Aptitude for Command Evaluations: Implementation Opportunities for Cognitive Science

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Introduction

This presentation will advance three theses:
1. Command thinking is vital to a strong defense posture
2. Command thinking can best be inculcated with skill training
3. Command thinking can effectively be implemented

This can be done via globally accessible computer-aided instruction, especially in the light of current staffing and funding constraints. While evidence will be adduced to support all three theses, it is a given that this is not the proper vehicle for an irrefutable proof of any of these theses. The issues will be from the authors’ personal research and insights arising out of military service and the community at large.
Skills Needed to Lead

• Training & assessing better DoD leaders necessary; daunting issues
  ▪ Today’s daunting defense issues that mandate a response to that challenge
    ➢ Leaders must be equipped with and fortified by critical thinking skills

• This would optimally be a training function
  ▪ Adoption of this idea is difficult in an over-tasked and under-funded DoD

• Leadership Training over the Centuries
  ▪ Classical Greece
  ▪ Napoleonic Wars
  ▪ American Civil War
  ▪ World War II
  ▪ Gulf Wars
  ▪ Future?
What Are the Parameters of Good Leaders

• **More than just a “G-Factor” test**
  - Command needs more than intellectual excellence
    - *Caltech*
    - *USC*

• **Command Presence**
  - Application for commission picture
  - Football Q-Backs

• **Communicator**
  - Voice of command
  - Gen Lew Wallace

• **Manifest Analytical Capability**
  - Hauptman Irwin Rommel
Can Critical Thinking for Command be Identified

Some amount of consideration has been given to parameters:

<table>
<thead>
<tr>
<th>Collecting data</th>
<th>Reviewing initial conclusions</th>
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<tbody>
<tr>
<td>Categorizing and analyzing</td>
<td>Combining ideas and expanding uses</td>
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<tr>
<td>Using the insights gained</td>
<td>Internalizing the high order concepts</td>
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Can be Taught by Various Means with Measurable Success:

<table>
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<tr>
<th>Didactic lectures</th>
<th>Constructive Technique</th>
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<tbody>
<tr>
<td>Small group exercises</td>
<td>Model analyses</td>
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<tr>
<td>Text book exposition</td>
<td>Socratic dialogues</td>
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Computer Simulation for Better Engagement

• **Some Studies have shown that On-Line can get better trainee focus**
  - People talk longer and subjects have been shown to be more sensitive

• **One Technique was to Use a Series of Video clips**
  - Emulated a Video Conference
  - Using NLP, could select, cue up, and initiate the appropriate clip in <500 msec
  - Many possible counselors offered and it rated as very engaging
Earlier Project showed Transcontinental Reach of Internet

• Can Provide 24 X 7 accessibility with acceptable latencies
  ▪ Three servers (So California, Australia and Italy would cover globe
  ▪ Select and “field” the most engaging counselors; homogeneity assured
Using Battlefield Simulations

• **Even a one-on-one conversational may not give best engagement**
  - Good communications
  - Lack immediacies of combat
  - Real-time or adjusted time frames to get best result

• **Battlespace simulations may give more engaging “sand box.”**
  - Allow for better analog of combat
  - Scenarios could be developed to present command problems

• **Excellent Training to Optimize Command capabilities**
  - Individualized for mission goals or individual needs

• **Develop Assessment Programs to Spot Better Personnel Assignments**
  - Better to find strengths and weaknesses before making critical choices
  - AI program could help find appropriate metrics
Existing Simulations Could Provide Platforms

- **Many Full Battlespace Simulations Are Extant**
  - ModSAF or progeny would be available candidates
    - *JSAF or OneSAF*

- **Create Scenarios based on various histories from recent combat**
  - Design study for scenario development: good topic for NPS/AFIT MS Thesis
  - Would not remove Human Judgment from selection
Command Thinking and Simulation Standards

• Cross-Platform Interoperability Standards
  ▪ Ensure proper interfaces with other platforms
  ▪ Investigate potential users from outside of military simulation

• Behavioral scenario creation applications
  ▪ Consider new set of behavioral scene adjuncts to scenarios
  ▪ Examine possibilities of creating/adopting more universal tack

• Evaluation Standards
  ▪ Investigate accepted assessment analysis programs
  ▪ Evaluate use for assessing command candidates

• AI Scenario Creation
  ▪ Examine and assess use of AI (e.g. ChatGPT) for scenario generation
Conclusions

To meet the threats posed in the 21st Century and still honor societal constraints and financial limits, the govern should make optimal use of the strengths of the allied powers. Among these are a highly educated and motivated intellectual capability that has a set of infrastructure tools available to teach improved analytic and decision approaches to military personnel. The authors maintain that critical thinking is vital, can be inculcated by training and is most practicably implemented by distributed computer-aided instruction and skill maintenance.
The authors wish to thank all of the simulation professionals with whom they have worked over the last three decades. This discipline is blessed with a fine group of creative and productive career scientists. We should also note that much of the work cited was supported by grants from the Office of Naval Research's STEM Program (ONR N00014-16-1-2820) and by research assistants supported by the National Science Foundation Research Experience for Undergraduates program (NSF 1560426). Nevertheless, the positions taken in the paper are the authors’ own and do not represent in any way the views of the Department of Defense or the US Government.