A Consideration of Training and Education in Wargaming for Defence

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Introduction and Aim

Aim

To identify issues likely to affect the training and education of users - and implementers - of wargaming in defence.

The organisations and people at which this is aimed include those wanting to apply wargaming to defence analysis and training.

Stimuli

- Emphasis and initiatives on wargaming
- Broadening interest
- Risk that the pool of experienced staff is increasingly limited

However, experience and literature indicate that wargaming is not a science pr se.

Perceived to be the case that gaming, and wargaming, is an art in part,

  - as well as having some more grounded mathematical and scientific elements (Rosenwald, 1990).

Introduction and Aim

This presentation

sets out proposals for the key facets of elements of games and then

postulates the associated potential training and development needs across a number of roles.

NOT intended as a definitive paper but rather one to start a debate.

Structure:

- Proposed categories of wargaming applications
- Proposed elements of wargaming requiring training (inc roles)
- Types of games and levels of competence
- Risks to the success of events by role and game type
- Initial deductions and Conclusions as regards educational needs

Proposed Categories of Wargaming Applications

i) Training

– where wargaming is used to drive and support a training event, either as a direct application for the training audience or to drive a training exercise where the audience does not interact directly with the game

ii) System Evaluation/Analysis –

- where the wargame is used to evaluate the utility of a system, organisation or concept

iii) Experimentation

- where the wargame is used to support experimentation using operators and users of a system or capability (this overlaps with system evaluation/analysis).

Proposed Elements of Wargaming requiring training

The key elements within the delivery of wargaming are varied according to a number of sources.

For ease of discussion, an attempt has been made to generalise to the following:

- Design
  - Identify the required outcomes of the end wargame – the key deliverables which the wargame is to enable
  - Determine the Physical representation – the means of implementing the wargame
  - Stipulate the 'Mechanics' – the way the wargame will be played including interactions, control and timings.
    - This will include data and representation of system and force capabilities.
  - Algorithms – the underlying resolution calculations or methods
  - Create 'Interactions' – the means by which the players will be involved in the game including frequency of interaction, sequencing and activities needed.
- Development
  - Identify the lifecycle of the wargame system
  - Implementation – how will wargame elements will be developed
    - (including any coding, physical infrastructure, data capture and representation)
  - Testing – which testing methods will be employed and how (and on what basis) will verification and validation be carried out
  - Fitness for purpose - how will validation be conducted such that confidence levels associated with likelihood of successful key deliverables and outcome can be ensured

Proposed Elements of Wargaming requiring training

The key elements within the delivery of wargaming are varied according to a number of sources.

For ease of discussion, an attempt has been made to generalise to the following:

- Facilitation
  - Control of wargaming event – how and on what basis is the wargame to be facilitated and monitored
  - How are key deliverables and outcomes to be captured
- Adjudication
  - How is the game to be controlled/umpired, such that determination of outcomes and consequences of actions in game are dealt with that allows capture of necessary information whilst not impeding the flow and richness of the wargame

Types of Games

Various ideas as to the spectrum of different wargame types.

This paper proposes the following three basic types:

i) Rule based structured Wargame

– using detailed rules and algorithms or computer simulation software

ii) 'Kriegspiel' or unstructured wargame

– wargame where outcomes are less rigorously determined and are more based on simple algorithms or umpire judgements

iii) Matrix/Discursive

– where the key aim is the discussion and interaction not the actual measured outcomes of events.

Level of Training/Education or competence

Proposals

- wargaming involves different ‘player competencies’,
- a mixture of competencies is usually present during any given wargame.

Proposed levels are:

- Awareness
  - basic knowledge of most principles
- Practitioner
  - detailed knowledge of principles and ability to implements some elements of a wargame system
- Expert
  - expert in principles and with extensive experience in implementing elements of the wargame systems

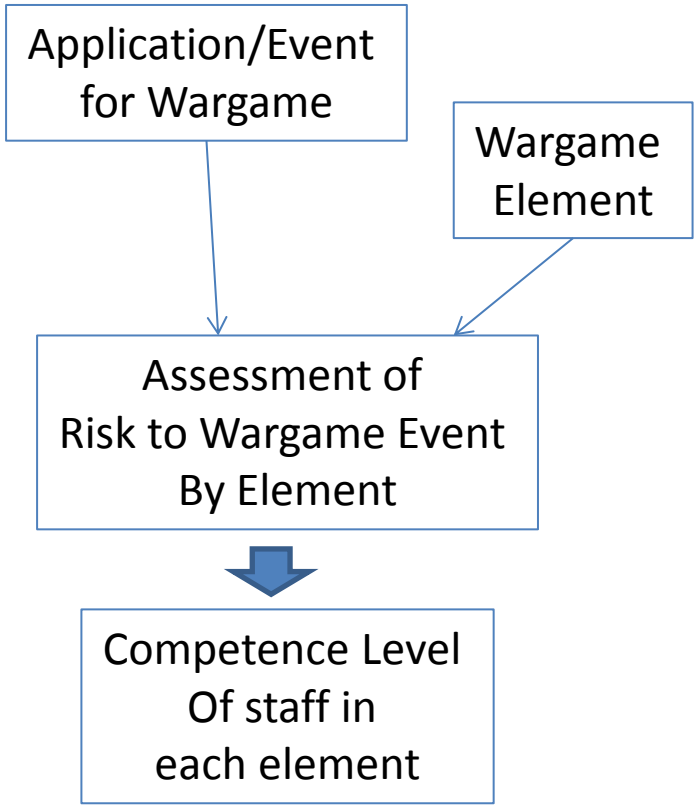
Additional - ?

- Player
  - user of a wargame so very basic knowledge of the wargame itself required

Risk Level to Games Event vs Role and Minimum Competence Required

Process of wargaming is likely to be susceptible to a number of risks.

- Initial assessment of the risks to a wargame application or event.
- Analysis then conducted by
  - reviewing by element (design, development etc) and
  - assessment of the level of risk from this element to the application of event.
- Leads to a deduction as to the required minimum level of competence by staff in each element.
- This initial assessment of ranking is intended to provoke further debate.



Risk Level to Games Event vs Role and Minimum Competence Required

"Generic" Overall Wargame Type

Element	Risk to Event	Proposed Minimum level of competence
Design	High	Practitioner
Development	High	Practitioner
Facilitation	V High	Expert
Adjudication	High	Practitioner
Player	High	Awareness

Risk Level to Games Event vs Role and Minimum Competence Required

Rule-Based Structured Wargame - relatively rigid enforcement of processes and algorithms

Element	Risk to Event	Proposed Minimum level of competence
Design	High	Practitioner
Development	High	Practitioner
Facilitation	V High	Expert
Adjudication	V High	Expert
Player	High	Awareness

Risk Level to Games Event vs Role and Minimum Competence Required

‘Kriegspiel’ Unstructured Wargame -

Element	Risk to Event	Proposed Minimum level of competence
Design	High	Practitioner
Development	Med	Practitioner
Facilitation	V High	Expert
Adjudication	V High	Expert
Player	High	Awareness

Risk Level to Games Event vs Role and Minimum Competence Required

Matrix Game – Seminar Workshop Wargame

Element	Risk to Event	Proposed Minimum level of competence
Design	High	Practitioner
Development	Med	Practitioner
Facilitation	V High	Expert
Adjudication	Med	Practitioner
Player	Med	Awareness

Initial deductions and Conclusions (as regards educational needs)

- Design –
  - Education is required largely to practitioner level
  - This itself needs basic awareness training and then specific enhancement to achieve the level of competence required.
  - The design element has specific areas which are related to process and objective such as algorithms, coding etc. However there is a significant element of the 'artistic' and conceptualising nature of wargaming here and so the education needs to include significant experience and application to learn a trade and softer skills required.
- Development
  - assessed at practitioner level also
  - but risks are lower for some of the less structured game types.
  - Higher level of risk is associated with the more objective and structured systems and so the recommendation is that this education may be focussed on the process and objective skills and knowledge such as algorithms, rules and coding.
- Facilitation
  - a key area
  - the one most likely to jeopardise an application
  - it is proposed that this is the hardest to educate
  - significant elements related to soft issues such as meeting management, event staging, active listening and influencing.
  - This lends itself therefore to largely experiential and example based education and might also include more assessment to examine the suitability of staff for this key role.
- Adjudication
  - a mix of practitioner and expert level.
  - Includes a great deal of calculation and interpretation and learning of the processes for applications.
  - Does not require the same level of soft skill as the facilitator and so could be more readily trained into staff.
  - However there are many instances in the lighter less rigid systems where facilitation requires an element of these soft skills
  - basic training and education is sensible to provide the objective elements but experiential and example based elements will be required for this role also.

Workshop

1. Review categories and revise
2. Assess needs

Workshop
Game Categories

Please review and update including definitions

i) Training

ii) System Evaluation/Analysis

iii) Experimentation

Workshop

Elements of Wargaming requiring training

Please review Elements and Update

- Design
- Development
- Facilitation
- Adjudication

Workshop
Types of Games

Please review and Update

i) Rule based structured Wargame

ii) ‘Kriegspiel’ or unstructured wargame

iii) Matrix/Discursive

Workshop

Level of Training/Education or competence

Please review and Update

- Awareness
- Practitioner
- Expert

- Player ?

Workshop

Risk Level to Games Event vs Role and Minimum Competence Required

"Generic" Overall Wargame Type

Element	Risk to Event	Proposed Minimum level of competence
Design		
Development		
Facilitation		
Adjudication		
Player		