: the Maneuver Center of Excellence, 2015-12-10.

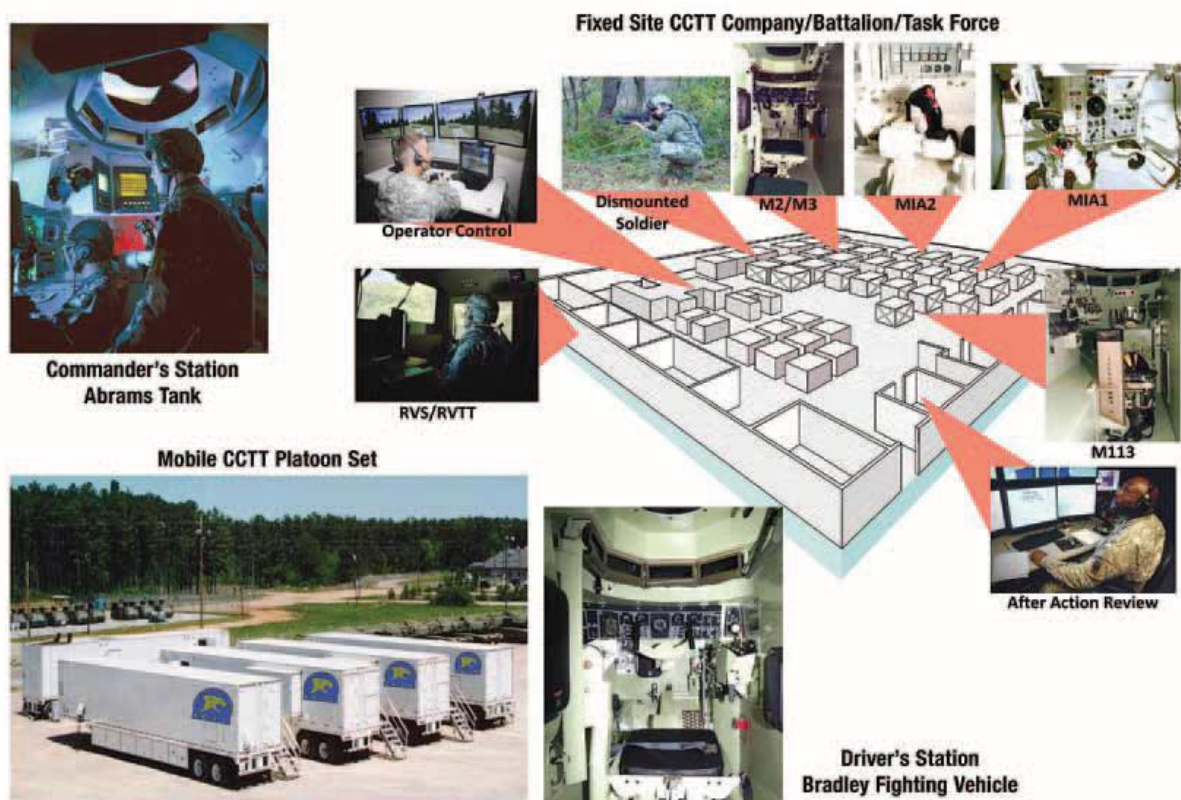


Illustration no. 12: the Close Combat Tactical Trainer (CCTT).⁶¹⁰

The second activity is the *Close Combat Tactical Trainer* (CCTT), which is located at the Clarke Simulation Center, also at Fort Benning. It is a 'virtual collective training simulator'. At the core of the facility are 32 M1 Abrams and 32 M2 Bradley mock-ups, referred to as 'crewed simulators'. The CCTT is considered an 'effective simulation of (...) combat environment' with 'sufficient fidelity'. The CCTT is used by the Maneuver Captains Career Course to simulate the attack and the defence of a mechanised company. The purpose is to expose gaps in the plan. There are, however, no force on force sessions since that would constitute 'blue on blue' scenarios, i.e. friendly fire, such as M1 Abrams engaging another M1 Abrams. This is not something that the Simulation Center wants to make a habit of. In addition to the CCTT, the Simulation Center also provides training for the military instructors regarding their use of VBS in the classrooms. In total, an instructor undergoes one day of training by the Simulation Center on how to use VBS. This training allows one instructor to run VBS with a class in their classroom.⁶¹¹

⁶¹⁰ FAS (2012).

⁶¹¹ Observation: the Clarke Simulation Center, 2015-12-10.



Photograph no. 25: the Joint Conflict and Tactical Simulation JCATS (2012).⁶¹²

The third activity is the *Joint Conflict and Tactical Simulation (JCATS)*, which is also located at the Clarke Simulation Center. JCATS is a constructive computer-based simulation that provides visualisation by a 2D map. Specifically, JCATS 'is a joint multi-sided, real-time, stochastic - high resolution, interactive computer-based simulation system that models force interactions from the Joint Task Force level to the individual person'.⁶¹³ The strength of JCATS is the flexibility to move units around and to allow students to participate as a battalion staff. Furthermore, JCATS allows the students to watch their plan in action. For these reasons, JCATS is used for execution-training at the battalion phase in the Maneuver Captains Career Course. There is, however, only one scheduled JCATS-session during the entire course. This single occasion was cancelled in 2015.⁶¹⁴

There are indications that wargaming forms are evolving at the Maneuver Center of Excellence. While the Maneuver Captain Career Course's schedule specifies different wargaming activities and thus specific forms of simulations, the fine-tuning of the exact wargaming procedure is up to the instructor. In fact, an instructor has the opportunity to conduct additional wargaming activities. The consequence of adding additional wargames is, however, that something else has to go. Hence, it is therefore considered indispensable that the instructor actually knows and understands the wargaming method

⁶¹² US Army (2012).

⁶¹³ Lawrence Livermore National Laboratory (2015).

⁶¹⁴ Observation: the Maneuver Center of Excellence, 2015-12-10.

in order to produce results within the assigned time limit.⁶¹⁵ One reason why wargaming activities are sometimes dropped is because of a lack of resources. For example, it was mentioned that it takes too long to input scenarios into computers. A lack of time was seemingly one of the reasons why the JCATS-session was cancelled in 2015. It is also a question of control. For example, regarding the VBS activity, it is the instructor, and not the Simulation Center, that actually runs the system. This focus on the instructor is specifically apparent in manual-based wargames such as the ‘formal wargame’ (COA-wargaming), which is sometimes supplemented by a terrain model laid out on the classroom floor. Such a terrain model is usually straightforward with just a blanket, with cushions below it to visualise and model elevations. However, it still takes about two hours to construct a rudimentary terrain model. Based on observation it seems to be entirely up to the individual instructor to decide the terrain model’s level of elaboration. One apparently very ambitious instructor – as acknowledged by other instructors – even used miniatures on the terrain model for extra visualisation.⁶¹⁶

Control & veiling

Physical veiling does not seem to occur at the Maneuver Center of Excellence. Collected data indicates that the training audience interacts directly with the simulation system. Indeed, the training audience is directly involved in every example of discovered wargaming activities. One major purpose of wargaming at the Maneuver Captain Career Course is to visualise the company and battalion command levels for the military students. With this in mind, the simulation system and the military students interact physically. One incident of this connection between visualisation and learning, by direct exposure to the wargame, is the use of terrain models in conjunction with COA-wargaming.

Regarding other indicators of the suppression of gamification there are signs that the instructor, regarding the use of *Virtual Battlespace* (VBS) in a classroom, executes full control of the simulation. There are, however, no distinct indications of ‘gas and brake’ concerning halt and restart. Instead, control seems to occur in deciding the starting position of the respective force. What is clear, however, is that free play is not allowed: the instructor wields tight control over the OPFOR in order to expose known weaknesses in the students’ plan. In the case of VBS, one (of fifteen) students may operate the VBS as OPFOR. Every wargaming activity, except the ‘formal wargame’ (COA-wargame), is furthermore referred to as simulation rather than wargame.

⁶¹⁵ Interview: Hefti, 2015-12-10.

⁶¹⁶ Observation: the Maneuver Center of Excellence, 2015-12-10.

Simple standardising

The method of using wargaming as a tool to expose apparent weaknesses in students' plans seems to constitute the general idea behind the use of wargaming at the Maneuver Center of Excellence. However, testing a plan, i.e. execution-training ('classroom warfighting'), only concerns about half of the wargaming activities. At least half of the wargaming activities are part of the process of producing a plan, i.e. 'classroom planning'. The 'formal wargame', COA-wargaming, is used to develop a plan as part of a COA-analysis. This form of wargaming is the only activity that is directly referred to as 'wargaming', whereas other forms, CCTT, VBS and *Joint Conflict and Tactical Simulation* (JCATS), are referred to as 'simulation'. In terms of numbers, COA-wargaming seems the most common wargaming activity, with VBS as the second most common form. In both cases, the individual classroom military instructor has a central role in the wargaming session.

The emphasis on COA-wargaming makes it possible to explore the properties of the concept of simple standardising. The constant references to the MDMP – the Military Decision-Making Process – and the use of wargaming to analyse courses of actions (COA) with different physical concepts (BOX, BELT or AVENUE) is an indicator of the property adherence to doctrine. Concerns by instructors that the students tend to cut corners, and even skip wargaming because of time constraints, indicate the belief that 'we have to do wargaming'. This is because wargaming is doctrinally – and thus formally – established as one explicit step in the MDMP, hence, a 'formal wargame'. Since COA-wargaming is a specific step in the MDMP it also has to produce results. The actual product – the outcome of the COA-analysis – is important. Consequently, the property adherence to doctrine is evident regarding COA-wargaming. For other forms, focused on execution-training, adherence to doctrine is arguably not apparent.

COA-wargaming and the other forms of wargaming also seem to differ regarding the property of simplicity. One indicator of the property of simplicity is that the wargaming form is encompassing, i.e. every officer must manage the wargaming form and therefore every officer should be able to practise wargaming. This ability to facilitate is relevant for the individual classroom instructor, who has to supervise and control different wargaming activities. This includes COA-wargaming, and the simulation activity of VBS. In the case of the latter, the local simulation centre provides support to individual military instructors in the form of one day of training. This, however, seems somewhat inadequate for feeling fully comfortable with the simulation system. At West Point, an instructor arguably needs more than one year of experience to feel comfortable using VBS. This difference may, however, indicate a difference in how VBS is used – there seems to be more emphasis on simplicity at the Maneuver Center of Excellence. One indication is that, regarding CCTT and JCATS, civilians at the Clarke Simulation Center are the ones that actually do the data preparations. Civilians also run these simulations whereas the

military instructors are responsible for the after-action report.⁶¹⁷ Hence, the indication that every officer must have the ability to manage wargaming does not seem apparent in CCTT and JCATS. On the other hand, the use of VBS, and in particular COA-wargaming, indicates that every officer has to have the ability to wargame.

The indicator of intra-professional learning can further explore the reliance on instructors to run most wargaming forms. One of the military instructors explained that he first learned about COA-wargaming in his army career at the Maneuver Captain Career Course. He subsequently had the opportunity to observe a number of COA-wargames at the US Army National Training Center (Fort Irwin) conducted by visiting army units. In addition, he also conducted wargaming during one tour of duty in Afghanistan. Personal and professional experience formed the base from where the instructor then developed his own method of wargaming. This method integrates and blurs the formal wargaming technique with the physical concepts of BOX, BELT and AVENUE. For example, in order to conduct a quick-running wargame, since time is always short in planning, the instructor selects one critical event (or 'friction point') and plays it as a BOX in combination with – to ensure synchronisation – BELT and/or AVENUE.⁶¹⁸ This method of blending concepts into a practical wargaming procedure was developed from professional experience rather than from formal instructions and manuals. One key property within this development was the need for the instructor to comfortably control the wargame. This striving for comfort and control connects to the property of simplicity. Further indications of simplicity are the attitude that wargaming forms 'must work in the field'. This is not related to issues of cost. Instead, the real issue for the instructor is what happens if the computer malfunctions – perhaps because of a cyberattack. Hence, many instructors realise that maps are still needed as a 'back-up'.⁶¹⁹ This concern of the instructors thus connects the manual-based COA-wargame to the property of simplicity.

Innovative active learning

Promotion of gamification does not seem apparent in the wargaming activities at the Maneuver Center of Excellence. While there is arguably much focus on execution-training to force the military students to reflect on their constructed plans and to learn to think ahead and anticipate actions and reactions, there were no references to gamification from instructors as a way of increasing learning. The data collection, for example, did not reveal findings of competition. On the contrary, it was even stated that wargaming is 'not about playing.' There were, for example, no incidents of force on force sessions with the *Close Combat Tactical Trainer* (CCTT). Instead, the instructors emphasised the control of the

⁶¹⁷ Observation: the Clarke Simulation Center, Fort Benning, 2015-12-10.

⁶¹⁸ Interview: Hefti, 2015-12-10.

⁶¹⁹ Interview: Hefti, 2015-12-10.

wargame, in order to get outputs and to keep things realistic.⁶²⁰ This emphasis on instructor control goes together with the ambition to visualise what happens in time and space. This focus does not indicate promotion of gamification.

Palpable instructor control may indicate individual innovativeness, the second property of innovative active learning. Notably, there seems to be some flexibility for individual instructors to run a wargame session according to their ideas. This flexibility seems primarily to concern the classroom wargaming activities: COA-wargaming and VBS. One instructor added a terrain model to the COA-wargame and ostensibly did a 'full wargame' (action/reaction/counter-action) with both a COA-analysis and a rehearsal in the same session.⁶²¹ However, this example of individual innovativeness seems to be an exception since instructors at the Maneuver Center of Excellence arguably wield little influence to affect the overall wargaming form. For example, support personnel at the Clarke Simulation Center run CCTT and JCATS. However, instructors *can* modify the procedures within a manual COA-wargame according to their own ideas, such as for example, blending the three concepts of BOX, BELT and AVENUE. Notably, this individual experimentation is considered to be *art* whereas the instructors consider formal procedures to be *science*. For this reason, the individual that runs a wargame needs a certain level of understanding, something which is of central importance in order for that individual to successfully conduct wargaming.⁶²² While the running of a wargame thus entails some individual innovativeness, the 'formal wargame' does not seem to significantly change when instructors transfer.

Regarding the 'attitude that no one else understands wargaming', there are signs that such attitudes exist at the Clarke Simulation Center. This is indicated in a striving to 'heighten awareness' of their simulation systems, in particular JCATS.⁶²³ Notably, JCATS is different from the other computer-based simulations (VBS, CCTT) in that JCATS is a 2D constructive simulation, rather than a 3D virtual simulation. However, JCATS is, at least temporarily, no longer in use in the Maneuver Captain Career Course. This situation and the striving to 'heighten awareness' by offering free sessions to any course, in combination with argumentation centred on cost-effectiveness and environmental friendliness, may be interpreted as an attitude that 'no one else understands wargaming'.

⁶²⁰ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁶²¹ Interview: Hefti, 2015-12-10.

⁶²² Interview: Hefti, 2015-12-10.

⁶²³ US Army (2012).

Command and General Staff College (Leavenworth)

The United States Army Command and General Staff College (CGSC) was established in 1881 and currently (2015) has about 7,500 students every year. This includes about 6,000 students enrolled in distance education. The CGSC consists of four schools. The first is the Command and General Staff School (CGSS) where mid-career army officers with the rank of major, or slated to become major, receive intermediate level education (ILE) in a ten-month program. This is the ten month long Command and General Staff Officer Course (CGSOC) for mid-career US Army officers. The focus is on division, brigade and battalion levels. The students may opt to study towards a master's degree in Military Arts and Sciences (MMAS). The second is the School of Advanced Military Studies, also colloquially known as the 'Jedi-course', which is a post-ILE program for selected students who receive a master's degree (MMAS). The focus is on the strategic and operational levels. The third is the School for Command Preparation (SCP) where senior officers (colonels and lieutenant colonels) attend a short course of three to four weeks regarding special topics before assuming command of a brigade or a battalion. The fourth, and last, is the School of Advanced Leadership and Tactics (SALT), which covers the development of US Army officers from the rank of first lieutenant to the selection for major: i.e. the entire timeline from the basic officer course (post-West Point or ROTC) until the officer's entry into the CGSS. A keyword in this educational timeline is the development of the concept of Scholar-Warrior-Leader, which concerns branch-specific skills in tactics, staff processes (battalions and brigades) and command competence.⁶²⁴

Contemporary wargaming

Computer-based simulations at the Command and General Staff College (CGSC) support three major exercises. Two of those involve the Command and General Staff Officer Course (CGSOC). The first is named '23 Div MCO staff exercise' and is supported by *Decisive Action*. The second exercise is the '88 BCT stability staff exercise', which uses *Elusive Victory*. The third exercise is for the School for Command Preparation (SCP) and is named the 'BN/BCT stability op commander exercise'. It uses *UrbanSim* for support. All three simulations use students as operators and ordinary classroom computers. Most exercises seem focused on the planning process. The only acknowledged simulation for execution-training is the '23 Div MCO staff exercise' with *Decisive Action*. This particular exercise is run with no fewer than 23 ongoing simulations in parallel. With this quantity, the simulation team with a total of five individuals is unable to provide full support. Instead, the first tier of support consists of the Tech Cell, manned and led by students that usually belong to category FA57 (Functional Area 57: Simulation

⁶²⁴ US Army (2014).

Operations).⁶²⁵ These students teach their fellow students how to operate *Decisive Action*. In each 'section' of 64 students, one or two FA57 students receive 16 hours of pre-training with *Decisive Action*. They then teach their fellow students: ten of the 64 students become the simulation operators.⁶²⁶ During an exercise, in one section of 64 students, the majority would man the divisional headquarters, while the rest are placed in other cells, such as LOCON (four blue brigades) and OPFOR (four students). Notably, the classroom instructor typically plays the role of the Division Commander. The '23 Div MCO staff exercise' covers two weeks plus one week of preparation, all within a course module of 4-5 weeks. Each classroom instructor decides at what point in the scenario, for example, at an 'early entry' or at the 'final push', the simulation will commence.⁶²⁷



Photograph no. 26: *Decisive Action* at the CGSC.⁶²⁸

Decisive Action is described as a staff-centric wargame for major combat operations at the division and army corps level. It is a 2D computer-based constructive simulation with a flexible editing system for the instructor that runs and control the wargame. An instructor, Lieutenant Colonel (Ret.) Lunsford, designed *Decisive Action* for the CGSC in 1998. *Decisive Action* later became available on the commercial market in a civilian version. Continuous updates have led to the derivative *Decisive Action*

⁶²⁵ Interview: Sterrett, 2014-10-17.

⁶²⁶ Guillory (2013).

⁶²⁷ Interview: Sterrett, 2014-10-17.

⁶²⁸ Guillory (2013).

Brigade Level. The reason why *Decisive Action* became computer-based, and not manual, was dependent on two factors: the designer's own programming skills and the military culture's alleged non-acceptance of board games. Before developing *Decisive Action* the designer and instructor Lieutenant Colonel (Ret.) Lunsford actually used the manual *Dunn and Kempf Wargame* (1977-1997) once. However, 'people hated it'. This was allegedly not because of the design, which was good, but because the military culture did not accept this form of wargaming. The computer, on the other hand, provided a level of credibility while the board game format did not.⁶²⁹

Decisive Action is not the only wargame designed by Lieutenant Colonel (Ret.) Lunsford. *Follow me* was designed for West Point and covers the basics of tactics at company and lower levels. However, the visit to West Point revealed that *Virtual Battlespace* (VBS) is used instead because of its 3D-vizualisation. On the other hand, VBS is not used at the CGSC since VBS is designed for platoon tactics, which is not a level of concern at the CGSC. Another wargame by Lunsford is *Crucible of Command*, which covers offense/defence at the company level. *Crucible of Command* is apparently not used as much anymore. According to some instructors, with a background from the Maneuver Center of Excellence, *Crucible of Command* is 'not detailed enough'. Consequently, the instructors preferred the *Joint Conflict and Tactical Simulation* (JCATS) instead.⁶³⁰ This is logical since these instructors should be familiar with JCATS since it has been used at the Maneuver Center of Excellence.

Besides the computer-based simulations, the other type of wargaming activity discovered concerns so-called 'Bite-Sized Games', which are run in accordance to learning theory. Students are provided concrete experience from the start – for example, a short movie sequence. Then the situation is 'published' and the students have to 'process' the information. This second step is GNI, which stands for 'generalise new information'. The third and final step is to apply the GNI. This three-step process relates to game-based learning. This is further evident in that simulation and games are used for examinations, where individual students are observed. There is a plethora of different 'Bite-Sized Games'. One noticeable example is *UrbanSim* which is based on web-deliverability and about stability operations. *UrbanSim* apparently suffers from a weak scenario editor with only two scenarios (Iraq and Afghanistan). A further and more serious drawback is that *UrbanSim* is not a 'staff driver': i.e., an entire class (16 students) cannot participate. Another example of a 'Bite-Sized Game' is *Future Force*, which covers five operational areas. *Future Force* is 'extremely abstracted' with one student playing as the chief of staff of the US Army for twenty turns. There is no need for any major pre-training and this game has been used since 2010. *Future Force* is also commercially available. Another example is a

⁶²⁹ Interview: Lunsford, 2014-10-15.

⁶³⁰ Interview: Sterrett, 2014-10-17.

logistical simulation, *Forward into Battle*, which allows up to five players for the following roles: OPFOR, logistics, movement, protection and corps level fuel management. *Forward into Battle* was created from a board game and is based on 'force flow'.⁶³¹

The various 'Bite-Sized Games' have been developed locally for specific teaching purposes. *The Grand Offensive* was developed at the Digital Leader Development Center (DLDC) and was apparently inspired by a commercial 1980s game. *The Grand Offensive* is about the First World War, specifically the Battle of Somme, and it depicts the urge to 'try again' in order to make a perfect push against prepared German defensive positions. *The Grand Offensive* is played for one turn only with several parameters that can be tweaked, such as force concentration, surprise attack, time for assault (night/day) etc. Students have to submit a screenshot of their best result – the very same screenshot also shows how many times the student has tried (i.e. attacked). One student attacked 23 times but it is not possible to win *the Grand Offensive* – only to improve historical results, which explains why the students made repeated attacks. These actions can be compared to the repeated attacks that have happened historically. *The Grand Offensive* is perceived to be a 'simple simulation' and is used by the Department of Military History.⁶³² The main design feature is that the player is playing alone and competing against himself, with self-induced iterations. While it can be argued that the single player and one turn only does not make the *Grand Offensive* a wargame, the multiple turns arguably transfer it to the wargaming category.

In addition to the examples of computer-based simulations and the 'Bite-Size Games' there are additional wargames used in elective 'after-class activities' at the CGSC. First and foremost is the classical military wargame, *Kriegsspiel 1824*, a copy of the traditional Prussian-styled map-based wargame. *Kriegsspiel 1824* is used to run a scenario on the 'Metz map', with three army corps per side. This wargame is part of the elective module 'Decision in Action' that addresses the evolution of the tactical and operational levels of war, from Napoleon through the Second World War, using a combination of in-class discussion, reading, and various wargames.⁶³³ Another elective wargame is the *Dunn and Kempf Wargame*. Two US Army officers, Hilton Dunn and Steve Kempf, developed it in 1975 when they were students at Fort Leavenworth. Dunn and Kempf were allegedly influenced by a commercial wargame design (WRG 1970-75). The *Dunn and Kemp Wargame* is a manual wargame at the battalion level, with miniatures, that utilises a terrain board. It was superseded in the 1990s by various computer-based wargames.⁶³⁴ The continued use of the *Dunn and Kempf Wargame* in elective

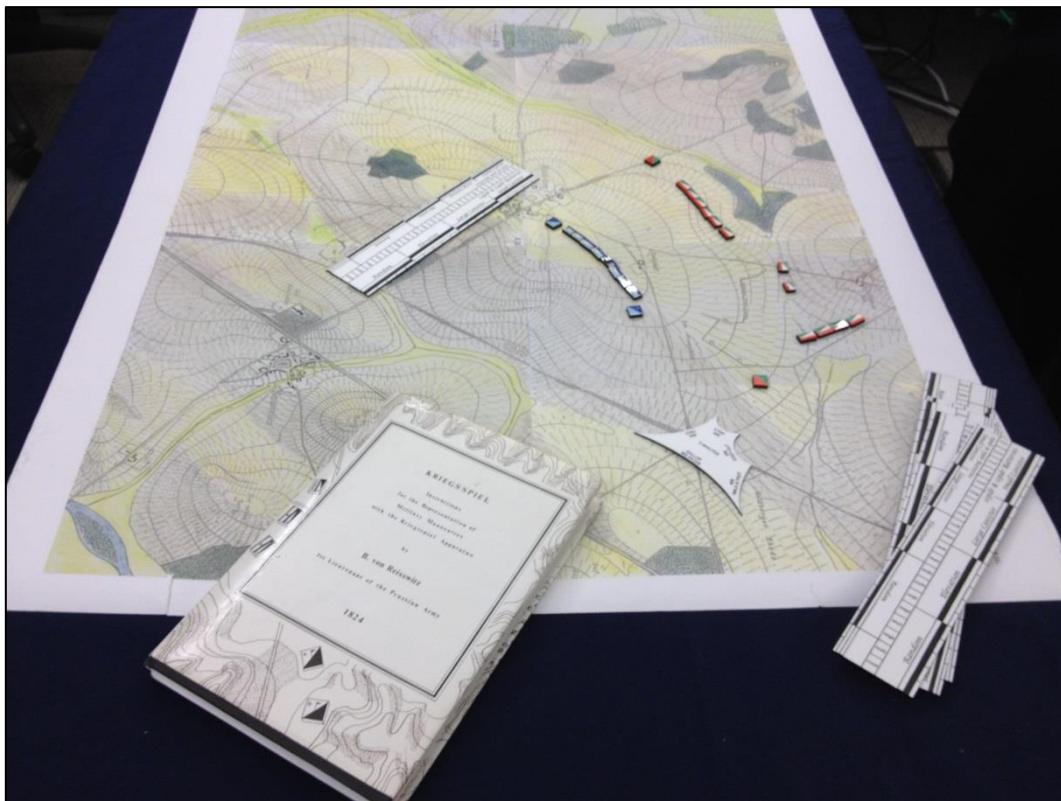
⁶³¹ Interview: Sterrett, 2014-10-17.

⁶³² Observation: 2014-10-17.

⁶³³ Email: Hospodor, 2017-07-19.

⁶³⁴ Dunn Kempf (2008).

'after-class activities' seems connected to the individual instructor. This inference becomes more evident concerning a naval 'home-made' board game on strategic dilemmas. This particular board game is centred on the logic behind the so-called 5-5-3 naval balance between Great Britain, United States and Japan in the 1920s. This naval wargame, on prioritisation of warship-building in the 1930s, is used in a two-hour class. The game comprises an umpire and two players. This can, however, be expanded to 8-10 players with different maps if the instructor is 'comfortable' in handling this.⁶³⁵ As one instructor mentioned: 'the instructor (game master) is a key component of the learning process.'⁶³⁶ In other words, these wargames are connected to individuals who are comfortable with this manual form of wargaming.



Photograph no. 27: *Kriegsspiel 1824* at DLDC, CGSC.⁶³⁷

Control & veiling

According to the data acquired, the modus operandi of the simulation exercises, the 'Bite-Sized Games' and the elective wargames, seems to be that the students themselves operate and interact with the wargames. They either learn how to operate the wargame, or a certain category of students (FA57)

⁶³⁵ Interview: Sterrett, 2014-10-17.

⁶³⁶ Email: Hospodor, 2017-07-19.

⁶³⁷ Observation: 2014-10-17 (photograph by author).

are the ones that operate the computer-based simulation system. All the simulation systems seem to indicate direct interaction with the military students. There are no indications of physical separation. Furthermore, since the students themselves run the systems, control by the classroom instructor seems more indirect, i.e. the focus is on the starting point of the scenario rather than direct intervention ('gas and brake') *during* the actual wargame. A purpose that was mentioned several times during data collection was that the use of a wargame in a classroom was to 'drive a discussion'.⁶³⁸ This may, however, indicate that the wargame is limited and that gamification is suppressed.

One potential indicator of suppression of gamification would be that free play is not allowed. However, while there are few examples of exercises on execution-training, the one that was mentioned – the '23 Div MCO staff exercise' with *Decisive Action* – has a red cell of four students. On the other hand, there are not two equal teams in a double-sided exercise – the bulk of the 64 military students per simulation man the divisional headquarters. Regarding the indicator of the attitude of 'not doing wargaming here', the fact of the matter is that 'wargaming' is a rarely used term. On the other hand, the term 'game' is explicitly used for some activities, i.e. the 'Bite-Sized Games'. The term 'simulation', however, seems to be the dominating term and especially so for the larger wargaming activities.

Simple standardising

When it comes to the property of simplicity it seems that wargaming forms that are selected have to be encompassing since it is the classroom instructors that have to exercise control. However, the instructors have extra support in the form of assigned simulation officers (FA57) among the students who handle the computer-based simulation systems, such as *Decisive Action*. These simulation officers receive in-house pre-training: either specifically regarding a special simulation system or more generally based on a few shorter courses on simulation for training and education. Simulation officers (FA57) are a particular category of personnel that are assigned one or two billets in the training section (S7/G7) in a US Army headquarters (BN/BDE/DIV/CORPS). Their function at the CGSC, besides completing their education like everyone else, is to support and train their fellow students. The presence of simulation officers among the military students is an indicator of intra-professional learning – the vast majority of the military students seem to learn wargaming from their peers rather than from formal course modules. Lastly, there was no indication of viewpoints that argued that selected wargaming forms 'should work in the field'. On the other hand, there were concerns regarding cost. The use of *Decisive Action* seems to support an opinion that simulations are preferably run in a classroom setting with ordinary computers and within (a limited) budget and with no extra personnel

⁶³⁸ Interview: Sterrett, 2014-10-17.

beside the classroom instructor and the FA57 student(s). Arguably, this concern of cost and limited budgets may be seen as an indicator of simplicity. On the other hand, this concern does not propose an evidently cheaper wargaming form, such as manual map-based wargames. Arguably, the reason is because the computer adds a certain level of credibility.⁶³⁹ This, on the other hand, does not indicate simplicity, such as that the wargame 'should work in the field'.

Innovative active learning

There are several indications of support from game-based theory, such as the 'Experiential Learning Model' that emphasises decision-making, as well as apparent and prominent roles of innovative and enthusiastic individuals.⁶⁴⁰ The indicators of innovative active learning can be further explored by the organisational context. The Digital Leader Development Center (DLDC) provides wargaming support to the Command and General Staff Officer Course (CGSOC). The DLDC has an explicitly pedagogic approach in their use of educational wargaming. The approach consists of three parts: the first is the use of experimental learning to 'close the gap between textbook (crawl) and fieldwork (run)', the second is to make each student engaged in making relevant decisions, and third, to use simulation routinely – everywhere and everyday – 'to gain and maintain cognitive skills.'⁶⁴¹ Based on this pedagogic approach educational wargames are selected in accordance to four factors: pre-game preparation (i.e. how long it takes for the students to learn to operate the game); the level of abstraction; commander-centric (small group/individual) or staff-centric (entire class); and finally, type of operation (stability operation or a major combat operation). All four factors are integrated into a matrix that purportedly explains how different educational wargames are used within the CGSC.⁶⁴² This matrix, illustrated below as the 'simulation matrix', indicates the variables behind the selection of different educational wargames.

⁶³⁹ Interview: Lunsford, 2014-10-15.

⁶⁴⁰ Leser & Sterrett (2010).

⁶⁴¹ Digital Leader Development Center (2014).

⁶⁴² Digital Leader Development Center (2014).

Simulations at the Command & General Staff College

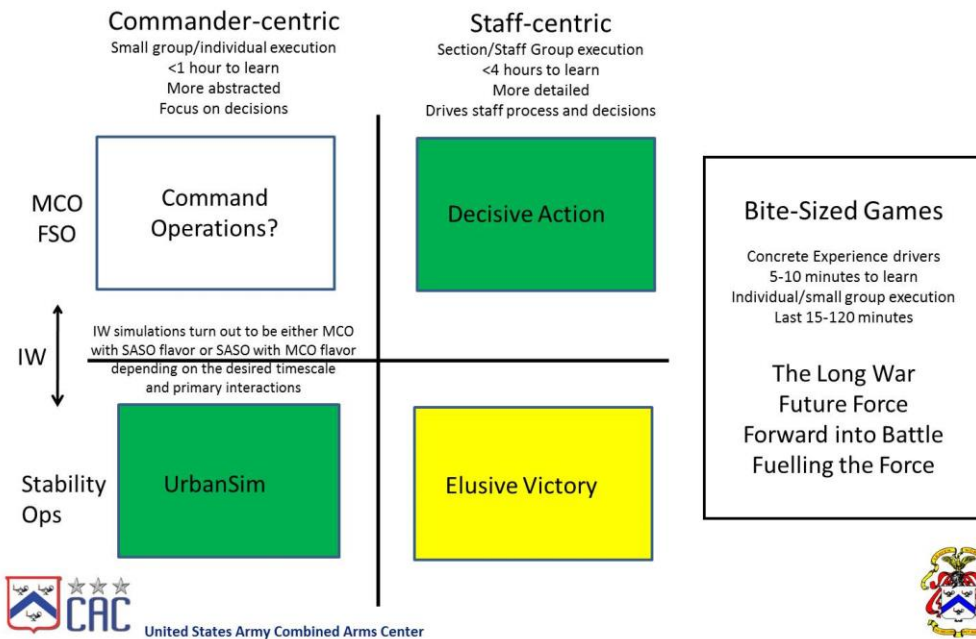


Illustration no. 13: the simulation matrix at the CGSC.⁶⁴³

The simulation matrix is based on thoughts grounded in game-based learning in addition to an explicit ambition of more wargaming, i.e. ‘a battle in every classroom’.⁶⁴⁴ The matrix can be summarised in the question: ‘How and why do you choose the simulation you use in your exercises?’ The answer to this relevant question, which stresses the role of the individual instructor, is presented as the PDI process (Purpose, Decisions and Interactions). While the students’ learning objectives are the purpose, the wargame is supposed to provide ‘decisions and dilemmas’, which the military students must face to learn. The process is important: the interaction covers the initial situation, input of decisions, and outcome of those decisions. The PDI process may be applied either to develop a new wargame, or to evaluate existing games. For example, if the requirement is to use a wargame within a time span of 60-90 minutes the wargame must be abstracted but still ‘present the essentials of the dilemma’. An example of such a wargame is *UrbanSim* which ‘drives discussion about stability operations’.⁶⁴⁵ Due to the envisaged short time span one requirement is that it should not take more than ten minutes of the class (16 students) to learn how to use *UrbanSim*. In comparison, if the wargame is to ‘drive a small staff exercise’ the level of details is increased but still limited to what is considered important for the student’s ‘key decisions’.⁶⁴⁶ Striving for more details, and presumably an increased level of realism, is

⁶⁴³ Digital Leader Development Center (2014).

⁶⁴⁴ Digital Leader Development Center (2014), and, Leser & Sterrett (2010).

⁶⁴⁵ Guillory (2013).

⁶⁴⁶ Interview: Sterrett, 2014-10-17.

considered a tangible development since ‘humans always want more details.’ However, the designated approach of the PDI process is ‘to enable tailored experimental learning environments on demand’. This customisation is described as ‘selective fidelity’, since the selected approach ‘focuses on decisions rather than details.’ Hence, too much realism is deemed unnecessary. Instead, a core element of wargaming, human interactional decision-making, is made central.⁶⁴⁷

Besides the PDI process, there are indications of individual influence and of friction between simulation support personnel and classroom instructors. Apparently, some instructors do not want to use manual board games since they would then have to learn more in order to run the game. Instead, they prefer a computer-based simulation since board games are considered ‘difficult’. While there often exists mutual understanding between the military instructors and the simulation support team at DLDC, there are also disagreements. It seems to be the case that the simulation support personnel, who consist of ‘gamers’, focus on the aspect of decision-making by adhering to the motto (allegedly by Sid Meyer) that ‘a good game is a game with many decisions’. The classroom teachers, on the other hand, have other concerns, such as non-complicated facilitation. This in turn connects to an explicit concern, from a simulation support standpoint, about the risk of ‘overselling’ a wargame since ‘no wargame fits everything’. And, if such a promoted wargame becomes a failure the result will be a loss of credibility – in this case for the Simulation Division within the DLDC. The explicit method of increasing credibility is by the use of the simulation matrix, which presents instructors with four *different* alternatives rather than a single wargame. In addition to the matrix, a division of labour means that the DLDC does simulation support and seemingly does not carry out facilitation by controlling the simulations in the classroom.⁶⁴⁸ This control is instead left to the instructor, with students as simulation operators. Accordingly, issues of control, comfort and credibility all feature in this arrangement of wargame selection.

The ‘Bite-Sized Games’ are based on learning theory and indicate promotion of gamification. Specifically, these games are ‘concrete experience drivers’ and allow the students to assess information and then make decisions based on the processed information. This approach connects to game-based learning. However, no data indicate that the wargames are actually used in a *competitive* setting – player interaction seems to be concentrated on everything *but* the adversarial aspect. There is one exception: the ‘23 Div MCO staff exercise’ with *Decisive Action*. The red cell in that exercise, however, consists of only four of 64 students in each simulation. Therefore, the red cell is arguably mostly symbolic. Regarding the issue of competitiveness, ‘gamers’, of which there are several at the

⁶⁴⁷ Interview: Sterrett, 2014-10-17.

⁶⁴⁸ Interview: Sterrett, 2014-10-17.

CGSC – especially at the DLDC – are in favour of a more competitive posture in wargames, which would see both the red and blue sides fully manned: for example 16 vs. 16 students.⁶⁴⁹ This indicates that while game-based learning is present in the reasoning behind the use of specific wargaming forms there are, on the other hand, few indications of competitive elements, at least in regard to a classical setting of two teams (red vs. blue) in a *Kriegsspiel*.

The example of *Decisive Action* reveals issues regarding individual innovativeness. According to the designer and instructor, Lieutenant Colonel (Ret.) Lunsford, he originally designed *Decisive Action* because he believed that there was a need to improve education in tactics, specifically, how to win battles against opponents. His arguments convinced his boss, who let Lunsford use his simulation in his class. Accordingly, during the course module five ‘battles’ were conducted with opposing sides, with the students divided into two equal ‘blue’ teams, who fought each other without the perception of one team being OPFOR (i.e. the ‘red team’). Learning was augmented with an after-action review (AAR). This involved the videotaping of a three minute presentation by both sides, about their plan and their considerations about their opponent’s plan, *before* the battle. This avoided possible student suspicion, when a setback occurred, that instructors had ‘cheated’ by deliberately causing a bad result for one team. The videotaping also contributed to creativity, as the students became aware that they were exposed to the other team’s thinking and estimates what they might do. One of the five battles was the historic battle of Gazala (1942, North Africa). However, the students were neither aware that the simulation covered this particular battle, nor that it was an actual scenario from the Second World War. Each battle lasted four hours in addition to the AAR. The students put in considerable effort, the simulation was low-cost, only one instructor was needed, and support was forthcoming from the higher organisational hierarchy. Consequently, Lunsford’s boss wanted all instructors to use *Decisive Action* the next year. This, however, turned out ‘a complete failure’. Lunsford’s own conclusion from this was that ‘the most important thing is the instructor.’ One contentious issue was that many instructors found it difficult that ‘students were running ahead of schedule’ – thus, the instructor stopped everything and restarted the simulation. Consequently, Lunsford then modified the wargame since he realised that flexibility and comfort were important for instructors.⁶⁵⁰ Accordingly, ‘the game master (teacher) is a key vector for success or failure. The game itself, while critical, is no more so than the person who runs the class.’⁶⁵¹

The example of *Decisive Action* leads to further exploration of the indicator that the wargame form changes when the instructor transfers since it reveals several entities with an interest in the form of

⁶⁴⁹ Interview: Sterrett, 2014-10-17.

⁶⁵⁰ Interview: Lunsford, 2014-10-15.

⁶⁵¹ Email: Hospodor, 2017-07-19.

wargaming. The different actors are: the classroom military instructor, the Simulation Division within the Digital Leader Development Center (DLDC) and the overarching organisational hierarchy. To balance these different viewpoints the PDI process is used. More importantly, however, this PDI process is followed by a joint decision between the Simulation Division at DLDC and the individual instructor.⁶⁵² While this indicates the importance of the individual instructor, it also acknowledges an overall organisational framework for simulation within US Army education. The US Army National Simulation Center (NSC), also located at Fort Leavenworth, and the US Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) in Orlando, have important roles in the procurement of simulations. The NSC is the combat developer, while PEO STRI is the material developer and is tasked by NSC. Hence, simulation procurement is supposed to be carried out according to a fixed organisational scheme. *Decisive Action* was not procured according to this system. This caused friction when the NSC promoted a new divisional-level simulation. The implication was that CGSC had to use the new simulation if it proved to be better than *Decisive Action*. From the perspective of *Decisive Action*'s designer Lieutenant Colonel (Ret.) Lunsford, 'people have no idea of gaming' as the formal requirement was for a 'simulation' with as many details as possible, whereas a 'game' is about abstraction.⁶⁵³ This indicates that an individual instructor may have strong opinions about wargaming. It would thus be expected that when the instructor has transferred away the wargaming form changes. This also occurred: instead of a double-sided wargame, the large exercise '23 Div MCO staff exercise' with *Decisive Action* focuses on primarily one side (the 'blue' force). However, *Decisive Action* is still in use. This is arguably because *Decisive Action* was redesigned to be more flexible, which arguably makes it easier for an instructor to achieve control, comfort and credibility.

⁶⁵² Interview: Sterrett, 2014-10-17.

⁶⁵³ Interview: Lunsford, 2014-10-15.

Conclusion

Data from the three embedded units of analysis: the United States Military Academy (USMA) at West Point (I), the Maneuver Center of Excellence at Fort Benning (II) and the Command and General Staff College (CGSC) at Fort Leavenworth (III), indicate the importance of the military instructor. For example, at West Point (I), the military instructors appreciate the versatility of *Virtual Battlespace* (VBS) and its real-time editing. One view is that teacher acceptance is a prerequisite for student acceptance. External support cannot replace a teacher for this purpose.⁶⁵⁴ This indicates the inherent credibility of the military instructor within the officer profession. It also indicates that **instructor buy-in** is crucial and more important than buy-in from military students and the organisational hierarchy.

The case of the USA has revealed that **instructor buy-in** does not necessarily entail fitting one specific wargaming form to one concept only. For example, the use of VBS at West Point (I) indicates adherence to properties of every conceptual category. For example, suppression of gamification is indicated by the seriousness of grades, which ‘takes the fun out of the game’ for the officer cadets. At the same time, promotion of gamification is indicated in how VBS is used in the classroom to generate experience and promote active learning, an element in game-based learning. This can be symbolised with the instructor saying ‘let’s run it’, rather than explaining that ‘this will not work’. Furthermore, the property simplicity is indicated by the fact that every instructor needs to be able to handle VBS in the classroom. Since all three concepts are involved, this entails a balancing act between indicators. However, this also means that the individual instructor can choose to focus more on one concept – for example, the degree of gamification (such as allowing competition).

The so-called ‘formal wargaming’, or COA-wargaming, at the Maneuver Center of Excellence (II), is a good example of a wargame that seems to overwhelmingly adhere to one concept: in this case simple standardising. Adherence to doctrine is manifested in the formal Military Decision-Making Process (MDMP) of the US Army. Simplicity is found in the manual-based approach, with ordinary maps and/or simple terrain models. This form of wargame is also to be managed by all officers. However, there are some indications of instructors conducting modifications: such as experimenting with the wargaming technique of three physical concepts, BOX, BELT and AVENUE, to achieve better results within the limited time available; or, a more elaborated use of a terrain model for actual wargaming rather than visualisation only. This indicates some individual innovativeness. However, such modifications are minor since the actual wargaming form is arguably not significantly altered. Notably, these modifications seem to adhere to simplicity since these are arguably developed from intra-professional experience rather than from formal learning theories.

⁶⁵⁴ Interview: Castro, 2015-12-08.

The CGSC (III) unit of analysis in particular explored **instructor buy-in** vis-à-vis the selection of wargaming forms. While there exists a formal process named PDI (Purpose, Decision and Interaction), the final decision involves the classroom instructor. Some instructors have strong personal views about wargaming. For example, several instructors allegedly do not want to put in any extra effort to learn how to use the manual wargaming form of board games. Instead, they prefer the computer to run the game. Since the game experts at the Simulation Division do not run the wargames themselves, the classroom instructor has a major role in generating credibility for the selected educational wargame. This is crucial since every wargame is likely to be questioned by the students. In one example, regarding *Decisive Action*, one instructor had to ‘defend the game’ repeatedly. This issue of credibility – and comfort – arguably arises because of a general perception that simulations are likely to have built-in biases. For that reason, the wargame may actually be a ‘bad tool’ if the wargame teaches the students incorrect lessons, for example, an inflation of the capacity of attack helicopters on a battlefield. At the CGSC, such potential problems of credibility are arguably mitigated by the application of the aforementioned PDI process. In other words, ‘without this process the wargame proponent will lose credibility’.⁶⁵⁵ Accordingly, **instructor buy-in** will not be achievable if an instructor cannot defend a wargame. Without **instructor buy-in**, any attempt to conduct an educational wargame is likely to result in a ‘complete failure’. This became the case in the initial general use of *Decisive Action* at CGSC (III). The simulation was subsequently redesigned to allow the instructor more control and flexibility. Accordingly, while formal support in terms of organisational hierarchy and formal processes is helpful, the individual instructor – the classroom teacher – is the most important person. For an instructor to quickly learn how to manage a particular educational wargame, the property of simplicity seems appropriate. Enthusiasts, or ‘gamers’, on the other hand, seem vital for the introduction of new wargaming forms. However, such forms are likely to disappear, evolve or transform when the innovative instructor transfers away, as exemplified by the current (2014) use of *Decisive Action* at CGSC (III) which differs from its initial use.

⁶⁵⁵ Interview: Sterrett, 2014-10-17.

8. Japan

Introduction

Officer education in the Ground Self-Defense Force (GSDF) is comparable to the other country cases in regard to the selected embedded units of analysis. The initial embedded unit of analysis is the National Defense Academy (NDA). It offers a four-year university-level education (bachelor degree) for officer candidates, who intend to become officers in the Self-Defense Forces. The initial level also includes the GSDF Officer Candidate School and its six-month education *after* the NDA. This is somewhat similar to the case of Germany with its two Bundeswehr universities and the Army Officer School in Dresden. The intermediate embedded unit of analysis is the branch school for armour and infantry officers. It is located close to Mount Fuji and known as the GSDF Fuji School. The third and final embedded unit of analysis is the GSDF Staff College in central Tokyo where GSDF officers study to attain the rank of major.

The main challenge regarding the case of Japan was accessibility, which was an actual issue during the visiting period in Japan. Access was gained to the NDA, which was visited by the author. Access was, however, not achieved in the form of a personal visit to the GSDF Officer Candidate School. In fact, a visit to the GSDF Officer Candidate School was discouraged by one of the author's GSDF contacts 'since there is no wargaming there'.⁶⁵⁶ This declaration led to further discussions with respondents of what 'wargaming' actually entails in Japan. Moreover, a scheduled visit to the Fuji School was cancelled due to the wargaming facilitators not being available at the scheduled time of visit. On the other hand, information on wargaming was obtained since all the interviewees had personally attended courses at the Fuji School during their officer careers. Some had also served as teachers and instructors at said school. Hence, based on the interviewees' experiences, data were available of wargaming activities at the Fuji School, as well as of educational activities at the GSDF Officer Candidate School. Data on wargaming at the GSDF Staff College were obtained in a similar fashion. In addition to interviews with former instructors and students, internet searches – based on keywords from the interviews – revealed photographs and texts of wargaming activities. This provided the basis for a formal request for information, via the Swedish Embassy, which provided further information on military educational wargaming in Japan. In the end, data were obtained on all three embedded units of analysis.

⁶⁵⁶ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

National Defense Academy (*Boueidaigakkou*, 防衛大学校)

In 1954, the National Defence Academy (NDA) was established near Yokosuka in Kanagawa prefecture, close to Tokyo. The purpose was, and is, to provide education at the university level to future officers of all three services in the Self-Defense Forces of Japan. The education program of the NDA spans four years. After graduation, the students transfer to one of three officer candidate schools (Land, Maritime or Air). At the GSDF Officer Candidate School (*Kanbukouhoseigakkou*, 幹部候補生学校), located at Maekawahara on the island of Kyushu, the military curriculum spans six months. Thereafter the officer candidate graduates as a commissioned officer with the rank of second lieutenant. Notably, officer candidates with a degree from the NDA constitute only about 20 % of all candidates at the GSDF Officer Candidate School. Slightly less than one-fifth are from civilian universities, and slightly less than half are recruited from within the GSDF.⁶⁵⁷ For this reason, the NDA can be considered the equivalent to West Point in the USA.

Contemporary wargaming

The initial comment received by the author during a visit to the National Defense Academy (NDA) was that ‘there is no wargaming here at NDA’.⁶⁵⁸ Likewise, nor are there, allegedly, any wargaming activities at the GSDF Officer Candidate School.⁶⁵⁹ These revelations led to further discussions on military educational wargaming. Several views surfaced among the respondents, all officers within the GSDF. One respondent defined ‘wargaming’ as a course of action (COA) session during the military planning phase. This particular wargaming form was described as influenced by – and for that reason similar to – US Army Doctrine (FM 101-5). For this reason, the term ‘wargaming’ – an English loanword – is accordingly included as a specific part of the GSDF’s military decision-making process. GSDF officers, however, habitually call this encompassing process of producing a plan and orders in accordance with a situation, a ‘map maneuver’. A ‘map maneuver’ is officially not ‘wargaming’, but some officers consider it a ‘wargame’.⁶⁶⁰ To make this use of terminology even more confusing, a Command Post Exercise (CPX) is generally referred to as ‘map maneuver’. CPXs are conducted in schools as well as at the GSDF regional level (army) with field units. The difference between the official doctrinal term of ‘wargaming’ and officers’ colloquial expressions of ‘map maneuver’ raises questions of the possible existence of a multitude of wargaming forms.

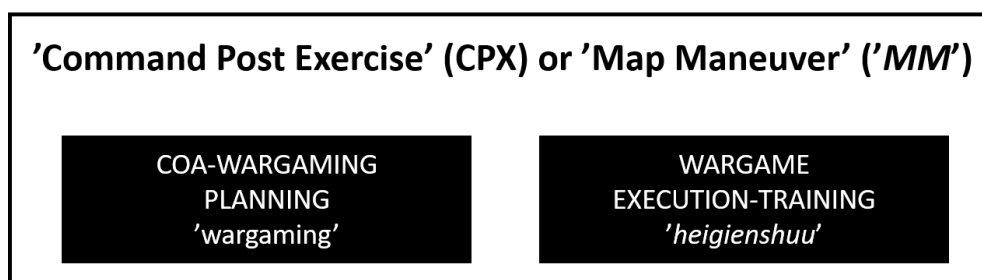
⁶⁵⁷ GSDF Officer Candidate School (2017).

⁶⁵⁸ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁶⁵⁹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁶⁰ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

When pressed to what wargaming really entails several respondents settled on an assertion that ‘technically, wargaming is fighting between blue and red forces’. In the GSDF, ‘wargaming’ refers to fighting between red *and* blue forces in a ‘virtual area’ for the purpose of improving plans or orders. Respondents were in agreement that the ‘unofficial definition’, by the majority of GSDF officers, is that a ‘wargame’ is used *within* the process of a CPX. There are, however, two kinds of wargames: one is for planning (*keikaku*, 計画) and one is for execution-training, i.e. to literally ‘battle’ (*sentou*, 戦闘). These two wargames, with different purposes, are *both* integrated into the decision-making process: the initial wargame is to improve the plan during the ‘planning stage’, while the second wargame is to improve the orders (to be given) to subordinate units (LOCON) in the ‘fighting stage’.⁶⁶¹ Wargaming is doctrinally an integrated and essential part of a CPX. This explains why a CPX is sometimes referred to as a ‘map maneuver’.⁶⁶² The reference to ‘map’, however, comes from the fact that a ‘map maneuver’ generally uses maps with ‘blocks, transparencies or magnets’ as unit symbols. A ‘map maneuver’, or simply a ‘MM’, is perceived to be a form of manual-based wargaming. Notably, both wargames within a CPX are organised with a similar physical form: a map-table with an enlarged map and unit symbols.⁶⁶³ For this reason, wargaming in the GSDF is considered to be a ‘map exercise’, *zujiyouenshuu*, 図上演習. However, GSDF officers colloquially refer to wargaming, i.e. ‘map exercise’, as ‘map maneuver’ (MM) or CPX. Moreover, a ‘map exercise’ are sometimes referred to as *heigienshuu*, 兵棋演習.⁶⁶⁴ This seems the case particularly when execution-training is considered, i.e. for the second wargame within a CPX/MM. Notably, the Japanese term *heigienshuu* is linguistically connoted to a ‘war game’, for example, in the form of chess, and as a ‘military simulation’.⁶⁶⁵



Both wargames are in the form of 'Map Exercise' (*zujiyouenshuu*)

Illustration no. 14: perception and definition of wargaming in the GSDF.

⁶⁶¹ National Defense Academy (2015).

⁶⁶² Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁶⁶³ GSDF Fuji School (2016b).

⁶⁶⁴ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁶⁵ Wikipedia (2017).

At this initial level of officer education, there is allegedly no occurrence of any forms of wargaming as described above. One example of this non-existence is that all military schools use military history as examples of military operations and leadership. This education in military history is, however, provided as *lectures* on the Pacific War, the Korean War and various Middle Eastern wars. Real maps, terrain models and symbolic unit markers are explicitly used, which make the education in military history potentially open to the use of wargames for learning. Nonetheless, the teaching format is lectures and hence, while hypothetically possible, there is no wargaming in military history. Nor is there any wargaming in the education of tactics at this level.⁶⁶⁶ While it might be possible for an individual instructor to apply wargaming as a teaching method for military history, wargaming is not done organisationally.⁶⁶⁷



Photograph no. 28: military history (left) and tactics (right), GSDF Officer Candidate School.⁶⁶⁸

The photograph on the left portrays a military history session with a general focus on strategy and tactics since the Meiji era (1868) while the photograph on the right illustrates a class in basic contemporary tactics. As is evident in the photographs, terrain and map tables are present and integrated into the education at the GSDF Officer Candidate School. There are, however, no indications – or suggestions – from the interviewees that such apparatuses are utilised as wargaming. Instead, interviewees emphasised that wargaming is *not* conducted at this level of officer education in Japan.⁶⁶⁹ Further collection of data did, however, find reference to a single incident of a possible wargaming

⁶⁶⁶ Interview: Anonymous C5, National Defense Academy, 2015-07-08.

⁶⁶⁷ Email: Sakaguchi, 2017-08-01.

⁶⁶⁸ GSDF Officer Candidate School (2017).

⁶⁶⁹ Interview: Anonymous B5, National Defense Academy, 2015-07-08, and, Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

activity, a so-called *zujiyouenshuu*, 図上演習, i.e. ‘map exercise’, at the NDA. However, this activity occurs only once for Air Self-Defense Force (ASDF) officer candidates during their fourth year at the NDA.⁶⁷⁰ This incident does not involve land officer candidates. The policy is that map exercises are not conducted at the NDA since the officer candidates ‘do not know tactics and military operations’. The single example of a map exercise referred to on the internet is thus not what GSDF officers would consider a real map exercise.⁶⁷¹

No example of wargaming was found at the initial embedded unit of analysis, the level of officer candidates. Consequently, there are little data available for a discussion on the three conceptual categories. While activities such as lectures in military history and military tactics use maps and symbolic unit markers such educational activities do not constitute wargaming. Interviewees were also adamant that no wargaming occurs at the NDA and the GSDF Officer Candidate School. On the other hand, the same interviewees explained that wargaming activities *do* occur at the other two embedded units of analysis, in particular at the second intermediate embedded unit regarding branch schools, the GSDF Fuji School.

⁶⁷⁰ Japan’s Ministry of Defense (2017).

⁶⁷¹ Email: Sakaguchi, 2017-08-01.

Fuji school (*Fujigakkou*, 富士学校)

The GSDF Fuji School was established in 1954 in the city of Gotemba, located on the eastern side of Mount Fuji, not far from Tokyo. The Fuji School is responsible for education, training and development concerning the armour, infantry and artillery branches of the GSDF. Hence, the Fuji School is a combination of a training area, with assigned training units, and an officer school. There are two principal courses for officers at the Fuji school: the Basic Officer Course, where the new second lieutenants study for nine months, and the Advanced Officer Course, where officers study for six months to become captains.

Contemporary wargaming

There are several examples of training/education (*kyouiku*, 教育) activities at the Fuji School that may be considered wargaming, such as sand table exercises.⁶⁷² First, it should be noted that the Japanese word *kyouiku* can be translated as either education or training, which is thus similar to the German and Swedish languages, rather than English, which differentiates education from training. The use of sand table exercises is seemingly prevalent in the education of GSDF officers. The many accessible photographs of sand table exercises on the internet strengthen this assertion.



Photograph no. 29: leader exercise with sand board (*saban*, 砂盤) at the Fuji School.⁶⁷³

⁶⁷² GSDF Fuji school (2016).

⁶⁷³ GSDF Fuji school (2016).

Data from interviewees revealed that GSDF officers experience wargaming at the Fuji school. This concerns the Advanced Officer Course, which runs for six months. This course is allegedly the first instance in the career of a GSDF officer when he/she experiences wargaming.⁶⁷⁴ This introduction of wargaming in the GSDF's officer education is done within the framework of a Command Post Exercise (CPX). Prior to this educational introduction, GSDF officers allegedly only use maps to explain and rehearse orders at the platoon and company levels. Such activities are not regarded as wargaming. Instead, such activities are considered to be a facilitating method when giving orders to subordinate commanders. One particular form for this facilitation method is the sand table, which is used by lower unit commanders (platoon, company). In Japanese this form is called *saban*, 砂盤, meaning 'sand board'.⁶⁷⁵ Wargaming is perceived to be something different. However, the main difference between a sand board – with its small tank miniatures and terrain features – and a wargame may consist of the fact that in a wargame the pieces on the sand board (or on the map) are actually *moved*. In other words, in a wargame, the military operation is comprehensively played out with symbolic interaction. The photograph below indicates an outdoor sand board exercise for the Basic Officer Course at the Fuji School. Notably, the attached text in the source to the photograph below explicitly articulates that when the small tank models are actually moved, the exercise 'becomes a map exercise', i.e. *zujiyouenshuu*, 図上演習.⁶⁷⁶



Photograph no. 30: sand board exercise with miniatures for the Basic Officer Course.⁶⁷⁷

⁶⁷⁴ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10, and, Interview: Anonymous B5, National Defense Academy, 2015-07-08.

⁶⁷⁵ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁶⁷⁶ Higashi Nagasaki (2016).

⁶⁷⁷ Higashi Nagasaki (2016).

The concept of a map exercise is arguably *the* general form of wargaming in the military education of the GSDF. Specifically, a map exercise is to ‘show reality’ by ‘Realistic Battle-focused Education & Training’.⁶⁷⁸ GSDF officers colloquially refer to this form of wargaming as a ‘map maneuver’ rather than the formal designation of ‘map exercise’ (*zujiyouenshuu*). In fact, wargaming is commonly referred to by GSDF officers as being an ‘MM’, which is a Japanese acronym for map maneuver. Notably, if miniatures are used on the map as unit symbols instead of blocks, the map exercise may instead be called *heigienshuu*, 兵棋演習.⁶⁷⁹ The first part of this word, *heigi*, is associated with game pieces in ordinary board games while the second part, *enshuu*, covers a range of meanings such as: practice, exercise, manoeuvre and seminar. The above terms resonate with how a wargame is conducted in practice. ‘Map maneuver’, map exercise (*zujiyouenshuu*) and miniatures (*heigienshuu*) are thus more or less the same form of exercise, implemented at the Fuji School *and* the GSDF Staff College.⁶⁸⁰

At the initial Basic Officer Course (nine months), two ‘map maneuvers’ are conducted according to a presentation from 2015. At the subsequent Advanced Officer Course (six months), no fewer than six ‘map maneuvers’ and one CPX are included. The number of ‘map maneuvers’ from 2015 differs slightly from one of the respondent’s recollection of a total of five ‘map maneuvers’/CPX.⁶⁸¹ The difference may be attributed to the more recent date of the curriculum data in comparison to respondents’ experience. Another factor to consider is that the number of wargaming activities in each branch (infantry, armour, engineer, intelligence etc.) differs. A third factor is the colloquial mix-up between ‘map maneuvers’ and CPX. One likely interpretation, based on interviewees and an official presentation, is that it is the two-step wargaming of a CPX, and the process of COA comparison, that is introduced at the Advanced Officer Course. On the other hand, the basics of ‘map maneuvers’ – the physical layout of the general form of map-based wargaming – is seemingly introduced at the Basic Officer Course.⁶⁸²

A wargame is an integrated activity *within* a Command Post Exercise (CPX) at schools. For this reason, CPX is synonymous with ‘map maneuver’. Furthermore, a ‘map exercise’, *zujiyouenshuu*, and a CPX are seen as being more or less similar.⁶⁸³ The Advanced Officer Course is when a CPX is introduced in the military education of GSDF officers. The armour branch conducts ‘map maneuvers’ (CPX) five times during the Advanced Officer Course, with each occasion lasting one week.⁶⁸⁴ In this specific case, the term ‘map maneuver’ is used synonymously with the term CPX, which consists of a planning stage and

⁶⁷⁸ GSDF Fuji School (2016b).

⁶⁷⁹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁸⁰ Email: Sakaguchi, 2016-12-20.

⁶⁸¹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁸² GSDF Fuji School (2015).

⁶⁸³ Japan’s Ministry of Defense (2017b).

⁶⁸⁴ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

a combat stage. In each stage of the CPX a wargame is used: the initial wargame is used to check the *operation plan* (COA-comparison) while the second wargame, during the combat stage, is to check the *operation order*.⁶⁸⁵ This twofold approach results in a weeklong CPX that contains two subsequent wargames. The two wargames within a CPX are map-based and rather similar to each other. One difference is that the initial wargame is apparently conducted within one room, whereas the second wargame utilises an additional 'battle room', where combat adjudication occurs. The initial wargame spans about two to three hours, while the second wargame may last up to 24 hours as it is typically conducted in real time.⁶⁸⁶

A weeklong CPX is a consistent educational activity. Monday to Wednesday is used to draft the plan, including the initial wargame, which is done during four hours on Tuesday. This concerns the COA-development and comparison for the operation plan. Beginning on the week's Thursday, students switch their positions to experience different roles, and hence different perspectives, when they wargame the developed operation order. The initial wargame is staff-run as the commander is not present. After the commander's selection of a course of action (COA) the second wargame is conducted.⁶⁸⁷ The instructor typically plays the role of the unit commander, while a student, purportedly one of the top scoring students, plays the role of the executive officer (XO). Notably, the position of XO for all practical purposes actually directs the wargame, especially the initial COA-wargame. The focus of the second wargame is on execution-training by the use of the developed order from the initial part of the week. This second wargame has a similar layout as the initial wargame with one difference: an additional room is used for subordinate commanders. This additional second room is called the 'battle room' while the first room is referred to as the 'command post room'. Combat adjudication occurs in the 'battle room' either by dice, instructor's opinion or by a computer-based simulation system. Communication between the two rooms is conducted by radio or written notes. The wargame is conducted in real-time. This is, however, a perception, since in reality the wargame advances by incremental adjudication turns of ten minutes in the 'battle room'. The second wargame may continue throughout the night until Friday morning. The actual CPX ends on Friday afternoon with an after-action review (AAR).⁶⁸⁸

What may differ between *different* CPXs is the actual form of adjudication. It is the responsible instructor who decides the adjudication. This decision based on individual preference is, however, possibly influenced by a learning objective that stipulates that students should learn combat

⁶⁸⁵ National Defense Academy (2015).

⁶⁸⁶ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁸⁷ Interview: Anonymous C5, National Defense Academy, 2015-07-08.

⁶⁸⁸ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

adjudication during the wargames. Adjudication is conducted with a focus on calculable factors by the application of a combat point system. Morale values are reflected upon but not calculated. So-called hard facts are derived from historical records. Other than combat adjudication, which may be *free* (instructor's opinion) or *rigid* (use of dice and/or computer-support), it seems difficult for the instructors to actually change the wargaming form.⁶⁸⁹ In fact, wargaming forms seem to remain constant. The instructors may, however, make changes to the scenarios, and make alterations between computer-based adjudication and manual adjudication.⁶⁹⁰ However, the latter would be superficial if adjudication is indeed separated in a 'battle room' as indicated. Furthermore, instant adjudication would diminish the students' learning of combat adjudication by questions and answers. Hence, combat adjudication by computers seems to occur at later stages in the educational process.

Control & veiling

One of the indicators of the suppression of gamification is director control, manifested in the interruption of the wargame procedures and resulting in subsequent restarts. There are no hints of this behaviour from the collected data. In fact, it is arguably up to the individual instructor to intervene when military students make mistakes, or, to bring it up *after* the conclusion of the wargame during the closing after-action review (AAR). This choice is entirely at the discretion of the responsible instructor who is facilitating the wargame.⁶⁹¹ Among the instructors there are, however, explicit concerns over realism, which can be interpreted as connected to the issue of gamification. When it comes to the issue of avoiding gamification, it seems that students 'always win' in school education, since the purpose is to gain basic skills and to 'experience success'. This approach is reportedly different when compared to unit (field) training in the GSDF, where participating units do not always win (against another unit).⁶⁹² This approach to 'always win' may inhibit free play, and hence limit gamification. Furthermore, there are data that indicate that OPFOR is run by instructors only and thus may be totally scripted and therefore not responsive to the blue side's behaviour. This absence of an active interactional opponent seems to be the case when the wargame suffers from a lack of available time. This then necessitates a 'small wargame', which is conducted with only the S3 (blue operations) members participating.⁶⁹³ Such a 'wargame' thus seems to have minimal input from OPFOR, and may therefore not constitute a wargame.

⁶⁸⁹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁹⁰ Email: Sakaguchi, 2016-12-20.

⁶⁹¹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁹² Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁶⁹³ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

A major indicator of the suppression of gamification is the physical separation of the simulation system in order to safeguard the immersive credibility of the training audience. A 'map maneuver', denoting a week-long CPX, is not considered fully realistic by GSDF officers: i.e. there is a recognised lack of simulated frictions during the process.⁶⁹⁴ Efforts are therefore made to increase the factor of realism. For this reason, planning during a CPX occurs during nights and the participating officers wear battle dress uniform including helmets to increase the leadership requirements by the addition of further stress and fatigue. Scenarios are also designed to be perceived as being difficult. During the second wargame in a weeklong CPX, fog of war is prioritised. A level of uncertainty is attained by the separation of the 'command post room' from the 'battle room'. This physical partition is based on concerns about realism: hence the rooms 'have to be separated' to increase realism by limiting communication between the command post and subordinate units to reports via radio or telephone.⁶⁹⁵ The separated second room, the so-called 'battle room', is purportedly utilised with the red side's commanders as well as the blue side's subordinate commanders. This is utilised in real time, with ten minute adjudication intervals, which are not perceptible to the main training audience in the 'command post room'. This separation thus seems to allow more realism, and more immersion, as combat reports and orders are transmitted between the battle room and the command post room in 'real-time' and with fog of war. Hence, instructors' concerns about realism seem to have resulted in a separation of the room with combat adjudication from the room containing the command post, which may use a manual map-based wargaming form for visualisation.

A final indicator of suppression of gamification concerns the attitude that 'we are not doing wargaming here'. At the GSDF Fuji School, 'wargaming' is officially referred to as COA-wargames within a map exercise.⁶⁹⁶ However, this only covers the initial wargame in a CPX. The use of several non-explicit terms, such as 'map exercise', may indicate suppression of gamification. However, a 'map exercise' connotes the actual form of the wargame. Accordingly, terms are often used interchangeably regarding map-based wargaming, such as 'map maneuver', map exercise (*zujiyouenshuu*) and the use of miniatures (*heigienshuu*). While 'wargaming' as a specific term is doctrinally connected to the process of COA comparison, a 'map exercise' constitutes a more general and interchangeable term of wargaming. The plethora of different terms does not, however, constitute the indicator of 'we are not doing wargaming here'. Instead, the plethora in itself indicates that wargaming is extensively used. Specifically, the widespread and colloquial reference to 'MM', i.e. 'map maneuver', which is synonymous with GSDF educational wargaming, does not indicate a suppression of gamification

⁶⁹⁴ Interview: Anonymous C5, National Defense Academy, 2015-07-08.

⁶⁹⁵ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁶⁹⁶ GSDF Fuji School (2016b).

regarding this attitude-indicator. Instead, the integration of wargaming for planning *and* warfighting in a CPX/'MM', in the traditional form of a 'map exercise', does indicate that 'we *are* doing wargaming here'.

Simple standardising

Adherence to doctrine is indicated by the existence of formal support based on the authorised military planning and decision-making process. Wargaming at the Fuji School is organised according to doctrine: wargaming is used to improve plans and orders and therefore constitutes an integral part of the military planning process. For this reason, 'wargaming' is standardised as a COA-comparison wargame, which represents a key and integrated feature of the military planning process.⁶⁹⁷ Consequently, 'wargaming' is interpreted as a staff method. In Japanese doctrine, reference is made to the US Army Field Manual FM 101-5 concerning the purpose of wargaming. Accordingly, the form of COA-wargaming in the GSDF is 'almost the same' as COA-wargaming in the US Army. The GSDF seems influenced by the US Army's decision-making process. With this perspective in mind, the actual term 'wargaming' in Japan has come to symbolise COA-development by COA-comparison. This comparison is a 'staff estimate' conducted by simulation (time/space) where the outcome is the staff recommendation of one COA to the unit commander.⁶⁹⁸ This form of wargame is regimented: the participants are organised according to doctrine and the activity is basically centred on a map laid out on a table. The main participants are the executive officer (XO/'EXO') as the director and umpire while the intelligence officer (S2) represents the enemy. The operation officer (S3) represents friendly forces. The layout and tasks of all participants in this wargame are visible in the picture below. One indication, evident in this picture, is that this form of COA-wargaming is rooted in a manual and map-based wargaming form. There are explicitly marked boxes of game pieces (*heigi*, 兵棋) at each end of the map table for both the red and the blue sides. This indicates a traditional, and standardised, preference for using miniatures and/or game pieces on the actual map for wargaming.

⁶⁹⁷ GSDF Fuji School (2016c).

⁶⁹⁸ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

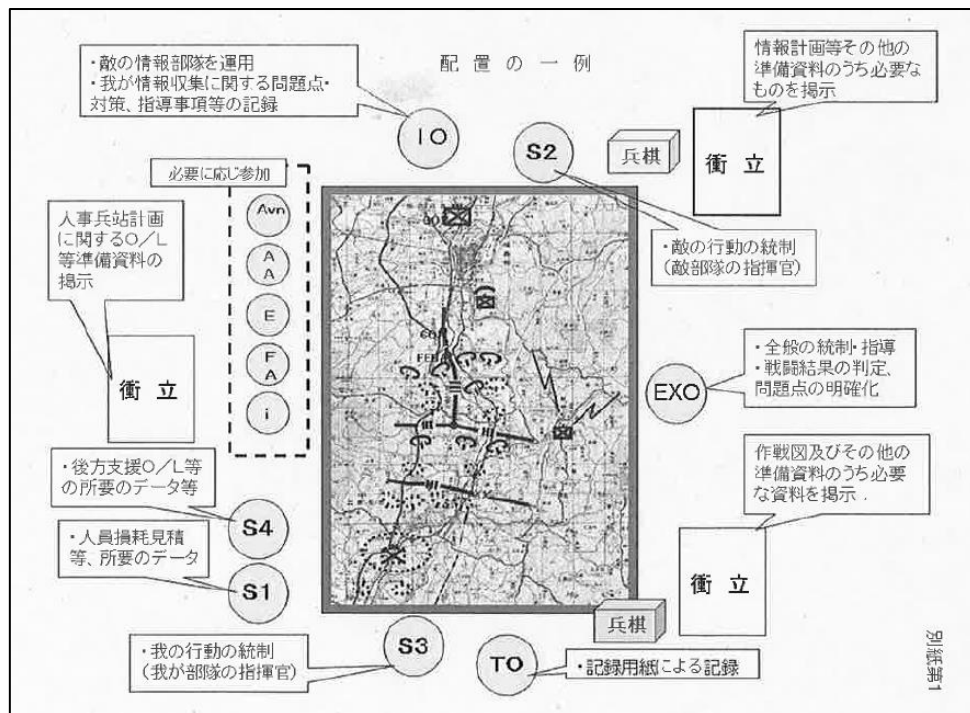


Illustration no. 15: participants' positions and tasks around the wargaming table.⁶⁹⁹



Photograph no. 31: infantry officers at the Advanced Officer Course conducting wargaming (*zujiyouenshuu*) at the Fuji school, possibly in 2003.⁷⁰⁰

⁶⁹⁹ GSDF (2015).

⁷⁰⁰ Japan's Ministry of Defense (2016).

The illustration and photograph above offer a good visual comparison between what doctrinal instructions envisage and what physical forms wargaming takes in reality. The photograph depicts officers at the Advanced Officer Course at the Fuji school. It illustrates the 'command post room' and the means of communication (the telephone) to the 'battle room'. Sometimes a computer-based simulation system is used instead of the manual adjudication on a map in the 'battle room'. However, the computer system is then located in the 'controller's room', which in essence constitutes a similar separated adjudication area such as the 'battle room'.⁷⁰¹

Another indicator of adherence to doctrine concerns the attitude of believing that 'we have to do' wargaming. A wargame is generally seen as an integrated activity *within* a Command Post Exercise (CPX). Data collection revealed the presence of two different wargames within a CPX: an initial COA-wargame to improve the plan, and a second one to improve the order. It seems clear that the initial wargame in a CPX is doctrinally driven – it is, for example, affiliated to US Army doctrine. It is also staff-driven, i.e. intended for all GSDF officers. Consequently, every GSDF officer needs to have the ability to facilitate and participate in such a wargame. The second wargame in a CPX seems to vary in some aspects. Notably, the second wargame has a specific purpose, which is to check the developed orders by running through the operations against a represented red force (OPFOR). This wargaming form also involves blue subordinate unit commanders. Apparently, the second wargame does not seem to be mandatory as the initial COA-comparison wargame within a CPX. The question of personality appears, as some GSDF unit commanders, outside of military educational establishments, allegedly do not elect to have many wargames.⁷⁰² Hence, there seems to be a latent personality issue of preference regarding the ambition of the second wargame, i.e. a question of whether or not this wargame session should be a rehearsal instead, which thus in essence would change the wargame to a non-wargame. This is a different approach compared to playing out the entire battle systematically and allowing continuous interaction. There are also data that indicate that this ambition varies between schools regarding the extent of 'map maneuvers'. According to some GSDF officers, the ambition is linked to the person in charge of the wargame. This is supposedly because there is no official manual on wargaming except one minor volume. Hence, GSDF officers tend to learn wargaming from personal experience. A specific exercise handbook is, on the other hand, supposedly made for each and every CPX in order to achieve common recognition for both the facilitator ('controller') and players.⁷⁰³ While there exists an attitude of acceptance of wargaming among GSDF officers because wargaming is part of the military decision-making process, the actual wargaming form is influenced by the facilitator's ambition. On the other

⁷⁰¹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷⁰² Interview: Anonymous B5, National Defense Academy, 2015-07-08.

⁷⁰³ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

hand, this question of ambition seems to be offset by the official format of map-based wargaming which is straightforward, simple and based on an established practice of the use of terrain models in military education. Consequently, wargaming is organised as an activity within the military decision-making process as a standardised form of wargaming in accordance with doctrine.⁷⁰⁴

Another indicator of adherence to doctrine is the importance of products rather than the actual wargaming process. The initial wargame in a CPX has a certain doctrinal outcome, namely a staff recommendation to the unit commander. This product is sometimes described as a conceived ‘counter-counterattack plan’.⁷⁰⁵ In other words, this is a plan to counter the enemy’s *reaction* to your own side’s initial *action*. While this indicates the importance of a wargaming process of actions and reactions, this focus on a tangible product is an indicator that the product is paramount since that is what is doctrinally envisaged for the wargame to produce. The collected data thus connect this doctrinal product to a standardised form of wargaming.

The second property of simple standardising is simplicity. One indicator of simplicity is that the wargaming form in use is for *all* officers: hence every GSDF officer should be able to use a particular form of wargaming, and that wargaming form would thus by definition become encompassing. The wargaming form described above regarding the second wargaming within a CPX has long been used continually in the officer education of the GSDF. Apparently, there have been no changes in this format, which is ordinary maps with symbolic red and blue unit markers. This seems to indicate a durability of wargaming, which would enable every officer to eventually learn to manage this form of wargaming. In fact, it is common that students themselves direct the wargames as one student is assigned to the position of execution officer while the instructor observes.⁷⁰⁶ This arrangement specifically concerns the initial wargame during a CPX. However, when it comes to the initial occasion when officers in the GSDF experience a wargame, at a branch school (such as the Fuji School), an instructor usually plays the role of chief of staff/executive officer. The instructor thus sets an example for the military students for how to conduct a wargame. After graduating from the Fuji School, the military students are supposed to bring their learned wargame experience to their field units.⁷⁰⁷ This alone indicates intra-professional learning, an indicator of simplicity. For this reason, the GSDF educational wargaming form seems to be used by every officer, rather than by talented individuals only.

The particular form of map-based wargame seems to adhere to the indicator that ‘it must work in the field’. In fact, the form seems to be an evolved wargaming version of the visualisation concept of sand

⁷⁰⁴ GSDF (2015).

⁷⁰⁵ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷⁰⁶ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷⁰⁷ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

tables. Regarding the map, the essential component for this form of wargaming, there are apparently three different scales in use: 1:50 000 or 1: 25 000 are for the 'divisional' level (i.e. reinforced brigade), while the 'regimental' (i.e. large battalion) level uses the 1: 5000.⁷⁰⁸ However, the Fuji School actually has 1:10,000 as a 'preferable map scale'.⁷⁰⁹ This use of enlarged maps indicates a more refined classroom approach. However, it is still the case that the maps can be utilised in the field. This simplicity is also evident in the unit markers, known as the game pieces (*heigi*, 兵棋). They seem to consist of either miniatures or some form of simple map markers and/or blocks. It seems that the exact choice of game pieces is up to the actual facilitator running the wargame. It is, however, likely that a facility, such as the Fuji school, makes an assortment of game pieces available for facilitators, since there is an explicit illustration of 'boxes for wargame miniatures' in the doctrinal document.⁷¹⁰

Innovative active learning

Promotion of gamification is indicated by explicit reference to game-based learning theories for credibility support. The learning process is put at the centre stage and accordingly credibility can be found in the actual wargaming process rather than from a product (such as a staff recommendation). While there are no data of explicit reference to game-based learning theories at the Fuji School some data indicate an awareness of how military students learn in conjunction with wargaming. For example, several military wargaming instructors prefer manual wargaming as it is deemed more effective for student learning than computer-based simulations. One particular reason is that computer-based simulation needs time for scenario administration, organisation and deployment. Another reason for the preference of manual wargaming methods, which connect to the rehearsal techniques by the utilisation of a sand board, is apparently that a major emphasis in the wargaming exercises, 'map maneuvers', is on the officers role-playing their staff positions. Assignments (roles) of participants are also changed in the middle of a wargaming week (CPX), meaning that the officer has one duty during planning (the initial wargame) such as intelligence, and then another position, such as engineering, during the second wargame focused on execution-training. The participants need to consider this during the wargame and hence their output needs to be transparent and easy to grasp in order for this transition from planning to execution to work. In addition to this emphasis on human interaction there is also an aspiration during the educational wargaming for the participating officers to learn how to calculate combat results. The military instructor may therefore ask a participant during

⁷⁰⁸ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷⁰⁹ GSDF Fuji School (2016c).

⁷¹⁰ GSDF (2015).

a wargame to ‘please give your estimate of combat result’. This inquiring is done regardless if the wargaming adjudication is manual or computer-based.⁷¹¹

The concerns by instructors about a lack of realism in wargaming do not seem to lead to an effort to increase competition. On the contrary, military instructors think that the presence of a red team would actually inhibit control of the actual wargame. Therefore, the indicator of competition as a good feature in wargaming does not seem to exist at the Fuji School. This could be interpreted that gamification is unwanted as a feature as this would entail some participants ending up on the losing side in a wargame. While competition is used between units in field training – there is in fact an ‘aggressor unit’ from western Japan stationed at the Fuji School and that unit has allegedly not lost a field training combat exercise in fifteen years – wargaming at military schools is different for two reasons. First, the purpose of wargaming is simply to train skills.⁷¹² Second, there is an underlying cultural ambition to reward effort and hence the use of the term *kanarazu katsu* (必ず勝つ), literally interpreted as ‘winning is necessary’.⁷¹³ Based on these two reasons wargaming does not seem connected to competition, and consequently is not connected to gamification. As one instructor put it: ‘If [the military students] lose the fight early in the scenario, and if the fighting ends, the training is over, and there is no chance to learn about the operational order and to co-ordinate. We intentionally let them have that chance [to learn].’⁷¹⁴ On the other hand, individual officers are assessed on an individual level during a wargame by instructors (the ratio is 4-5 instructors per 20 students).⁷¹⁵ It is thus plausible to consider some presence of elements of individual competition *within* the blue team. However, since completion does not seem to occur *between* teams – there are no indications of a prevalent and well-known practice of double-sided settings between two equal teams – promotion of gamification is not indicated.

The second property of innovative active learning concerns individual innovativeness concerning the game design. This property is indicated by the presence of individual instructors who have designed or modified the wargaming form. Discovered data in the form of the two wargames within the CPX format indicate that the wargaming form is not based on single individuals. However, data show that individual facilitators can rely on different adjudication methods. Consequently, individual facilitators have some influence, albeit only to a certain extent, regarding the actual wargaming method. This is limited since it is apparently up to the head of education, or the school commandant, at the military school to decide if a particular wargaming exercise (*heigienshuu* or *zujiyouenshuu*) should be double-

⁷¹¹ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷¹² Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁷¹³ Interview: Anonymous C5, National Defense Academy, 2015-07-08.

⁷¹⁴ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁷¹⁵ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

sided as in 'opposition method' (*taikouhoushiki*, 対抗方式) or 'unilateral'.⁷¹⁶ At the Fuji school, however, there are no indications of the latter method and thus a focus on only one-sidedness arguably indicates a more organisational and standardised approach. Another indication that may limit potential individual influence is that the manual map-based wargaming forms seems to remain constant. While some aspects, such as the exact combat adjudication method may change when an instructor transfers away, the general wargaming form, evident in the picture and photographs in the section on simple standardising, is likely to remain constant and enduring.

⁷¹⁶ Email: Sakaguchi, 2016-12-20.

Staff College (*Kanbugakkou*, 幹部学校)

The GSDF Staff College is the school where GSDF officers study to achieve the rank of major. The location of the GSDF Staff College is Nakameguro, Tokyo, in close proximity to the Maritime and Air Staff Colleges.⁷¹⁷ There are basically two different ways for GSDF officers to attain the rank of major by formal courses at the Staff College. Some officers, aiming to achieve the rank of colonel, attend the Command and General Staff Course (CGC) for two years. In addition, there is a shorter functional course, the Tactical Administrator Course (TAC), of one year. The second shorter course (TAC) is for officers that are to become specialists. For this reason, they are likely to remain at the rank of major. For officers that successfully graduate from the CGC there is a possibility to later attend, if accepted, the Advanced Command and General Staff Course (AGS) for six months. This is a course for officers with the rank of colonel who are shortlisted to be promoted to general.⁷¹⁸ This embedded unit of analysis is focused on the CGC, and the shorter TAC, since these two courses are of a similar educational level to the other four country cases. Hence, the shorter AGS for high-ranking officers will not be further covered as this is a course for a few selected high-ranking officers centred on strategic issues, rather than on education for the tactical level.

As with the intermediate embedded unit of analysis, the GSDF Fuji School, the author had no direct access to the GSDF Staff College. On the other hand, the author visited the co-located facilities of the National Institute of Defense Studies (NIDS).⁷¹⁹ NIDS has its own simulation division, with a focus on high-level strategic (policy) wargames for senior officers. Hence, while NIDS is delimited from an inclusion as an embedded unit of analysis, NIDS's staff, which includes officers, supplied valuable information on educational wargaming at the GSDF Staff College. Notably, each of the three co-located JSDF staff colleges has its own unique focus on wargaming. The staff college with the longest experience in the use of wargaming is the Maritime Self-Defense Force (MSDF) Staff College.⁷²⁰ This use goes back to the introduction of wargaming (*heigienshuu*, 兵棋演習) in 1898, which evolved into the contemporary expression of map exercise (*zujiyouenshuu*, 図上演習).⁷²¹ The focus of wargaming at the MSDF Staff College is, however, on theatre level, rather than on tactics. Such naval theatre level wargames are, for the last twenty years, supported by a computer-based simulation system, which models modern naval warfare.⁷²² For this reason, possible use of computer-based simulation at the GSDF Staff College was looked into during the data collection.

⁷¹⁷ Wikipedia (2016).

⁷¹⁸ Wikipedia (2016b).

⁷¹⁹ NIDS (2016).

⁷²⁰ NIDS (2015).

⁷²¹ Japan's Ministry of Defense (2016b).

⁷²² NIDS (2015).

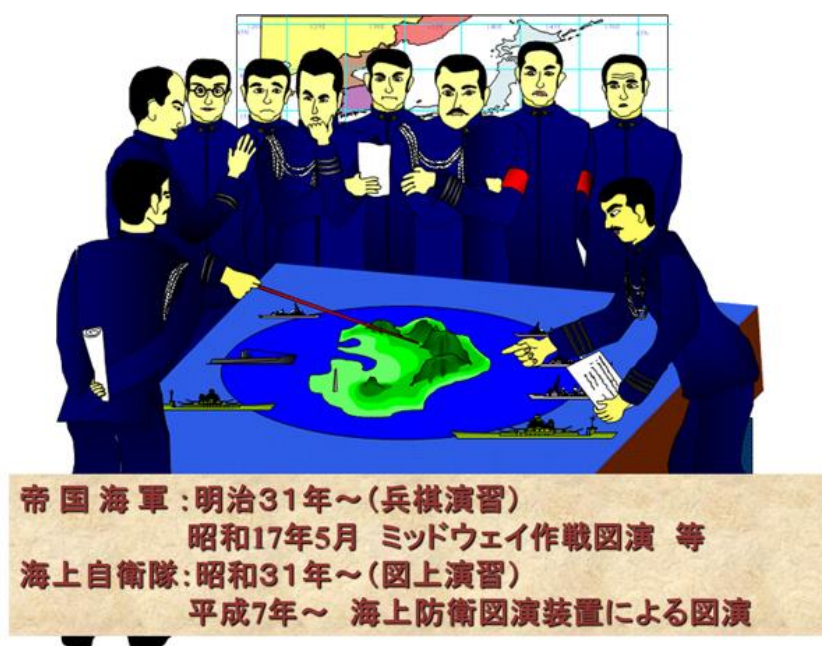


Illustration no. 16: map exercises (*zujiyouenshuu*, 図上演習), a Japanese traditional form of wargaming, according to the MSDF Staff College.⁷²³

Contemporary wargaming

Educational wargaming activities are carried out at the GSDF Staff College. At the CGC (Command and General Staff Course) of two years there is allegedly a total of nine wargames. At the shorter TAC (Tactical Administrator Course) of one year there are three to five wargames. The number is dependent on the officers' branch (armour, intelligence etc.). Wargaming sessions at the GSDF Staff College are apparently conducted in a similar fashion as at the Advanced Officer Course at the GSDF Fuji School. Accordingly, the wargaming form is the previously discussed Command Post Exercise (CPX). In other words, this is a weeklong exercise with two integrated wargames.⁷²⁴

There is potentially more emphasis on computer-based wargaming at the GSDF Staff College compared to the Fuji School. What is in existence at the GSDF Staff College is a computer-support system named TESS (Tactical Education Support System). It is described as follows: TESS supports CPXs for student training by simulating double-sided warfighting games between blue and red forces on a situational map. Students normally take the roles of blue force commander and staff while controllers constitute the red force team as well as communicate events to player units for subsequent action.⁷²⁵ The computer-based simulation is, however, seemingly integrated into a form of wargaming that is similar

⁷²³ Japan's Ministry of Defense (2016b).

⁷²⁴ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

⁷²⁵ NIDS (2015).

to the Fuji School and its CPX. It therefore seems that computer-support (TESS) is used for combat adjudication. In other words, combat adjudication is seemingly conducted according to computer-based simulation rather than manual methods, such as the use of dice or adjudication by an umpire/instructor. It is to some extent unclear if TESS is fully relied upon for visualisation of the simulated battlefield or if ordinary maps are used as well. Information from some interviewees, however, clearly states that computers are only used for combat adjudication and for calculating the relative combat power of the blue and red sides.⁷²⁶ It can be asserted that wargaming at the GSDF Staff College is arguably similar to educational wargaming at the GSDF Fuji School. This includes reliance on ordinary maps for visualisation and the physical separation of a 'command post room' from a 'battle room'. Likewise, the information above on the use of TESS indicates that the military students only play, and man, the blue force. However, the use of a separate 'battle room' may allow some flexibility on this configuration.

Control & veiling

It is likely that the indications of suppression of gamification are similar to the Fuji School since the overall wargaming form (CPX) is similar to what is conducted at the Fuji School. The first and foremost indicator of suppression of gamification is arguably the presence of the physical separation of the 'command post room' and a 'battle room'. This configuration would allow the instructor to 'halt and restart' the wargame. However, no indications of such unambiguous control were indicated at the GSDF Staff College. What was indicated, however, was a more explicit reliance on computer-based combat adjudication. However, as was the case at the Fuji school, combat adjudication is confined to a 'battle room'. Hence, even if 'halt and restart' occurs, students manning the command post may not notice it. Consequently, it is possible that this form of control occurs. Nonetheless, no instructor brought this up in relation to courses at the Staff College. Moreover, regarding this possible suppression of 'free play', data indicate that students only play on the blue side at the Fuji School. Here another difference surfaces. There are indications that wargaming is done at the GSDF Staff College according to a 'force on force' philosophy.⁷²⁷ This indicates more emphasis on 'free play' and competition between teams and hence on promotion, rather than suppression, of gamification. Notably, however, every year, this choice seems to reside within the hierarchy of the GSDF Staff College rather than with instructors.⁷²⁸

⁷²⁶ Email: Sakaguchi, 2016-12-20.

⁷²⁷ GSDF Staff College (2016).

⁷²⁸ Email: Sakaguchi, 2017-08-01.

Simple standardising

The similarity to wargaming at the Fuji School allows further exploration of the concept of simple standardising. First, the property adherence to doctrine is indicated by the desired products connected to the wargaming of different COAs. Wargaming is placed within a distinct planning process: the 'Operation Estimate Procedure' (i.e. COA Analysis). The COA wargame is of central value in this process. The purpose is that the students are to 'war-game OCOA [Own Courses of Action] and ECOA [Enemy Courses of Action] and examine and deliberate the situational development, battle landscape[s], challenges to be addressed and appropriate measures to be taken'.⁷²⁹ This indicates the place of wargaming within the formal planning process and also the necessity to wargame, i.e. 'we have to do it'. The final indicator is also present, since the product is the most important and necessary for the second step (issuing of orders).

Regarding the property simplicity, a discovered photograph reveals additional information about the actual wargaming form when it comes to a CPX. The photograph below, found on the internet in a Japanese text from 1979, describes the use of educational wargaming at the GSDF Staff College. While this source may arguably be outdated, to a direct question if a new version of said text existed, the answer was no.⁷³⁰ Specifically, the illustrated activity is described as '*heigienshuu*' (兵棋演習). Present in the photograph are staff officers that attended the CGS at the GSDF Staff College. The photograph provides an indication of the continuity of a similar and standardised form of wargaming: a simple and straightforward map-based format. This is a map exercise, known as *zujiyouenshuu* (図上演習).⁷³¹ Notably, however, the activity is described as *heigienshuu*, which arguably is a more explicit acknowledgement of wargaming than *zujiyouenshuu*, which may indicate a discussion around a map rather than a wargame. The property of simplicity is indicated by the photograph, which visualises a straightforward approach of wargaming, similar to what was indicated at the Fuji School.

⁷²⁹ GSDF Staff College (2016b).

⁷³⁰ Email: Sakaguchi, 2016-12-20.

⁷³¹ Japan's Ministry of Defense (2016c).



Photograph no. 32: staff officers exercising with '*heigienshuu*' in 1979.⁷³²

This form of manual (and computer-supported) map-based wargaming has potentially evolved from the use of miniatures on a sand board, which is a method every GSDF officer learns at the Basic Officer Course at the Fuji School. On possible inference is that, at the GSDF Staff College, the sand board has transformed into a standardised map-based wargaming form. This wargaming form is integrated within a division or brigade level Command Post Exercise (CPX) at GSDF schools *and* at GSDF units. Accordingly, one conclusion from the available data is that the wargaming form is simple, standardised and constitutes the basis of how GSDF conducts military educational wargaming. Hence, 'every officer must manage it', and it is repeatedly conducted during a course.

Innovative active learning

There are, at the level of the GSDF Staff College, some indications of the promotion of gamification. This regards an incident of competition. The text from 1979 speaks of a certain form of learning technique, which is referred to as *taikouhoushiki* (对抗方式), literally a combination of 'antagonism' and 'method'. This phrase is also in use today at the GSDF Staff College.⁷³³ Accordingly, course participants are divided into team A and B. Seemingly, team A and B face each other as competing forces during the entire wargame session. This division into opposing forces of A and B was seemingly done to further the students' understanding of possible actions of each side, during the development of plans and subsequent orders for action. Within this process subordinate commanders were integrated as part of the 'realisation', which was the stated effect behind the use of an educational

⁷³² Japan's Ministry of Defense (2016c).

⁷³³ GSDF Staff College (2016).

wargame (*'heigienshuu'*). Learning would thus result in a 'strengthened individual duty of the future staff officer'.⁷³⁴ Accordingly, this points to an understanding of gamification, in this case the realisation of interaction regarding 'antagonism' (competition) as useful for learning. Notably, this find is in contrast to previously conducted interviews, which stated that this form of competition in wargames did not exist in the school system.⁷³⁵ It may very well be that this form of opposing teams has been discontinued, since this written data goes back to 1979. However, the text is still considered valid as there has been no update of this procedural text.⁷³⁶ As a result, this indicates the possibility of promotion of gamification at the GSDF Staff College. Incidentally, one of the main educational objectives of a CPX at the GSDF Staff College is to stimulate creative thinking.⁷³⁷

⁷³⁴ Japan's Ministry of Defense (2016c).

⁷³⁵ Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁷³⁶ Email: Sakaguchi, 2016-12-20.

⁷³⁷ GSDF Staff College (2016).

Conclusion

The case of Japan is an example of how wargaming is integrated within a professional military organisation and its military educational curriculum. At the very root of GSDF educational wargaming is the use of sand boards (*saban*, 砂盤) with which all GSDF officers are familiar. Sand boards are closely related to wargaming as the transition from a sand board to a wargame only entails the commencement of movement of game pieces and adjudication of combat results. For this reason, the concept of simple standardising is dominating how wargaming is organised within the military educational establishments of the GSDF. While no wargaming activities were found at the lowest level of officer education the basis of identified forms of wargaming at the other two embedded units of analysis – the GSDF Fuji school (II) and the GSDF Staff College (III) – were grounded in the widespread and simple use of sand boards, as well as supported and standardised by doctrine. The emphasis on a sand board format – and subsequently maps as a substitute – provide a good example of adherence to simple standardising.

The similarities between the Fuji School and the GSDF Staff College indicate a collective approach to a single form of wargaming in the military education of the GSDF. Arguably, this approach seems connected to traditional military wargaming in Japan, i.e. map exercises. This wargaming form is manual and based on maps with either miniatures (historical tradition), or symbolic blocks, representing units. While there are several terms for wargaming in the GSDF they are all basically of the same physical map-based format. This form of wargaming is not learned from the very beginning, at the NDA (I). Instead, it is learned during the Basic and Advanced Officer Courses at the GSDF Fuji School (II). On the other hand, the very names of these courses, and the junior rank of students (second and first lieutenants), indicate that wargaming is introduced early on in the career. Every GSDF officer must manage this form of wargaming, i.e., the skill of conducting wargaming is recognised by GSDF officers as special and widespread ‘know-how’ within the GSDF. It is thus not surprising that this standardised form of map-based wargaming form – *zujiyouenshuu* within a CPX – has been introduced outside the GSDF as a ‘disaster imagination game’ (DIG) for disaster (earthquake and tsunami) countermeasure planning and execution by civilian authorities in Japan.⁷³⁸

There are some indications of control & veiling: a core concern of wargaming facilitators is to achieve accurate, realistic and reliable combat adjudication in order to simulate friction.⁷³⁹ The solution of these concerns over a potential lack of credibility can be seen in the physical separation of the ‘command post room’ from the ‘battle room’, where the combat adjudication occurs during the second

⁷³⁸ Saitaiken (2016).

⁷³⁹ Interview: Anonymous A5, National Defense Academy, 2015-07-08, and, Anonymous B5, National Defense Academy, 2015-07-08, and, Anonymous C5, National Defense Academy, 2015-07-08.

wargame in a CPX. In combination with the use of a robust enemy force, lack of sleep for the military students and the physical separation between the 'command post room' and the 'battle room', frictions are set to play a greater role in the wargame which would alleviate concern over unrealism. In other words, while the concept of simple standardising would seem to be the only method for achieving **instructor buy-in**, there are also some indications of control & veiling, primarily by the physical separation of combat adjudication and the command post.

Few indications were found of innovative active learning. Specific wargaming forms developed by individuals seem non-existent. There are, however, some indications on the use of competitiveness in the form of opposing teams and double-sided exercises. Interviewees, however, were adamant that this approach is minimised in the educational establishments. One reason is that whether or not a map exercise is conducted with the 'opposition method' (*taikouhoushiki*, 対抗方式) or with 'unilateral method', is decided by the command hierarchy at each educational facility rather than the individual instructor.⁷⁴⁰ Less influence from individuals may also explain why the wargaming form has remained the same over time. For example, the GSDF Staff College (III) has, at least since 1979, utilised a certain form of learning technique, which is referred to as *taikouhoushiki* (対抗方式). This involves a competition between team A and B as part of an educational wargame, *heigienshuu*. While there are some opportunities for individual facilitators to modify the wargaming form on *how* to conduct combat adjudication, by adding computer support, the actual adjudication data remain the same as they are based on official statistics from historical cases. However, since there are concerns by facilitators regarding the unrealism of computer simulation systems, manual adjudication is instead habitually used.⁷⁴¹ The concerns about realism are particularly focused on the limitation of computer-based simulation to accurately model soft factors such as morale.⁷⁴² These concerns are exacerbated with the issues of technical unreliability and subjective databases concerning adjudication of combat results.⁷⁴³ Hence, it is likely that individual instructors influence the wargaming form by changing between *free* and *rigid* adjudication, rather than introducing or limiting competition. On the other hand, such individual influence is arguably limited since GSDF wargaming seems standardised, especially when compared to the other countries.

Military educational wargaming is standardised in Japan. The intermediate embedded unit of analysis – the GSDF Fuji School (II) – was found to be of vital importance for the practice of military educational wargaming in the GSDF. To quote one interviewee, 'wargaming is mandatory'.⁷⁴⁴ Courses at the Fuji

⁷⁴⁰ Email: Sakaguchi, 2016-12-20.

⁷⁴¹ National Defense Academy (2015).

⁷⁴² Interview: Anonymous A5, National Defense Academy, 2015-07-08.

⁷⁴³ Interview: Anonymous B5, National Defense Academy, 2015-07-08.

⁷⁴⁴ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

School uphold a similar wargaming form in the entire GSDF since every GSDF officer attends at least one of the Fuji School's map exercises. The final 'map maneuver' (CPX) at the Fuji school is conducted with *all* the other branch schools as well as with some subordinate field units. This level of participation indicates that the wargaming format is standardised within the GSDF. The Fuji School can therefore be seen as the *de facto* centre of wargaming of the GSDF as every officer in the GSDF consequently experiences the *same* form of wargaming at least once in their military education. Notably, there are also organisational developments and testing at the Fuji School concerning computer software for wargaming support. This further reinforces the notion of the Fuji School as *the* hub of GSDF military educational wargaming. Although each of the five regional GSDF 'army field commands' has their own training support unit, the so-called 'Battle Command Training Centre' which offers and facilitates computer combat adjudication, every GSDF officer participating in such exercises has previously passed through the Fuji School.⁷⁴⁵ In essence, learning of wargaming arises from an intra-professional perspective, i.e. experienced officers at the Fuji School personally teach younger GSDF officers. This simple and straightforward wargaming form is continued at the GSDF Staff College (III). Furthermore, the wargaming form is also in use outside the educational facilities at GSDF field units. The wargaming form, centred on a map table, is approximately similar regardless if the purpose is planning (*keikaku*, 計画), or execution (*sentou*, 戦闘). In either case, the wargaming form is referred to as *zujiyouenshuu* (図上演習), i.e. map exercise. The case of Japan is thus a good example of when adherence to the concepts of simple standardising constitute the chief method on how **instructor buy-in** is achieved.

⁷⁴⁵ Interview: Anonymous D5, Ground Self Defense Forces, 2015-07-10.

9. Conclusion

Reflection: the four initial conjectures

Four supporting questions were included in the introduction as potential answers as to why educational wargaming takes the form it does. These original questions were the author's conjectures based on his personal experience as an instructor, game director and game designer in military educational wargaming at the Defence University (SEDU) in Sweden. The initial part of the concluding chapter will reflect on those four initial questions and offer a comprehensive deliberation on the author's initial conjectures. Furthermore, before the main part on **instructor buy-in** and the three conceptual categories, the initial part will also ascertain if wargame patterns of the Swedish case repeat themselves in the other four country cases. As a guide for the initial discussion, Table F below presents the included wargaming forms.

The wargaming overview indicates that in four of the five countries a prevalent form of wargaming exists. The exception is the UK where there is arguably more diversity in wargaming forms. In Sweden, wargaming forms are generally manual, such as map-based or seminar. This is different from Germany, where many forms are computer-supported. While Sweden and Germany are different, they are also similar in that one physical form of wargaming is more prevalent than other forms: manual in Sweden and computer-supported in Germany. In comparison, the USA case indicates a prevalence of computer-based wargaming forms. In Japan the situation is the opposite of the USA: wargaming forms in Japan (GSDF) are generally manual (and sometimes computer-supported), rather than computer-based. While there are indications of a prevalent physical form in four of the five countries, physical form is only one of four variables regarding wargaming form. Concerning the number of participating sides, the vast majority of wargames are not truly double-sided (with equal teams), although there are some notable exceptions to this general similarity in each country. The third variable on available information generally differ between wargames for 'classroom planning' (*open*) and wargames for 'classroom warfighting' (*limited*) – with a few exceptions concerning the latter type. The fourth and final variable regarding combat adjudication seems diverse. However, this variable does not offer a true picture since, for example, most wargames in Germany (I/II) are controlled (halt and restart) by the director and also veiled – and for those reasons are categorised as 'computer-supported' rather than 'computer'. When all four variables are considered, wargaming in Japan, as well as in Germany and the USA, seems rather standardised. On the other hand, Table F is imprecise. Nonetheless, the four variables indicate differences *between* all five countries and *within* all five countries.

WARGAME DATA				VARIABLES OF WARGAMING FORMS										
COUNTRY CASE	EMBEDDED UNIT	NAME OF WARGAME	FORM OF WARGAME	PLAYER SIDES			INFO.		COMBAT ADJUDICATION			PHYSICAL FORM		
				1	2	M	OPEN	LIMITED	FREE	SEMI-RIGID	RIGID	MANUAL	COMPUTER-SUPPORTED	COMPUTER
SWE	I	‘Game the plan’ (PUT)	MAP				O							
		BMBat	MAP/BOARD.											
		VBS	COMPUTER											
		‘Reasoning wargame’	MAP/SEMI.				O							
	II	‘Wargaming week’	MAP/BOARD.											
		‘Game the plan’ (1)	MAP				O							
		‘Game the plan’ (2)	MAP				O							
		‘Command training’	MAP/COMPU.											
	III	‘Game the plan’	MAP				O							
		‘Wargaming week’ 2013	MAP											
		‘Wargaming week’ 2016	MAP/COMPU.											
		‘Wargaming week’ 2016	MAP/BOARD.											
		COA-wargaming	SEMINAR				O							
		‘Wargaming week’ 2013	SEMINAR				O							
		‘Wargaming week’ 2015	BOARD				O							
		COA-wargaming	SEMINAR				O							
		‘Wargaming week’	SEMINAR											
		‘Wargaming week’	COMPUTER											
GER	I	SiTA	MAP/COMPU.											
		SIRA	MAP/COMPU.											
	II	SIRA	MAP/COMPU.											
		VBS	COMPUTER											
		KORA	MAP/COMPU.											
	III	KORA/OA	COMPUTER											
		COA-wargaming	SEMINAR				O							
		COTS board games	BOARD GAME				O							
UK	I	Aldershot Skirmish*#	BOARD GAME				O							
		Sandhurst Free Krieg.	MAP											
		‘Coy Ops Room’	MAP/COMPU.											
	II	COA-wargaming	MAP				O							
		BC2T	MAP/COMPU.											
		CATT: force on force	COMPUTER											
		CSTTX	MAP/COMPU.											
		Camberley Kriegsspiel*	MAP/BOARD											
	III	COA-wargaming	MAP				O							
		‘Informal wargame’	MAP				O							
		FEARFUL EYE	MAP/COMPU.											
		‘Theatre Wargame’	MAP/COMPU.											
RCAT (manual game)*		BOARD GAME				O								
RCAT (facilitator)	MAP/BOARD				O									

WARGAME DATA (cont.)				VARIABLES OF WARGAMING FORMS										
COUNTRY CASE	EMBEDDED UNIT	NAME OF WARGAME	FORM OF WARGAME	PLAYER SIDES			INFO.		COMBAT ADJUDICATION			PHYSICAL FORM		
				1	2	M	OPEN	LIMITED	FREE	SEMI-RIGID	RIGID	MANUAL	COMPUTER-SUPPORTED	COMPUTER
USA	I	VBS	COMPUTER											
		COA-wargaming	MAP/SAND				O							
	II	VBS	COMPUTER											
		CCTT	COMPUTER											
		JCATS#	COMPUTER											
	III	Decisive Action	COMPUTER											
		The Grand Offensive	COMPUTER											
		(Elective)	BOARD GAME				O							
JPN	II	Zujyouenshuu, 計画	MAP				O							
		Zujyouenshuu, 戦闘	MAP/COMPU.											
	III	Heigienshuu	MAP/COMPU.	?										

Table F. wargaming forms in the five countries (2013-2016).

Notes: *not (yet) implemented, #discontinued.

Two player sides (double-sided) were only indicated when each team was roughly equal in size. For example, when the red team consisted of only 1-2 people out of maybe 30 participants the wargame was deemed to be a one player side (one-sided).

A question mark (?) was added when the collected data were not deemed sufficient for clear-cut categorisation.

In Sweden, the initial 'wargaming week' (III) was abridged: the 2015 one-sided version of the computer wargame (SSM-Land) was removed since it is almost identical to the 2016 version.

In Japan a more distinct separation was made between Zujyouenshuu and Heigienshuu. Although both are more or less in the same physical form, the difference in names symbolises a possible greater emphasis on team vs team (A vs B) wargaming at the GSDF Staff College (III).

Foreign concepts and national traditions

This conjecture of differences between foreign and national ways of wargaming offers limited explanation as to why wargaming takes the form it does. For example, in Sweden wargaming for plan development at the Senior Staff Course (III) is influenced by COA-wargaming in NATO. On the other hand, wargaming to 'game the plan' (plan development in PUT) at all three embedded unit of analysis in Sweden constitutes an in-house developed form of wargaming. Both variants (seminar and map-based) constitute a *similar* form of wargaming according to the four variables. In a comparison between countries, Sweden and Germany have a comparable national concept of wargaming. This concept covers 'command training exercise' (LTÖ) in Sweden and 'simulation-based exercise' (such as SIRA) in Germany. This similarity is perhaps not too surprising since Swedish officers have visited SIRA-facilities in Germany. In Sweden, however, the computer-based simulation system is different and of British origin (CATS). There are also other differences: in Germany visiting units bring their own game director whereas in Sweden a small and dedicated staff provides game director continuity. Hence, while there is some international congruence, there are still national differences. For example, the data indicates Japan as a country with a long national tradition of wargaming signified by its in-house development of map exercises in the last hundred years. Nonetheless, the official and contemporary manual wargaming form in Japan (GSDF) is explicitly influenced by COA-wargaming in the USA. On the other hand, the concept of map exercises within the overall concept of a 'map maneuver' ('MM') is to a major extent a Japanese way of wargaming. Therefore, one conclusion is that foreign concepts and national traditions are intermingled. As the Swedish case of 'command training exercise' (LTÖ) revealed, a foreign influenced wargaming form can combine with a national form of wargaming.

Availability of COTS

The collected data from the five countries indicate that usage of COTS is rare. In Sweden, this is limited to the use of the commercial computer game *Operational Art of War III* during the final 'wargaming week' in the Senior Staff Course (III). There are, on the other hand, wargames that began as a commercial wargame, such as *Virtual Battlespace* (VBS). While VBS has its roots in a commercial game, it is arguably not a true COTS since it is a refined version specifically developed for military use. Besides Sweden, a few examples of the use of COTS can be found in Germany, such as the use of the board game *Crusader Kings*. However, COTS games in Germany have been modified to support learning objectives. Furthermore, teachers, with the exception of a short teambuilding session with the commercial game *Castle Panic*, exercise firm control of the wargame session. The only other example outside Sweden and Germany is the *Grand Offensive* in the USA (III). While this wargame was developed in-house at the Command and General Staff College it was influenced to a major degree by

a previous commercial game. One potential reason that makes COTS wargames less attractive in military education is that there is relatively little focus on military history in contemporary military education. Furthermore, contemporary military education in military history is seemingly seldom done by wargaming. The case of the USA is an exception: the connections between educational wargaming and military history first and foremost concern the Command and General Staff College (III), as well as the, not included, US Marine Corps War College (MCWAR). In the other countries, however, instead of a focus on scenarios from military history, modern and fictional scenarios are in focus. This is evident in the case of Sweden regarding its only example of COTS. This wargame, *Operational Art of War III*, has endured not because of its numerous historical scenarios of various battles and campaigns, but because of its scenario editing capabilities. Few COTS have a similar comprehensive ability to edit and construct a complete scenario with accurate units in a certain terrain. Moreover, few if any COTS have the ability to halt and restart – at any given time with complete options for alternations – during a wargame. This lack arguably limits the level of instructor control. The few examples of the use of COTS wargames seems connected to the willingness of instructors to experiment with such wargames. For this reason, the conjecture regarding availability of COTS wargames seems of little value to explain why wargaming takes the form it does. On the other hand, the few examples of COTS do indicate individual influence in the form of willingness from individual instructors to introduce, modify, and keep a COTS wargame in the course curriculum.

Connection to processes

A wargame is likely to be perceived as either analytical or educational. Hence, this question supposes that this perception of difference in purpose also bring about a difference in wargaming form. In military education, this would entail separation between wargames for ‘classroom planning’ (plan development) and wargames for ‘classroom warfighting’ (execution-training). For example, COA-wargaming is a wargame conceived for, and implemented in, the military planning process in all five countries. The similar COA-wargaming form between countries seems to support the conjectural connection between a process and a wargaming form. This is evident in the case of Japan where the difference is that the wargame for execution-training is more time-consuming, by limiting information for participants, to allow for more realistic decision-making. Nonetheless, there are also similarities in the map-based form – both wargames are a ‘map exercise’. What can be said about COA-wargaming is that it constitutes a manual form of wargaming that is generally consistent between countries and across educational levels. This consistency sets it apart from wargames focused on execution-training, which are generally much more varied, i.e. such wargames cover the entire spectrum of manual, computer-supported and computer-based physical forms.

The congruence in form regarding wargames for ‘classroom planning’, specifically COA-wargaming, affords this question with more merit than the previous two conjectures. However, COA-wargaming covers only a minority of the included wargames. Only a few expert instructors practise COA-wargaming. Furthermore, in some cases, instructors actually chose *not* to conduct COA-wargaming, citing, for example, a lack of available time. It is also common that military students, such as in the USA (II), focus on analysis instead of wargaming due to their perception of a lack of time in the military planning process. Alternatively, the COA-wargaming may regress into a non-wargaming activity such as a rehearsal. For example, the case of the UK indicated a strict adherence to official instructions (the Staff Officer Handbook) to prevent the likelihood of such developments, which may nonetheless occur in regressed variants of ‘informal wargames’, i.e. visualisations on maps only. Visualisations are a common military practice and, as in the case of Japan, are not considered wargames until the units (symbolic game pieces) are physically moved. Consequently, while there is evidence of a preferred form of wargaming in the military planning process in the form of COA-wargaming – one-sided, *open*, *free* and manual – this does not mean that such a wargame is actually conducted as a wargame (or at all). This once again indicates the influence of individuals.

Individual game directors

This conjectural question on influence by individual instructors (game directors) is the most explanatory of the four supporting questions. The initial case of Sweden revealed the core concern of the individual game director: *how* game directors endeavor to achieve **instructor buy-in** by adherence to three conceptual categories (concepts). The additional four country case studies further explored this endeavor by instructors. Accordingly, while several examples of wargaming are part of an established institutional structure such as SIRA in Germany, ‘command training exercise’ in Sweden, VBS at West Point and standardised map-based wargaming in Japan, these wargaming forms are influenced by individual game directors. It is possible to argue that without **instructor buy-in**, the wargaming form either discontinues or transforms. Arguably, with no **instructor buy-in**, there is little possibility for a new wargaming form to become established. One example of this is *Aldershot Skirmish* in the UK (I). Influence by individual game directors and instructors thus explains why military educational wargaming is evolving. It is also common that a specific wargaming form is attributed to a single or a few individuals.

The core category and the three methods

The indication of individual influence is manifested in the concerns of the individual game director and instructor. Accordingly, the main result from the initial case study of Sweden was the discovery of the core category: **instructor buy-in**. In order to achieve acceptance for a specific form of wargaming, three conceptual categories were discovered as methods, or strategies, employed by the individual. Adherence to one of the three methods – control & veiling, simple standardising and innovative active learning – constitute *how* **instructor buy-in** is achieved. This also explains *why* the wargaming form is eventually accepted, alternatively, *why* it evolves or even discontinues. An analytical model, based on the core category and the three methods, was developed and explored in Chapters 5 to 8.

One overarching query is if the three methods (concepts) are separated or if a wargaming form draws support from two or even all three methods. For example, a specific concept may connect to a specific wargaming form and thereby provide a clear explanation why wargaming takes certain forms. To determine this relation, and to illustrate an emerging and substantive field of army educational wargaming, data from the country cases are combined in a table where indicators of the properties of the three theoretical concepts are numbered and denoted with symbols. For better visualisation, two tables are utilised. The initial Table G is a reiteration from Chapter 4 with serial numbers and identifiable symbols added. The subsequent Table H presents a comparative overview of educational wargaming activities at the five country cases. Table H also include wargaming activities of Sweden to facilitate comparison with the four explored country cases (Germany, the United Kingdom, the USA and Japan) regarding the core category, the three methods, and the various wargaming forms.

Since an overview of educational wargaming activities in five different countries is an optimistic endeavour, Table H should not be considered a 100 percent accurate synopsis of every single military educational wargame in the five countries. First, wargaming forms evolve or discontinue on a regular basis. Second, limited access in several cases, such as the GSDF Staff College (III) in Japan, increases the possibility for the existence of some additional forms of wargaming. Third, the author may have overlooked a certain activity, for perhaps no other reason than that respondents did not consider it ‘wargaming’, or, because an instructor was absent during the author’s visit. However, while some inaccuracies are likely, the *space triangulation*, with three levels of analytically embedded units in each country case, nonetheless offers a comparably general overview regarding each country’s wargaming forms. This overview offers indications of what theoretical concepts instructors adhere to in order to achieve **instructor buy-in**.

Concept (category)	Property	Indicator (of incidents)
SIMPLE STANDARDISING	Adherence to doctrine 	Explicit support for specific wargaming form exists in the formal military decision-making process or military planning process.
		An attitude exists that 'we have to do wargaming' since it is doctrinally expected to do so.
		The product is more important than the wargame process.
	Simplicity 	Every individual officer has to manage the wargaming form: as every officer has to have wargaming ability.
		Intra-professional learning is how methods to manage a wargame are learned, rather than formal written instruction/courses.
		An attitude exists that 'it must work in the field' and therefore ordinary maps should be used.
INNOVATIVE ACTIVE LEARNING	Promotion of gamification 	Support by reference to game-based learning theory: learning is seen as attainment of experience by experimenting - hence the process is important.
		Competition is seen as a good feature rather than an unwanted/bad one.
	Individual innovativeness 	An individual has either designed, or significantly modified, the wargaming form in order to enhance learning.
		The wargaming form changes when an individual relocates.
		An attitude exists that 'no one (else) understands wargaming'.
CONTROL & VEILING	Suppression of gamification    	The game director controls and interrupts the wargaming by 'gas and brake', or halt and restart.
		'Free play' is not allowed: the red cell is supervised but is not fully controlled with a scripted pre-planned response list). The blue side's focus is the scenario and not on playing the game (for fun). The product is important and this is specifically developed by reflections during breaks after/during the wargame.
		The training audience's immersive credibility is safeguarded from potential concerns of unrealism related to the models of a wargame since the training audience itself does not interact with the simulation system because it cannot directly observe it during the wargame.
		An attitude exists that 'we are not doing wargaming here': the activity is not named 'wargaming' but perhaps 'command training exercise'.

Table G: numbered indicators of the three conceptual categories.

WARGAME DATA				SIMPLE STANDARDISING		INNOVATIVE ACTIVE LEARNING		CONTROL & VEILING
COUNTRY CASE	EMBEDDED UNIT	NAME OF WARGAME	FORM OF WARGAME	ADHERENCE TO DOCTRINE	SIMPLICITY	PROMOTION OF GAMIFICATION	INDIVIDUAL INNOVATIVENESS	SUPPRESSION OF GAMIFICATION
SWE	I	'Game the plan' (PUT)	MAP	1 2 3	4 5 6			
		BMBat	MAP/BOARD	2	5	8	9 10 11	14
		VBS	COMPUTER	2				12 13
		'Reasoning wargame'	MAP/SEMI.				9	12
	II	'Wargaming week'	MAP/BOARD			7 8	9 10 11	14
		'Game the plan' (1)	MAP	2 3	4 5 6		9 10	
		'Game the plan' (2)	MAP	2	4 5 6		9 10	
		'Command training'	MAP/COMPU.		5	8		12 13 14 15
	III	'Game the plan'	MAP	1 2 3	4 5 6			
		'Wargaming week' 2013	MAP	2	6		9 10	
		'Wargaming week' 2016	MAP/COMPU.	2		8	9 10	12
		'Wargaming week' 2016	MAP/BOARD	2		8	9 10 11	
		COA-wargaming	SEMINAR	1 2 3	4 5 6			
		'Wargaming week' 2013	SEMINAR				9 10	13
		'Wargaming week' 2015	BOARD		4	8	9 10 11	
		COA-wargaming	SEMINAR	1 2 3	4 5 6			
		'Wargaming week'	SEMINAR	1 2 3			9 10	13 14
		'Wargaming week'	COMPUTER		5	7 8	9	
GER	I	SiTA	MAP/COMPU.	2	4 5			12 13 14 15
		SIRA	MAP/COMPU.	2	4 5			12 13 14 15
	II	SIRA	MAP/COMPU.	2	4			12 13 14 15
		VBS3	COMPUTER	2	4			12 13 14 15
		KORA	MAP/COMPU.	2	4			12 13 14 15
	III	KORA/OA	COMPUTER	2 3				13 15
		COA-wargaming	SEMINAR	1 2 3				
		COTS board games	BOARD GAME			7 8	9 11	12
UK	I	<i>Aldershot Skirmish**</i>	BOARD GAME	2		7 8	9 10 11	
		<i>Sandhurst Free Krieg.</i>	MAP	2	4 5 6	7 8	9	
		'Coy Ops Room'	MAP/COMPU.		4			13 15
	II	COA-wargaming	MAP	1 2 3	4 6			
		BC2T	MAP/COMPU.					13 15
		CATT: force on force	COMPUTER			7 8	9	15
		CSTTX	MAP/COMPU.					13 14 15
		<i>Camberley Kriegsspiel*</i>	MAP/BOARD	2	4	7 8	9 10 11	
	III	COA-wargaming	MAP	1 2 3	4			
		'Informal wargame'	MAP	1 2 3	4			
		FEARFUL EYE	MAP/COMPU.					13 14 15
		'Theatre Wargame'	MAP/COMPU.					12 13 14
		<i>RCAT (manual game)*</i>	BOARD GAME			7 8	9 11	
		<i>RCAT (facilitator)</i>	MAP/BOARD			7	9 11	12 14 15

WARGAME DATA (cont.)				SIMPLE STANDARDISING		INNOVATIVE ACTIVE LEARNING		CONTROL & VEILING
COUNTRY CASE	EMBEDDED UNIT	NAME OF WARGAME	FORM OF WARGAME	ADHERENCE TO DOCTRINE	SIMPLICITY	PROMOTION OF GAMIFICATION	INDIVIDUAL INNOVATIVENESS	SUPPRESSION OF GAMIFICATION
USA	I	VBS	COMPUTER	2	4 5	7	9 11	12 13 15
	II	COA-wargaming	MAP/SAND	1 2	4 5 6			13
		VBS	COMPUTER	2	4			13 15
		CCTT	COMPUTER					13 15
		JCATS#	COMPUTER					15
	III	Decisive Action	COMPUTER	2	4 5	7	9 10 11	13
		The Grand Offensive	COMPUTER	2		7	9	
		(Elective)	BOARD GAME			7 8	9 10	
JPN	II	Zujyouenshuu, 計画	MAP	1 2 3	4 5 6			
		Zujyouenshuu, 戦闘	MAP/COMPU.	1 2 3	4 5 6			13 14
	III	Heigienshuu	MAP/COMPU.	1 2	4 5 6	7 8		14

Table H: the five countries, the wargaming forms and the three conceptual categories.

Notes: **not (yet) implemented, #discontinued.*

In Sweden a 14 was added for BMBat (I) since the main training audience (Bn HQ) is separated. Also, a 2 was added for VBS (I) because of the centrally promoted concept of StriSim-PC. At level III, regarding the initial wargaming week, a 14 was not added to the two wargaming forms (2016) since the students, at least momentarily, can observe (and thus interact with) the wargame.

In Germany at the initial level (I) a 5 was added because while there is a short formal course (and no manual) for game directors only some instructors attend: consequently, the usual way to learn how to direct wargaming is to watch fellow officers direct. At the Army Simulation Center (II) units are expected to use their own officers to direct the simulation exercises (SIRA, KORA and VBS): consequently a 4 was added. At level III a 2 was added to KORA/OA since it is connected to COA analysis. A 12 was added to the COTS board games because of the director-controlled pauses. At all levels, SiTA, SIRA, KORA and VBS were given a 2 to represent that these forms (simulation-based exercises) are supported by educational doctrine by the German Army hierarchy.

In the UK at the initial level (I) a 2 was added to both Aldershot Skirmish and Sandhurst Free Kriegsspiel since hierarchy supported the introduction (trial) of these wargames.

First, the data reveal whether or not one of the three conceptual categories (concepts) is dominant in a single country case. A domination would indicate a high level of commonality in **instructor buy-in** in a specific country. Japan is one example with an overall emphasis on simple standardising, although a few incidents also indicate a presence of aspects of control & veiling as well as possibly some gamification at one embedded unit of analysis (III). The difficulty with accessibility regarding the Japanese case makes ascertaining the tangible level of gamification problematic. What, however, is clear from the collected data is that simple standardising is the dominant strategy for **instructor buy-in** in the Japanese case. Another case where one method is arguably dominant is the German case, where control & veiling is how **instructor buy-in** is achieved. While Japan and Germany thus have a high level of commonality in **instructor buy-in**, the same cannot be said of the UK and the USA. The latter two countries do not have one dominating method. Neither are there clear-cut divisions between the embedded units of analysis of the UK and the USA. Instead, specific wargaming forms connected to a certain course and a specific purpose constitute separate examples of how **instructor buy-in** is achieved. This blend is similar to Sweden, where the changes in wargaming forms relate to certain individuals. Accordingly, a higher level of commonality in **instructor buy-in** seems to exist in Germany and Japan compared to Sweden, the UK and the USA.

Second, one fundamental query is if a high level of commonality in **instructor buy-in**, such as in Japan and Germany, is mirrored in a high consistency between a wargaming form and a method (concept). The explored data indicate that, in general, an educational military wargame involves focus on one method for **instructor buy-in**. In only a few cases, for example the usage of VBS at West Point, USA (I), are the theoretical concepts distinctly intermingled. On the other hand, in most examples, there are indications of support from more than one concept. When a wargaming form finds support from more than one theoretical concept, it usually involves simple standardising and control & veiling. This concerns, for example, wargaming in Japan (II and III) with a focus on execution-training. Other examples of this particular combination are wargaming forms in Germany such as SiTA, SIRA and VBS. These examples cover wargames run exclusively by instructors (officers) without external support. RCAT (*facilitator mode*) in the UK (III) is one example of the much rarer combination of innovative active learning and simple standardising. This example is also a case when external support, rather than in-house personnel, provides needed expertise – *individuals* – to run the wargame. The different extent of intermingling between methods provides further indications of the general uniqueness of wargaming forms and their connections to individuals.

The intermingling between concepts and wargaming forms seems to indicate the absence of a straightforward explanation that presupposes that one specific concept results in a specific tangible wargaming form. However, distinct connections between a specific wargaming form and a specific

conceptual category can be determined. First, COA-wargaming, map-based or in the guise of seminar wargaming, is almost exclusively connected to the method of simple standardising. Second, board games are almost exclusively connected to innovative active learning. Beyond those examples, connections between forms and methods become more indistinct. Computer wargames might arguably be connected to control & veiling, as is mostly the case with SIRA in Germany. In the USA, however, VBS and *Decisive Action* adhere to a combination, which includes simple standardising to a significant degree. There are also examples of computer wargames with a focus on innovative active learning, such as the force on force wargame in the UK (II). Accordingly, while a *physical* wargaming form may connect to a conceptual category, it does not constitute a general rule. This especially concerns computer games, which arguably can connect to any of the three concepts to different extents. Adherence to a specific concept may thus indicate, but does not necessarily entail, the physical feature of a wargame.

The possibility of congruence between specific wargaming forms and the three conceptual categories is explained by the core category of **instructor buy-in** and its three supporting categories of control, credibility and comfort. For example, control was apparent in the use of VBS at West Point in the USA (I). In fact, a lack of control by the game director was seen as leading to unwanted gamification and subsequently possible loss of credibility. Gamification, or the perception of *too much* gamification, is evidently a major potential issue: there is a distinct choice to include – or exclude – it in a wargaming form. This choice seems to ultimately rest with the game director, the classroom instructor, whose personal credibility is at risk. Credibility is congruent with the wargaming form: it becomes synonymous with the game director and instructor. This personal connection was evident in one incident of *Decisive Action* at the CGSC in the USA when an instructor became defensive when a military student questioned the (lack of) realism in the wargame.⁷⁴⁶ A lack of perceived realism can bring severe discomfort to a game director, who has to defend the use of a wargaming form for the participants as well as colleagues and/or superiors. The inherent need for a game director to defend and motivate the choice of a wargaming form in education connects to the issue of comfort in directing a wargame. For example, among instructors there was a reluctance to serve as game director for SIRA at the *Offiziersschule* in Germany (I). In this case, the issue of comfort was connected to the need to constantly override a computer simulation in order to control the wargame for the purpose of reaching certain learning objectives within a limited time frame.⁷⁴⁷ More complexity in the wargaming form seems to bring less comfort for the majority of officers. For example, the use of VBS at West Point in the USA (I) is not a simple procedure – instructors apparently need up to one and a half years of

⁷⁴⁶ Interview: Sterrett, 2014-10-17.

⁷⁴⁷ Observation, 2015-04-14, and, Interview: Nöhmeier, 2015-04-14, and, Interview: Knorr, 2015-04-14.

experience to learn how to effectively use the real time editing function in VBS and apply it during class. While VBS can be found in many locations of the US Army, evidently far from every US Army officer feels comfortable with this particular form of wargaming. Without the dedicated wargaming support organisation at West Point, it is arguable whether comfort would have been achievable at all for the instructors. Technical glitches might, for example, cause severe discomfort, and subsequent loss of control and credibility for the instructor. Notably, the example from the UK (I) regarding the abandoned implementation of *Aldershot Skirmish* is a good example when instructors do not achieve **instructor buy-in** and subsequently no wargaming is carried out. One quote from the UK case study unambiguously describes this lack of **instructor buy-in** as follows: '[we] did not join the army to play games'.⁷⁴⁸ Accordingly, if a game director does not achieve **instructor buy-in**, in this case regarding innovative active learning, the wargaming form is likely to be changed or even discontinued.

One straightforward option to achieve **instructor buy-in** is to forgo complexity in wargaming forms, such as any form of computerised support and simulation systems, and instead aim for complete simplicity and adhere to basic visualisation methods such as maps and terrain models 'that work in the field'. In many aspects, this is how COA-wargaming is done since it is almost exclusively connected to simple standardising. Moreover, this approach can be said to constitute the *modus operandi* in Japan, where wargaming is arguably introduced somewhat later (II) in the educational progression compared to the other four countries (I). This standardised form is learned by all GSDF officers at the intermediate embedded unit of analysis, the Fuji School (II), which thus functions as the centre of GSDF's wargaming expertise and arguably both enables and protects the professionalisation of the wargaming form. A similar approach to the adherence of simple standardising in Japan can be said to exist in Germany, which has its own dedicated Army Simulation Center. In Germany, however, control & veiling is the prevalent method in conjunction with an infrastructure of multiple facilities that allows large-scale computer-supported wargaming. These organisational approaches can be contrasted to an individual approach – *the enthusiasts* – who are directly connected to a certain form of wargaming. Specific examples are: Major Cory and VBS at West Point in the USA (I), Major Mouat and *Sandhurst Free Kriegsspiel* in the UK (I), and a few German officers with their modified COTS board game in Germany (III). In all these examples the individual has either invented or modified the wargaming form to a major extent. There are thus two identifiable approaches: 1) either a broad and organisational approach aimed at the vast majority of officers centred on either simple standardising or control & veiling, 2) or a more specialised approach, carried out by a few enthusiastic individuals, and centred on innovative active learning.

⁷⁴⁸ Curry, Price & Farren (2016), p. 27.

Different methods (concepts) do not form insurmountable barriers between each other. One example of this is the use of RCAT in the UK. This wargame comes with two different modes, *manual game mode* and *facilitator mode*. The former relies on innovative active learning, whereas the latter arguably relies on control & veiling, to achieve **instructor buy-in**. Accordingly, it is not too difficult to modify an existing wargaming form in accordance to what the game director prefers. A board game can, for example, be physically moved away from the players and situated in an adjacent room together with a small control team/game director. Hence, a transition in focus from innovative active learning to control & veiling. This was by and large what occurred during a ‘wargaming week’ in Sweden (II) with a map/board game. While combat adjudication can be done in accordance with *rigid* rules, control & veiling would keep the players in the dark about adjudication procedures and instead force them to rely on their own experience and perception when they construct their actions during the wargame. This separation provides the game director with the power to control information within the wargame. In some cases, this physical separation inherent in control & veiling is acknowledged as a more preferable – and a more *realistic* – form of wargaming, such as at the *Offiziersschule* (I) in Germany. This approach also diminishes the perception that the participants are merely ‘playing a game’, which is a palpable concern of game directors and consequently a major feature of the substantive field of army educational wargaming.

The substantive field of army educational wargaming

The substantive field of army educational wargaming is essentially a triangle with each of its three corners as one of the three theoretical concepts. This form of diagram illustrates the possibility for a game director to employ one, two or even all three conceptual categories, to various extents, in order to achieve **instructor buy-in**. For example, the use of VBS at West Point (I) indicates properties of all three theoretical concepts. However, if this were a standard routine the substantive field would arguably become archaic and of little use to explain **instructor buy-in**. This is, however, not the case as a majority of wargames focus on one concept, albeit usually with some additional support. Of the three concepts, adherence to (parts of) simple standardising and control & veiling are more common than adherence to innovative active learning. The general use of manual-based COA-wargaming, as map-based or seminar wargaming, is a good example of a wargaming form's placement near the corner of simple standardising. Simulation-based exercises (SIRA) at the German *Offiziersschule* (I) are likewise an example of a wargaming form that is close to the corner of control & veiling. In comparison, placement near innovative active learning is exemplified by the use of board games at the CGSC in the USA (III).

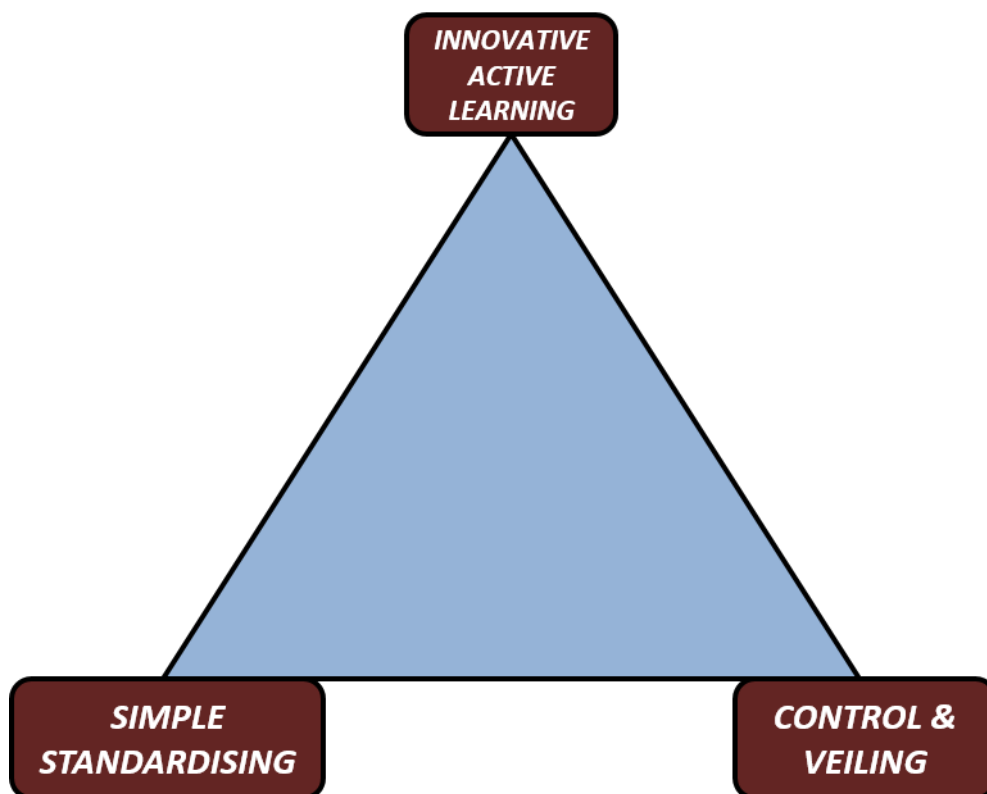


Illustration no. 17: the substantive field and the three methods (concepts).

At an early stage during the data collection gamification emerged as a particular issue that instructors either support or oppose. It seems that a majority of officers are against a palpable use of gamification in army educational wargaming. This aversion explains why, for example, board games and competitions between equal teams in army educational wargaming are uncommon. This absence is arguably somewhat unexpected considering the historical use of *Kriegsspiel* between equal teams during the military education of officers. Furthermore, suppression of gamification stands in opposition to contemporary educational theories that promote game-based learning, which emphasises features such as competitive rewards, fun and role-play as means of enhancing learning. However, some officers both accept *and* promote gamification. Such officers, when serving as game directors, arguably adhere more to innovative active learning for **instructor buy-in**. However, this does not entail exclusive adherence. The introduction of *Sandhurst Free Kriegsspiel* in the UK (I) is one example of a combination since it indicates properties of simple standardising. Arguably, without some combinational adherence, the promotion of gamification in innovative active learning sets it too much apart from the other two conceptual categories. This in turn makes it more difficult to achieve **instructor buy-in**.

During the constant analytical process, with cycles of data gathering and comparisons between and within cases, the concerns about the issue of 'just playing a game' became apparent. This issue is recognised by previous research, which acknowledges educational military wargames as '(...) a tool to support officers becoming members of one practice in the military profession.'⁷⁴⁹ The connection between wargaming and the officer profession increases the professional responsibility of the game director. For such an individual, **instructor buy-in** is a necessity in the form of credibility, comfort and control. One thing that particularly highlights credibility and comfort is concerns about 'realism'. This became apparent in the German case, where instructors adhere to control & veiling since that allows them to hide artefacts in the wargame from the participants. For example, the author was told that one drawback in SIRA is that it does not separate flanking or frontal fire.⁷⁵⁰ This issue would have been obvious if players had direct access to the game with exact positions and facings of vehicles. Instead, by veiling off the wargame, potential protests would not arise since the players would not know the exact disposition of their own and enemy individual vehicles. It is instead up to the game director to decide to halt (and restart) the wargame if; results become corrupt due to game artefacts; one side makes a technical mistake (interaction man-machine); or, a major tactical mistake is committed which effectively ends the scenario too rapidly. Another approach regarding control & veiling is the existence of US Army simulation officers (FA57) as military students, who provide essential simulation knowhow

⁷⁴⁹ Frank (2014), p. 45.

⁷⁵⁰ Interview: Knorr, 2015-04-14.

during larger wargaming exercise at the CGSC (III). This allows the majority of the military students to concentrate on the overall tactical situation rather than to think about game rules and how to move and fire units within the game itself. This connects to the issue of *rigid* rules vs. *free* rules. One example of this dichotomy is the development and implementation of the *Sandhurst Free Kriegsspiel* in the UK (I). This wargaming form relies on instructor judgement, which can include giving the students themselves the opportunity to discuss a possible outcome related to detailed effects from specific weapons systems. Accordingly, this is not just a question of realism, it is also a question of professionalism of officers, i.e. their role as directors is strengthened by enhancing their credibility, and hence comfort and control, by allowing them to construct their own adjudication rather than relying on *rigid* rules. If an instructor wishes to avoid the perception of adhering to unrealistic *rigid* rules, more adherence to simple standardising and/or control & veiling becomes a valid option. The latter in particular offers the instructor the most latitude regarding control, including the possibility of overruling an adjudication by a computer simulation system without the participants noticing.

Promotion versus suppression of gamification is probably *the* most important variable in the substantive field of army educational wargaming. Based on the collection of data most game directors achieve their **instructor buy-in** by *not* adhering to innovative active learning. There is an awareness among army officers that gamification exists. It is not uncommon among game directors that gamification is considered undesirable and at least needs to be controlled and/or suppressed. One argument behind this desire for suppression is that combat adjudication has to be credible and 'realistic'. If this process is conducted separately from the players this increases the comfort of the game directors, since they are able to hide game artefacts from the participants and lessen the impact of a 'black box syndrome' when a computer makes all the decisions, which in turn offers little insight in, for example, probability.⁷⁵¹ An additional argument for veiling is that 'the detail needed to run the simulation is irrelevant to student learning'.⁷⁵² Furthermore, suppression of gamification is also associated with a conscious effort to avoid 'gamer mode', i.e. when participants' focus only on winning the game.⁷⁵³ Hence, a wargaming form that is connected to innovative active learning needs to be constantly defended by the game director. This defence can involve the gathering of support from other categories to strengthen **instructor buy-in**. One example of this intermingled approach is *Decisive Action* in the USA (III). This wargaming form has proved enduring arguably because it is supported by all three conceptual categories to various degrees. This form of balancing increases the possibility for individual game directors to achieve **instructor buy-in**.

⁷⁵¹ Deterding (2010), pp. 34-35.

⁷⁵² Leser & Sterrett (2010), p. 149.

⁷⁵³ Frank (2014).

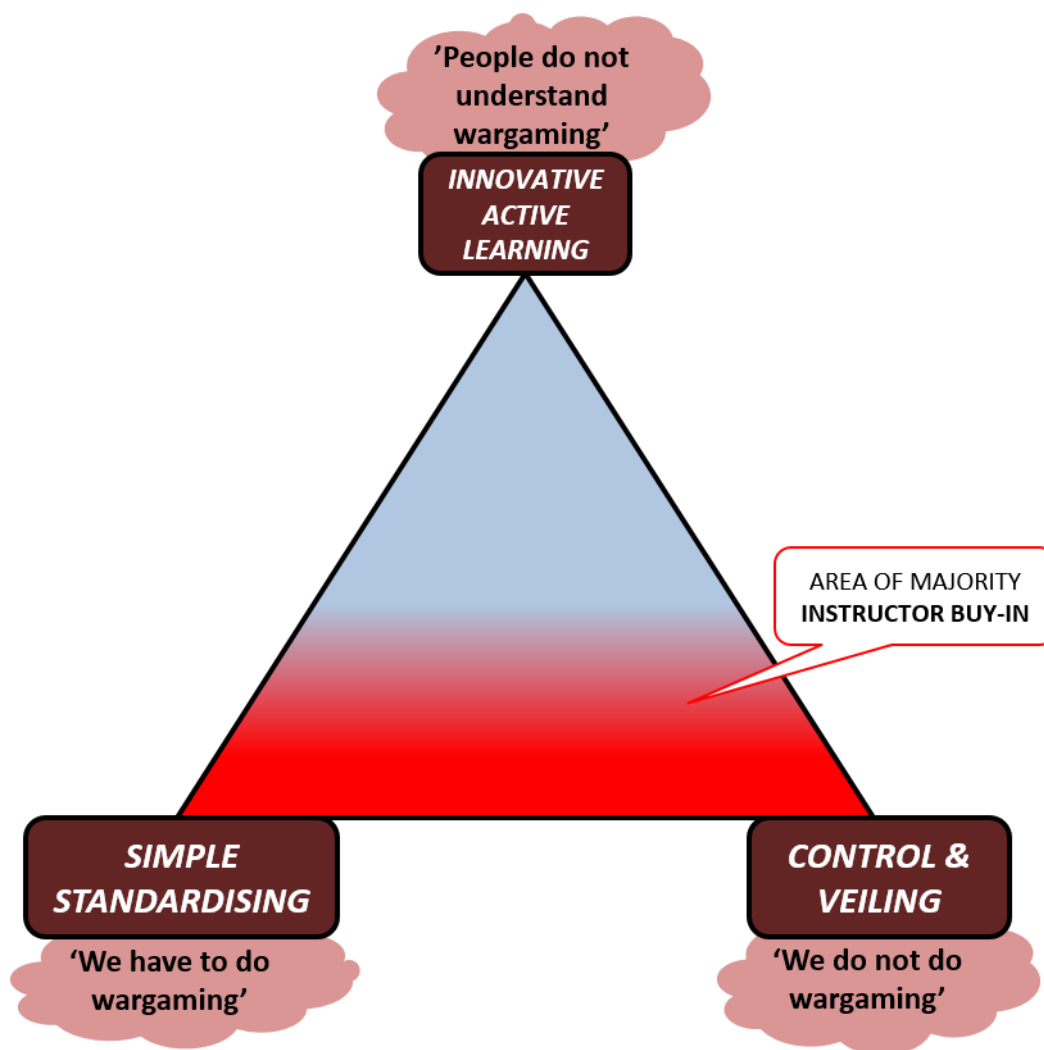


Illustration no. 18: the substantive field and instructor buy-in (attitudes).

The second illustration of the substantive field displays the different attitudes (indicators) of each conceptual category. In addition, the perception of an area where most army officers attain **instructor buy-in** is made explicit. This assertion is based on the relatively few instances when a wargaming form relies on innovative active learning to achieve **instructor buy-in**. This area is substantiated when historic individuals are considered. For example, the enthusiast Lieutenant von Reisswitz would arguably be located near the top at innovative active learning, whereas his sponsor, General von Müffling, instead would be found closer to simple standardising. The proponent of *free* adjudication, von Verdy, would arguably be at, or near, full adherence of simple standardising. In comparison, Sayre, who argued against gamification, would arguably be closer to control & veiling. Accordingly, individuals' placement within the substantive field of army educational wargaming creates an understanding of how wargaming forms begin, evolve and discontinue.

The area of majority **instructor buy-in** seems a constant factor, historically and contemporarily. A majority of army officers would tend to agree with the necessity of a high level of professionalism in military education. After all, officers belong to a highly professional occupation and officers are supposed to acquire professional expertise in their military education.⁷⁵⁴ The main issue in the substantive field of army educational wargaming is instructors' opinions of gamification. If in favour, focus will be on innovative active learning to achieve **instructor buy-in**. If against, there is a choice to either aim for simple standardising and/or control & veiling. Most instructors, especially military ones, do not promote gamification since 'a soldier does not play games'.⁷⁵⁵ This is because, 'in the real world, officers do not use dice and counters.'⁷⁵⁶ In other words, a wargame has to be realistic to be acceptable to instructors.⁷⁵⁷ Accordingly, the instructors' emphasis is to control the wargame, in order to keep things realistic, and to produce a desirable output.⁷⁵⁸ This perception of unrealism connects to the physical form of wargaming: military culture has an aversion to board games and miniatures. The computer, on the other hand, provides a level of credibility while the board game format is 'simply not believed'.⁷⁵⁹ Moreover, miniature-based tabletop wargames are 'anachronistic to many modern military instructors'.⁷⁶⁰ However, while this may be so for many officers, there are still many examples of officers who prefer miniatures (or other symbolic units) on an ordinary map. In addition, the cases of Germany and Japan indicate preferences for map-based wargames rather than computer-based wargames. Such preferences, however, for the most part connect to simple standardising rather than innovative active learning. Furthermore, the use of computer wargames often entails control & veiling, rather than innovative active learning.

Only a few examples of wargames adhere to a major extent to innovative active learning. One example, not part of any embedded unit of analysis in the USA, is the US Marine Corps War College (MCWAR) and their use of the COTS computer-based wargame *Darkest Hour* – a derivate of the *Hearts of Iron* series of strategic and operational wargames of the Second World War – to teach military history. The course in question was the War, Policy and Strategy Course. The wargame was used to get the students, about 30 lieutenant colonels and colonels, immersed in the Second World War. While this example is just beyond this thesis' limitations since it concerns strategy, it is one of the very few examples of a COTS wargame being used for execution-training ('classroom warfighting'). However, one conclusion in the after-action review by the instructors, who selected this wargame, was that

⁷⁵⁴ Snider & Matthews (2005).

⁷⁵⁵ Interview: Anonymous A2, 2015-06-23.

⁷⁵⁶ Interview: Anonymous A3, 2015-10-07.

⁷⁵⁷ Interview: Bourne, 2015-10-06, and, Email: Hospodor, 2017-07-19.

⁷⁵⁸ Discussion: the Maneuver Center of Excellence, 2015-12-10.

⁷⁵⁹ Interview: Lunsford, 2014-10-15.

⁷⁶⁰ MacNab (2012).

improvement can be made by separating the students from the wargame. The exact words were: ‘we need to examine the exercise construct to take students out of the role of managing tactical actions.’⁷⁶¹ This provides a hint of the appeal of control & veiling to an instructor. Furthermore, it indicates the participants’ perceptions of playing a somewhat unrealistic wargame – in this case a COTS computer-based wargame. Arguably, *both* manual *and* computer-based wargames risk becoming perceived as an unprofessional game. This is seemingly more likely to occur when participants interact with the wargame without any efforts of veiling. Two examples are the manual wargame *Aldershot Skirmish* in the UK (I), and the initial trial of the computer wargame *Decisive Action* in the USA (III). However, the two examples also indicate that it is possible to overcome an initial failure by a comprehensive redesign that alleviate for instructors to achieve **instructor buy-in**.

The third illustration of the substantive field covers the risk of singular adherence to a concept. In general, the three concepts are in concert with each other. The intermingling of concepts works as a balancing act since strict adherence to one single method (concept) to achieve **instructor buy-in** may cause the wargaming form to regress. Specifically, simple standardising may become ‘too simple’: i.e. a ‘map exercise’ may become just a tool for visualisation. This puts COA-wargaming at a risk, since this form is exclusively within simple standardising. As a result, the wargame may become a brainstorming activity. Likewise, sole reliance on control & veiling may transform the wargaming exercise into a *scripted* Command Post Exercise (CPX) or staff exercise. In comparison, sole adherence to innovative active learning risks being perceived as abstract unrealism – ‘it is just a game’. It would still arguably be a wargame but it would have become non-integrated and thus no longer perceived as a professional military wargame but as a ‘game’. Hence, paradoxically, ‘serious games’ are at risk of becoming perceived as ‘non-serious’, i.e. unprofessional. For this reason, military wargames associated with innovative active learning, such as board games, rely on elaborate structures to keep them from being perceived as unprofessional. For example, at the German *Führungsakademie* (III), the presence of psychologists and the implementation of instructor control (to halt the game) arguably help the game be a professional educational wargame, even though at the very core, it is just a commercial (modified) board game (*Crusader Kings*). Such board games are not that different from the historical German wargames, *Kriegsspiel*, which relied on the instructor’s (umpire) use of *rigid* rules grounded in realistic combat values of weapons. However, accurate combat modelling does not make a wargame immune to the risk of negative perceptions of unrealism and non-professionalism. This risk seems particularly apparent when the physical form of wargaming is a board game. However, even computer games are at risk, especially if such games are double-sided, i.e. competitive. For example, at West Point (I) in the

⁷⁶¹ Barrick & Lacey (2014).

USA, instructors discourage officer cadets from viewing VBS as a ‘game’.⁷⁶² A ‘game’ is generally perceived as unprofessional because of discomfort with gamification, risk of credibility loss regarding the representation of realism, and finally, control difficulties if rules are deemed ‘too complex’, i.e. too detailed or too abstract. For these reasons, a wargame overtly connected to innovative active learning risks *discontinuance* because of a perception of unprofessionalism. In comparison, overt affiliation with simple standardising and control & veiling may *transform* the wargame to a non-wargaming activity.

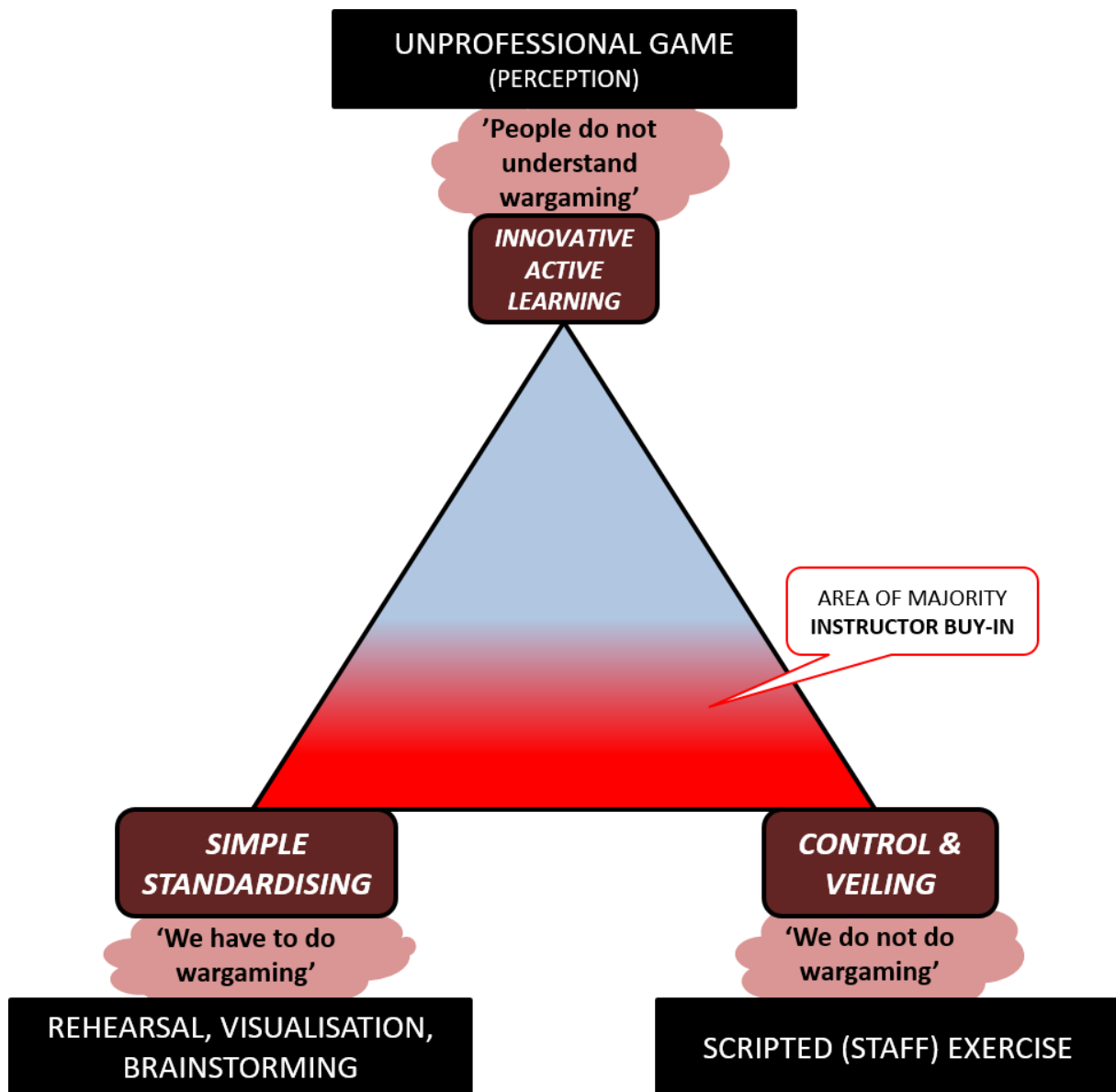


Illustration no. 19: the substantive field and the risks of singular adherence.

⁷⁶² Interview: Castro, 2015-12-08, and, Interview: Carter, 2015-12-08.

The illustrated risks of shifting away from military wargaming to another activity offer an explanation to why it is common, and also necessary, that wargaming forms find balanced support from two, or in a few cases, all three concepts. This balancing and combinational action, that the individual instructor constructs, arguably increases the possibility of **instructor buy-in** and preserves the activity as a wargame. The illustrated risks of singular adherence both explain and delimit the grey zone of wargaming. This grey zone is not clear-cut because, like wargaming forms, it evolves. For example, it is entirely possible for a visualisation of miniatures on a sand table to instantly evolve into a wargame because of the actions by a single instructor. It is however only possible for this to occur if **instructor buy-in** has been achieved. If not, wargaming will not come about, or conversely, it will occur but is likely to be considered a failure and thus will not occur again.

Concluding remarks

Wargaming in army education of officers and officer cadets takes the form it does because of **instructor buy-in**. This concerns an individual instructors' aversion to the possible risk of losing control, credibility and comfort. **Instructor buy-in** of specific wargaming forms is achieved by adherence, in various degrees, to three different methods (concepts): simple standardising, control & veiling and innovative active learning. The three methods constitute a balancing act within a triangle-shaped substantive field concerning one significant variable: the amount of gamification, together with the other properties and indicators of the three methods.

Individual game directors are crucial for army educational wargaming. If such individuals' prospects for achieving **instructor buy-in** are not taken into account by the hierarchy and management, a top down approach risks becoming a costly failure. With this in mind, it can be ascertained that not all features in computer simulation systems are always needed for army educational wargaming. For example, a 3D view is not particularly essential for the concept of control & veiling as the principal participants do not directly interact with the system. While nice to have for controllers' immersion, such a feature adds development and acquisition costs. Worse, large computer facilities risk underutilisation because of a possible lack of **instructor buy-in**. By reflecting on the balance of simple standardising, control & veiling and innovative active learning, improvements can be made in the development, acquisition and utilisation of army educational wargaming.

There are wargaming enthusiasts among officers. Such officers are usually, but not always, affiliated with hobby wargaming. As 'wargamers' they first and foremost aspire to adhere to the conceptual category of innovative active learning. Their comparatively low number within the officer profession contributes to less utilisation of gamification than might have been expected in army educational wargaming. It is all very well to be enthusiastic, but it is not enough: enduring army educational wargaming is either very simple or very controlled, and therefore an attempt to increase gamification does not seem to be the route to success. Gamification entails direct access to the wargaming form, usually a board or computer game. It is, however, clear that not every officer can run a board game or computer game. A psychological wall exists that is also physical. It comes in the form of the vast majority of military instructors, not the lone enthusiast or hired expert, who determine whether the wargaming form becomes very simple or very controlled. Few army officers have bought-into the use of gamification. This does not mean that gamification is without merits – in fact, gamification is arguably an effective scheme for learning. However, without **instructor buy-in** of a specific wargaming form, it is likely to become substandard. As a result, the wargame is likely to be removed from the educational curriculum or transform into a non-wargaming activity.

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