



EDUCATING BY DESIGN

Preparing Leaders for a Complex World

Colonel Stefan J. Banach, U.S. Army

We tolerate the unexplained but not the inexplicable.

—Erving Goffman¹

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PAINTING: Alexander the Great, the West's genius of military art and science, fights King Porus of India at the Hydaspes River in May, 326 B.C.E. He and his generals, the Diadochi, were deliberately educated in the study of campaign design.

THE ARMY HAS MANAGED an increasingly complex global environment since 2001 with the additional dilemmas of asymmetric warfare, counterinsurgency, counterterrorism, and stability operations. Both the operating force and the generating force have recognized the need for new conceptual tools to assist commanders in the planning process.

In January 2008, publication of TRADOC Pamphlet 525-5-500, *Commander's Appreciation and Campaign Design (CACD)* captured an ongoing professional dialogue about the application of design to military operations. The current challenge has been to define the Army's methodology for design. Simultaneously, the School for Advanced Military Studies (SAMS) has considered how to incorporate the art of design into officer education so design teams can apply design theory and philosophy to practical challenges. Working with theoreticians and skilled practitioners of military art and science, the school has been engaged in taking design from theory to practice on many fronts. From this rich experience, SAMS has adopted a slightly modified version of TRADOC's Army Capabilities Integration Center (ARCIC) definition of design as "an approach to reasoning and critical thinking" that enables a leader "to create understanding about a unique situation and on that basis, to visualize and describe how to generate change."² This article explores the Advanced Military Studies Program (AMSP) educational experience and is meant to share insights gained at SAMS with the Army, Joint, coalition, and interagency communities.

To do this, the paper looks at how the "art of design" is already being used by Army leaders. In doing so, it explains how SAMS has been teaching and learning about design through extensive academic and practical experience. It concludes with some of the lessons from the SAMS experience over the past two years and an exploration of the critical interface between design and planning.

Practicing Design in a Complex World

One of the primary objectives of AMSP's Art of Design courseware is to enable students to gain systemic understanding of a situation when it is not clear what action is required and no consensus exists on the nature of the problem. Social psychologist Karl Weick describes such situations as follows: "Things seem inexplicable. And to make it worse, many of our ways of making sense of the inexplicable seem to have collapsed."³ Oftentimes, sources of difficulty are not readily apparent, or, more likely, apparent problems are merely symptoms of deeper issues and problems with their own dynamics and connections. Worse still are situations where traditional methods for understanding and potential approaches to problem solving no longer work or provide erroneous solutions. Recent experience and emerging doctrine all point towards design's potential for enhancing the commander's understanding and visualization of the situation. When faced with the incomprehensible, commanders at all levels need an approach that helps them learn, understand, visualize, describe, direct, lead, and assess while conducting battle command activities.

In many respects, the operational force leads the generating force in its understanding and implementation of design. While not explicitly recognized as such, military leaders have already incorporated design tenets into their patterns of thought. When commanders find themselves asking "What's the story here?" they engage in design. Commanders and their staffs, out of necessity, have realized that contemporary situations require a deep appreciation of the operational environment. Guidance provided by a higher political or military authority may not be sufficient to frame complex situations that cross political, social, economic, and ideological boundaries, particularly in joint and coalition operations. An example might be a directive to solve an amorphous problem, like "fix the government" in your area of operations.

Absent a clearly definable military task, commanders have had to adapt existing processes. They make conscious decisions to combine their experience with the intellectual power of others to assist in managing complex issues within acceptable limits of tolerance over time. In these situations, commanders have found it necessary to engage in

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learning through action to understand the system, the adversary, and the logic of underlying events. For example, tactical organizations at every echelon conduct continuous sustained operations over long periods of time. Consequently, battalions and brigades, who doctrinally do not plan and conduct campaigns, produce their own versions of campaign plans. A campaign plan is the best way that these units have found to articulate a broad set of ideas about how to solve ill-structured problems in complex environments over time. As a result, the practical basis for incorporating design into Army operations already exists. Design provides a methodology to assist commanders in what they are already doing in an ad hoc fashion.

Another addition to the previously noted operational experience is an emerging professional conversation regarding the value of design in addressing complex situations. Authors have recently engaged readers on this subject in *Military Review*, research papers, and other professional journals. The views expressed by these writers serve to strengthen the design methodology, enhance the professional understanding of design, and sharpen the debate that will lead to an improved description of design within doctrine.⁴

Army doctrine has served and continues to serve the force very well, but current operations have revealed the need for an enhanced ability to comprehend the operational environment and its logic before detailed planning begins.⁵ Some design concepts have already been written into Army doctrine while others are conflated with planning tasks. Fully developing design theory, separating design tasks from those of planning in doctrine, and implementing new design fundamentals without losing the essence of the art of design is the challenge at hand.

Doctrine has begun to incorporate design into conceptual approaches to problem solving. Field Manual (FM) 3-24, *Counterinsurgency*, contains one of the most cogent doctrinal statements about design.

Design and planning are qualitatively different yet interrelated complementary activities

essential for solving ill-structured problems. The situation is particularly problematic with insurgencies. Design informs and is informed by planning and operations. It has an intellectual foundation that aids continuous assessment of operations and the operational environment. Commanders should lead the design effort and communicate the resulting framework to other commanders for planning, preparation, and execution.⁶

FM 3-0, FM 5-0, and Joint Publication 5-0 contain other doctrinal expressions of design; however, our military doctrine does not adequately capture the art of design as an approach, and a practical void exists. Current doctrine discusses design as a complement to planning. SAMS is moving forward on this critical aspect in partnership with the U.S. Army War College, TRADOC, and the Combined Arms Doctrine Directorate (CADD).

While each organization uses different approaches, methodologies, and philosophies, the SAMS experience provides results to the other TRADOC agencies, which has helped to codify the language and methodology needed to transition to a practical approach for design in operational forces. The experimentation of SAMS students and faculty is intended to assist in refining the understanding of the art of design in order to be useful to the field. Future doctrinal advances will more fully describe the Army's methodology for incorporating design fundamentals into operations. In the meantime, the art of design is not an activity that will be driven from the top down in our force; indeed it is being practiced in our formations today and needs to be codified in doctrine for universal understanding and practice.

Integrating Design into Education

SAMS received the mission to further develop design thinking for the Army in July 2007, building upon TRADOC's continuing effort to assess the application of design. Creating a design culture at SAMS, which would underpin the development of the Art of Design courseware, was a top priority and required the faculty to model the agile and adaptive leadership principles that are taught at the school. The institution established an open experimental environment to encourage learning, generating the atmosphere for new thinking to flourish. Synthe-



Coin of Julian the Apostate, circa 360 C.E. The Roman emperor Julian began his campaign against the Persians' Sassanid Empire in March 363. There was no compelling reason for the invasion, it was poorly planned, and his campaign design fell apart after he failed to take the Persian capital at Ctesiphon (about 22 miles south of modern Baghdad). He was killed near Samarra when he entered battle without wearing his body armor.

sizing complex adaptive systems and emergence concepts, social influence, leadership, and design theories along with a broad range of philosophically nuanced ideas took time, but this investment resulted in new design courseware and a deeper understanding of the methodologies needed to apply design to complex problems.⁷

SAMS brings to the operating force the ability to incorporate a well-thought-out and structured design approach as a complement to what commanders attempt to do intuitively. The third evolution of the SAMS Art of Design curriculum spans subjects from the theoretical basis of design to practical application of design methodology. The AMSP design course for 2009 includes 25 lessons taught within a six-week period. The instruction is divided into five modules: critical thinking, foundations for design exploration, design methodology, communication, and leading design. Students are exposed to a wide range of theorists, specialists, and experts in related disciplines during their academic study. A series of three design practical exercises conducted over an additional six weeks spread throughout the academic year challenge the students to apply the approach they have studied

to complex situations. Students then conduct two planning exercises during the final months of the program moving from design to planning, immersing themselves in Army planning doctrine. The Art of Design course produces officers who not only can design military responses to complex situations but also who are critical and creative thinkers, culturally aware, effective communicators, and confident leaders of operational planning teams. They are able to employ a comprehensive approach to complex problem solving.

In the academic lessons, students delve into the art of design, using theory, history, and doctrine to inform their learning. This intensive period acquaints the students with philosophy and design theory. Systems-thinking lessons establish an appreciation for relationships, which is a vital competency to master before engaging in design. Socratic-style study of creativity, complex adaptive systems, emergence, and self-organization grounds the officer in complexity theory. Lessons on inquiry reinforce the appreciation of difference between western culture and other cultures, as well as the theoretical basis for discourse. In-depth study of the theoretical underpinnings of narrative, discourse, and asymmetry prepare the student to participate in the design methodology by establishing intellectual foundations for the inquiry inherent in learning. Communications theory lessons build upon existing skills, providing the means to clearly explain the team's systemic understanding to audiences both within the organization and external to the headquarters. An exploration of strategic communications follows, equipping the officer with the perspective needed to develop themes and messages appropriate to the command's design. A series of lessons on organizational theory and leadership then consider the environment of design, integrating a study of edge theory, sensemaking, adaptive leadership, power and influence, and learning organizations into the ideas developed in earlier seminars. Throughout the design course, historical and doctrinal examples link the theoretical underpinnings to reflective practice. The academic course gives the students a deep intellectual foundation, preparing them to apply the design methodology to different and wide-ranging complex situations.

In practical exercises, students apply theoretical concepts, explore the art-of-design approach,

lead operational planning teams, and develop their communication skills. Practical exercises cover the key elements of the design approach: receipt of situation, development of the environmental frame, problem frame, design concept, and design to planning. The first practicum presents the students with a complex situation from a combatant command area of responsibility. Students create an "environmental frame," "initial problem statement," and an "initial theory of action." Design Practicum Two continues the learning begun in the first applicatory experience, allowing the students to generate a "problem frame," "revised problem statement," and an "updated theory of action." In the final practicum, students continue to design with the final outcome of the practical exercises being a translation of all learning achieved in the design methodology. It includes the creation of a "design concept" as the artifact translated in the design-plan interface, resulting in a planning directive. This series of integrative experiences give substance to the academic subjects, allowing each student to develop their understanding of the design methodology.

Learning by Practicing Design

An explorer can never know what he is exploring before it has been explored.

—Gregory Bateson⁸

In addition to internal exercises, SAMS has participated in Unified Quest (UQ) exercises since 2005. As mentioned earlier, in January 2008, TRADOC introduced *CACD* as a part of the effort to begin moving design from theory to practice. AMSP students explored new ways of using the art of design as a viable approach in preparation for UQ 2008. Lessons learned from UQ 2008 were captured in the SAMS Design Student Text version 1.0, which was published in September 2008, as a reference for future instruction at the school. Once again, SAMS will participate in UQ 2009 with the normal complement of sixteen AMSP students. The exercise is expected to generate student insights that will continue to inform subsequent iterations of design curriculum and practical exercises at SAMS. These insights will also help to inform doctrine, and inevitably expose the need for additional study in some areas, leading to further adjustments in the Art of Design approach.

Since 2007, eight seminars of AMSP students have studied design. In addition to seminar studies, individual research forms an essential element in adapting design theory to practice. A number of students have written and are writing monographs on the topic of design. Papers such as “Philosophy of Design,” by British Major Ed Hayward which explores theoretical concepts of understanding, and “Navigating between Scylla and Charybdis,” by USAF Major Russell Driggers which explores old and new leadership concepts, have added to the understanding of design.⁹ The most recent sixteen graduates, from the December 2008—Winter Start AMSP Class, completed all of the SAMS Art of Design courseware, and eight of these officers were immediately deployed to Afghanistan. The current AMSP class 09-01, due to graduate in May 2009, has completed its first two practical exercises to be followed shortly by the third practicum and two planning exercises. As with any curricula, understanding the learning outcomes and strengths and weaknesses of various approaches has led to modification of both the course materials and the design methodology itself.

Through faculty and student after action reviews (AARs), SAMS captured student experience and made adjustments to the course material. As happens with any new concept, the transition from theory to practice yielded a rich body of experience, which has revealed innumerable insights. From these lessons, SAMS recognized the need to make adjustments to facilitate application of an inherently individual activity to collective pursuit of understanding. One fundamental insight is that design is not a process *per se*, but it needs a logical methodology. While an individual may be an effective thinker, problem solving in social groups requires some commonality of approach. By combining philosophy with method, students and faculty are gaining understanding about a methodology that can help commanders harness the collective insights and learning that takes place within their organizations.

Another discovery has been that absent boundaries for design activities, there is no progress. When designing military responses, the team is often faced with fundamental questions like, “when should we move forward through the methodology?” Lacking philosophical and methodological

markers, “paralysis by analysis” results.¹⁰ The team remains stuck, unable to progress in its learning. Broad and flexible systemization of the design approach combines the method and the philosophy to guide the design team’s learning and actions.

The companion article in this issue, “*The Art of Design: A Design Methodology*”, explains in greater detail the methodology developed based upon practical experience, as shaped by theory. Briefly, the art of design uses a simple approach to guide the design teams’ and commander’s learning. The methodology has three major elements that are interrelated, mutually inform each other, and are iterative in nature:

- Understand the operational environment.
- Understand the problem.
- Develop a solution in the form of a design concept.¹¹

The goal is to provide the commander with a cognitive tool that he can use to understand the logic of the system. Each section of the methodology provides a place to explore, learn, and synthesize information while not constraining the design team, allowing them to move between and operate in all three spaces simultaneously if necessary to gain systemic understanding. Design is non-linear in thought and application. Its methodology clarifies guidance in the consideration of operational environment, and the current system is understood within existing limitations. The design team produces an environmental frame, an initial problem statement, and an initial theory of action. As the teams’ understanding increases and the nature of the problem begins to take form, the team explores in greater detail aspects of the environment that appear relevant to the problem. Here, choices are made about boundaries and areas for possible intervention. From this deeper understanding, designers set the problem by developing a problem frame and revise the problem statement and the theory of action. Finally, the design team decides how to act to manage the problem by developing a solution in the form of a design concept and initiates the transfer of learning from the design team to the planning staff through a planning directive.

Design to Planning Interface

Perhaps the most difficult problem thus encountered is the transition from design to planning.

All creative ideas derived from extensive design thinking must be communicated effectively in a systematized approach which produces universal understanding of a complex ambiguous situation. Carrying forward the work done during design involves choices and a complex interaction between the design team and a broad array of interested parties, all of whom require tailored information appropriate to their echelon and responsibilities in using the design. As the team codifies the transition from design to planning, they define the gap between thought and action. The design to planning interface translates the learning generated as part of the design approach in a form usable to planners.

Design interacts with planning in one of three basic ways:

- It can precede planning. The commander may choose for his planning staff to engage in the planning process after design work is complete. In this approach, design provides guidance to begin planning.
- Design and planning may occur at the same time. Design and planning then interface throughout the doctrinal planning process with design informing planning.
- The need for design may emerge while executing on-going operations. In this case, the commander determines a need to utilize the design methodology when events make clear that a complex situation exists. In this context, as design continues, iterative learning and action take place, which then enable the reframing of operations to manage the situation within acceptable limits of tolerance.

To be effective, the Army should bridge the gap from abstract thought generated at the cognitive design level to guidance for concrete action, which occurs during planning. The design to plan interface must be flexible and able to react to change allowing for new inputs and new outputs. Not only does information flow from the design team to planners, critical feedback flows from the planners to the design team, which stimulates further design effort. Design, planning, and execution are inextricably linked in a symbiotic relationship. Each informs the other and each is dependent upon the other for success.¹² Nevertheless the functions of each activity are different. Design work is systemic and remains broad, fluid, and open. Planning is

systematic and produces execution instructions, while execution connotes action. These are not incompatible activities; they are the complementary and continuous tools of the military professional who must achieve a synthesis between them when faced with a complex situation.

To that end, every complex situation requires a unique approach which is best derived through the employment of both design thinking and planning activities that optimally produce successful tangible actions. The complex situations that the Army is confronting today defy checklists and templates. Instead a broad framework must be applied to describe the nature of the problem and the capabilities of the organization. These products should result in written and graphical products that clearly communicate the logic of the design. This may be done in the form of a planning directive. The planning directive serves three functions:

- Transfer of the design team's learning to the planning staff.
- Articulation of the commander's initial guidance for planning.
- Establishment of the organization's structure for continued learning about the system.

The planning directive is not an exclusive checklist; instead, commanders can and should adjust their planning directive's contents with each new complex situation.

The complex situations that the Army is confronting today defy checklists and templates.

Sample Planning Directive Contents

The Planning Directive conveys the design team's understanding, guidance for the planning effort, and a concept for continued learning created through the design methodology. This directive complements the intent and enhances the commander's communication of his visualization of and logic for the operation. This guidance may be broad or detailed. It should include an articulation of how, when, what, and where the commander sees the operation unfolding. It thus provides the basis for planning and action.¹³

Design Team Learning

- Problem Statement
- Theory of Action
- Environmental Frame
- Problem Frame
- Design Concept

Initial Planning Guidance

- Initial Commander's Intent
- Mission Narrative
- Resources
- Risk

Organizational Learning

- Gaps in Knowledge
- Structure for Organizational Learning

The three major elements of a planning directive include transfer of design team learning, planning guidance, and an outline for future organizational learning.

The design team learning includes:

- Problem statement. This statement must clearly define the problem or problem set that must be managed or solved. It does this by comparing the environment as it is to the environment envisioned in the friendly desired state; how it should be within a band of best and worse outcomes.
- Theory of action. A theory of action is a hypothesis. Where the problem statement sets the problem, the theory of action is a simple and suggestive insight about how to solve the problem. It is a creative spark that inspires the design team, provides focus to maintain coherence of the design effort, and acts as the foundation for strategic communications.
- Environmental frame. This frame captures and communicates systemic understanding of the environment. It is an artificial mental construct of the world describing, in graphic and narrative forms, the environment as it is and the logic of how it functions. This element provides an expression of the patterns of the environment. This logic is used when framing the problem so that the team has the same contextual understanding throughout.
- Problem frame. This frame captures and communicates what must be acted upon within the environment to move towards the friendly desired state. In both

graphic and narrative form, it captures broad aspects of the environment that are relevant to the problem or problem set and sets the boundaries for intervention. It also describes the logic of the system of opposition and the logic of the system of collaboration.

- Design concept. This concept should be a graphic and narrative depiction of the commander's intent and planning guidance communicating the logic of how intervention will occur and change behavior within the system. One doctrinal method is to use Lines of Effort (LOE), but it is not the only way. FM 3-0 states, "Lines of effort are essential to operational design when positional references to an enemy have little relevance."¹⁴ Design teams must have the latitude to portray the design concept in a manner that best communicates its vision and logic. The design concept organizes and sequences goals and actions of intervention in time, space, and priority.

Initial Planning Guidance entails:

- Initial commander's intent. The commander must provide a summary of his comprehensive visualization of the solution and what he wants to accomplish. This facilitates planning and orients the focus of operations, linking purpose to conditions that define the desired state.¹⁵
 - Mission narrative. The initial expression of the command's information to describe intent to external audiences whose perceptions, attitudes, beliefs, and behaviors are relevant to the unit's mission.¹⁶
 - Resources. The planning directive must outline parallel efforts that must take place from other agencies and units. The command may require additional resources or need a commitment from the next higher headquarters to garner outside resources to shape the operation both within the area of responsibility and in the area of interest.
 - Risk. The directive addresses risk, explaining the acceptable level of risk to seize, retain, or exploit the initiative. The design concept should also address ways to mitigate risk. FM 3-0 states, "A good operational design considers risk and uncertainty equally with friction and chance."¹⁷
- Organizational learning entails:
- Gaps in knowledge. There are things that the organization does not know, but need to know in order to more fully understand the operational environment and problem. In the art of design, these gaps in knowledge center on understanding the environment and problem.

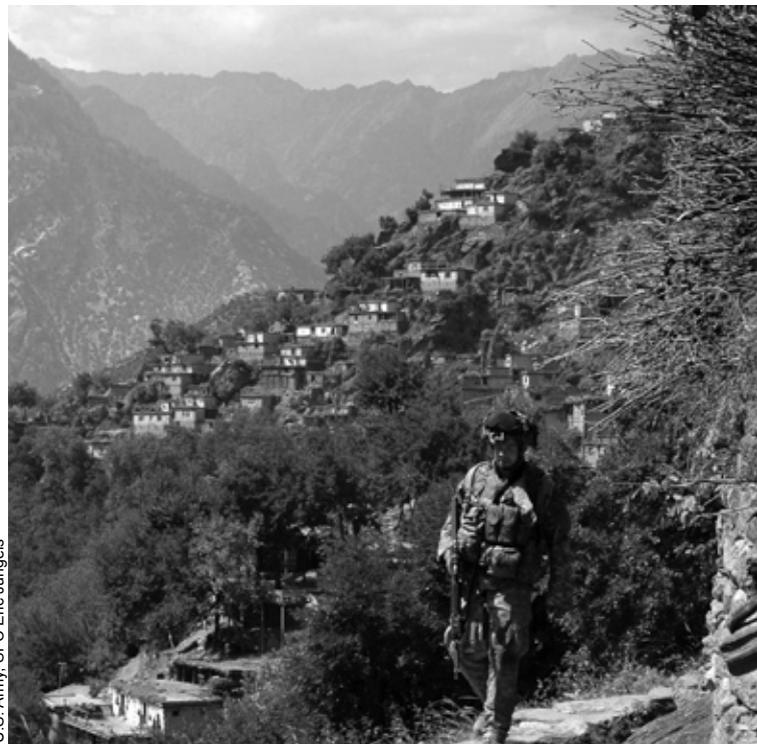
- Structure for organizational learning. Design requires the commander to lead adaptive work. To that end, the commander must lead the learning in an organization and develop ways to gain information to determine if reframing of the problem or design concept is necessary. The design team may recommend methods for action that stimulate the environment in order to obtain knowledge and fill in gaps. As complex environments, problems, and desired end states change over time leaders must identify the parameters for reframing. This requires continual inquiry and reflection that challenges existing understanding and assesses the relevance of actions and the problem.¹⁸

The planning directive is SAMS's current understanding of how design can best interface with planning. The current six seminars in AMSP class 09-01 will, within the next several months, test and evaluate the design-plan interface, with officers who participate in Unified Quest using a campaign directive format that is similar to the SAMS planning directive.¹⁹ Learning from future practical exercises will continue to refine the linkages between the products required to move from design to planning.

Conclusion

Mastery of the art of design is not the only ingredient of mission success, but undertaking a mission in a complex environment without design may invite failure. Complex situations—by their very nature—present commanders with special challenges. To comprehend the situation requires deep study and reflection on the underlying system before engaging in action. For these reasons, leaders must understand the nuances associated with the structure of the problems that they will encounter. Design has significant potential as a methodology that allows planning to proceed from a systemic understanding of the situation. The Art of Design approach is one that may provide the commander and his staff with a useful conceptual tool which enables understanding through recursive learning mechanisms. The SAMS experience parallels work done within the operating force and other TRADOC institutions, assisting commanders by outlining an approach to serve as a foundation for understanding and adaptive action in the face complexity.

The ASMP Art of Design courseware has evolved in its current form over the last 18 months at SAMS.



U.S. Army, SPC Eric Jungels

CPL Michael Good, a Soldier from B Company, 1st Battalion, 32d Infantry Regiment, 10th Mountain Division, moves along a path overlooking the mountainside village of Aranas while on patrol in the Nuristan province, 18 October 2006.

As part of a broader community of practice, SAMS is committed to the use of design to augment the capacity of traditional planning processes in order to cope with the complexity that characterizes contemporary irregular and hybrid warfare. Other members of the community, including ARCIC, CADD, the Army War College, and others, are advancing their own understanding on the utility and benefits of design. Their learning will also contribute to and inform how to communicate, operationalize, and codify design in U.S. Army doctrine. Since design may have applicability beyond the Army alone, engagement with other services, allies, and government and non-government organizations is an ongoing priority.

The concepts outlined in this article capture the practical experience in applying design theory and the practice of learning and action which will continue to evolve at SAMS. What is clear is that this has been an iterative process involving significant debate and discussion while moving towards a common understanding of the art of design. While more work remains and further articulation is

needed, Army commanders and organizations in the field—and students and faculty in the educational

system—have made great strides already in taking design theory and putting it into practice. **MR**

NOTES

1. Erving Goffman, *Frame Analysis* (Cambridge, MA: Harvard University Press, 1974), 30, quoted in Karl E. Weick, "Leadership When Events Don't Play by the Rules." <<http://bus.umich.edu/facultyresearch/TryingTimes/Rules.htm>> (24 December 2008).

2. TRADOC, Army Capabilities and Integration Center, Presentation to Design FMI Review participants, Fort Leavenworth, KS, 5 February 2009, 17. One of the essential requirements to implement design is the ability of the leader to lead adaptive work over time. In this sense, leading adaptive work means to manage organizational and individual learning, create time and space for creative thought, and develop new patterns of action in light of new understanding of the environment and problem.

3. Weick, "Leadership When Events Don't Play by the Rules," <<http://bus.umich.edu/facultyresearch/TryingTimes/Rules.htm>> (24 December 2008).

4. LTC Ketti Davison, "From Tactical Planning to Operational Design," *Military Review* (September-October 2008): 33; and Retired BG, Huba Wass de Czege, "Systemic Operational Design: Learning and Adapting in Complex Missions," *Military Review* (January-February 2009). BG Wass de Czege clearly covers the overarching philosophy and need for design, and he reviews the history and shortcomings of other operational planning systems.

5. Simple enumeration and analysis of the battlefield's "other characteristics" from Cold War era IPB doctrine no longer suffices. Field Manual (FM) 34-130, *Intelligence Preparation of the Battlefield* (Washington DC: Government Printing Office [GPO], 8 July 1994, 2-26-2-28 and Chapter 5 specified as "other characteristics" as infrastructure, geographical, population, economic, and political aspects. As a result, commanders have employed creative means to identify and apply solutions to problems.

6. FM 3-24/MCWP 3-33.5, *Counterinsurgency*, (Washington DC: GPO, 2006) 4-2. Insights gained from these efforts began with exploration of Systemic Operational Design as articulated by former Israeli BG Shimon Naveh. BG Naveh participated extensively in the initial practical exercises and academic sessions.

7. Insights gained from these efforts began with exploration of Systemic Operational Design as articulated by former Israeli BG Shimon Naveh. BG Naveh participated extensively in the initial practical exercises and academic sessions.

8. Gregory Bateson, *Steps to an Ecology of Mind Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology* (Chicago: University of Chicago Press, 2000), xxiv.

9. Hayward's monograph borrowed from Delanda and Deluze assemblage theory using it as a way to gain a deeper understanding of systems and introduced the concepts of relationships of interiority and exteriority. These were captured and used in the SAMS Student Text. Drigger's monograph addressed leaders having to navigate between older proven methods of leadership and newer methods. He ultimately concluded that commanders must use a balanced approach and are responsible to navigate their command through the middle ground.

10. Gary Klein, *Sources of Power* (Cambridge, MA: The MIT Press, 1998), 259.

11. This methodology does not align exactly with battle command activities, but it has close parallels to the creative activities of understand, visualize, and describe.

12. Designers create the recipe. Planners draw the blueprint. Weick, *Making Sense of the Organization* (Malden [MA: Blackwell Publishing, 2001], 60.

13. FM 3-0, *Operations* (Washington DC: GPO, 2006) 5-8.

14. *Ibid.*, 6-13.

15. *Ibid.*, 5-8.

16. Jack Kem, "How to Think: The Mission Narrative," <<http://usacac.army.mil/BLOG/blogs/reflectionsfromfront/archive/2009/02/03/how-to-think-the-mission-narrative.aspx>> (9 February 2009).

17. FM 3-0, 6-19.

18. SAMS, "Art of Design" Student Text Version 1.0, 37.

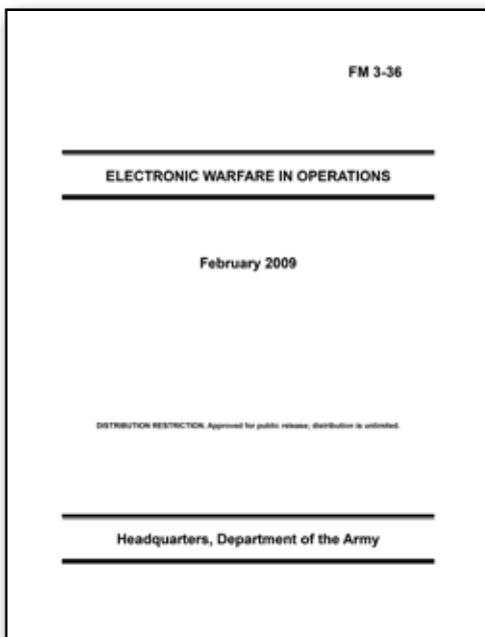
19. UQ 2009 Campaign Directive, Appendix C, Campaign Directive Format, 3-6.



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