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Design and the Prospects for Frame Reflection

by Christopher R. Paparone

Fallujah, Iraq, Oct 2010. The military designer reflects to make sense of an historic situation where present forms of knowledge were not working. She reads that there were three distinct struggles for Fallujah (a city in the Al Anbar province) – 2004, 2006 and later in 2007. In 2004 and early in 2006 military planning was designed around conventional, national-level military forces defeating insurgents. The Latin word insurgentem originally meant those who rise up against a lawful authority. In late 2006 and 2007, coalition forces seemed to reframe an emergent strategy around both insurgency AND civil war -- bella civicus is a Latin phrase that meant something quite different – "battles among fellow citizens or within a community."[1] Quite different from an insurrection against an established government, civil war connotes a war between factions in a social group. Arguably, the reframing from a purely conceptualized insurgency that now included ideas of civil war permitted conceptual extension and displacement into a different way of framing what was happening. Operations, through emergent tasks (not planned tasks), became the forming and arming of localized factions and their militias who, with this "awakening" would expunge insurgent violence. Thomas Ricks notes:

> …the turning proved the answer to the sticky problem seen in Baghdad in 2006 of US forces being able to clear but Iraqi forces were unable to hold. That was especially true of Sunni areas, where Iraqi forces tended to be seen as tools of the Shiite-dominated government in Baghdad. The answer: Have the Sunnis do it themselves.[2]

Stephen Biddle, Michael O'Hanlon, and Kenneth Pollack report similarly on the Sunni "Awakening:"

> By late 2006, the Sunnis had realized that they faced defeat unless they found new allies -- and they turned to the United States while they still could. The surge, and especially its new emphasis on the provision of direct population security by U.S. forces, enabled the Sunnis to survive this realignment in the face of AQI's [al Qaeda in Iraq] inevitable counterattacks. In Anbar, U.S. firepower, combined with a persistent troop presence and Sunni knowledge of whom and where to strike, essentially expelled AQI from the province. News of this "Anbar model" spread rapidly among disaffected Sunnis elsewhere. In just a few months, the result was a large-scale stand-down of the Sunni insurgency and the decimation of AQI

[1] The author derives these explanations of meaning from the *Online Etymology Dictionary*.
[2] Thomas E. Ricks, *The Gamble: General David Petraeus and the American Military Adventure in Iraq, 2006-2008* (NY: Penguin, 2009), p. 204.

throughout western and central Iraq. Cease-fires with Sunnis in turn facilitated cease-fires with key Shiite militias.[3]

The military designer speculates that by extending the conceptualizations of insurgency and civil war (the military community knew something about the nuances of both in the history of warfare) as a combined heuristic, this enabled a new, intuitive sense of the tasks at hand. Rather than being planned in some rational military decision process, the tasks emerged through action and reflection in- and on- those actions. Given the more recent news, that the Sunnis may be reforming an alliance with insurgents, she also concludes that the situation in Iraq continues to be "wicked" perhaps needing another frame reflection.[4] Present forms of knowledge do not seem to be working…

As we arrive to this fifth in a series of essays on design philosophy, it is a good place to pause, step back, and **re-appreciate that the meaning of "design" is metaphoric (as are many of its derivative meanings)**. The root prefix "de-" is from Latin and means "of." "Sign" has Latin roots, meaning "image." Originally, the word design was closely related to "of image" or human imagination. Interestingly, Webster's Third New International Unabridged Dictionary has dozens of definitions for the word; nevertheless, those who have imported the term to identify it with professional practice[5] borrowed meaning from the field of architecture, signifying "design" is concerned with "the art and science of building." Hence, it is no wonder that those who have used design to speak to professional practice borrow other meanings from architectural design. One such metaphor is "framing;" after all, how can one construct a building without frames? Several images come to mind – structural frames (that can be blue-printed), roof frames (to block adverse weather), window frames (to see through), door frames (to walk through), and so on.

Cognitive Linguistics

It should be no surprise that the context of this essay is based in the field of cognitive linguistics – the science of how humans borrow, extend, and displace meanings from meanings already assimilated.[6] The logic of this science argues that <u>all</u> language is symbolic and what makes humans human is their ability to conceptualize and reconceptualize explanations of the phenomena they witness. No wonder that as the US military perceived the novelty of the wars it was in, the institution sought to find definitions that help make sense of that uniqueness. Terms, such as "irregular," "asymmetrical," "4th generation," "hybrid," and "transnational" reflect the community's struggle to reframe something that is different from before by referring respectively to the likenesses of "behaving unruly," "out-of-geometric balance," "theory of evolution's survival of the fittest," "manipulation of DNA," and "being boundaryless."

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[3] Stephen Biddle, Michael E. O'Hanlon, and Kenneth M. Pollack, "How to Leave a Stable Iraq: Building on Progress," *<u>Foreign Affairs</u>*, September/October 2008.

[4] See Timothy Williams and Duraid Adnan, New York Times online, 16 Oct 10, <u>Sunnis in Iraq Allied with US Rejoin Rebels</u>"

[5] Particularly Donald A. Schön in his two books, *The Reflective Practitioner: How Professionals Think in Action* (London: Temple Smith, 1983) and *Educating the Reflective Practitioner* (San Francisco: Jossey-Bass, 1987)

[6] In that regard, three principal references have guided this essay: Donald A. Schön, *The Displacement of Concepts* (London: Tavistock, 1963); David A. Kolb, *Experiential Learning: Experience as The Source of Learning and Development* (Englewood Cliffs, NJ: Prentice-Hall, 1984); and, George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980). In the present author's view, these are fundamental readings for design theory and practice.

Framing is about resting one's theory of action "on underlying structures of belief, perception, and appreciation."[7] **Frame reflection** is being aware that these structures may be critically deconstructed and extended or displaced; thereby, creating other ways to frame.[8] Frame structures are often expressed as schema, metaphoric narratives, and "causal stories" (each presenting a different view of reality).[9]

To illustrate just how much metaphor (borrowed meaning) dominates our community's ways of framing, on October 9th, 2010, I took the following terms from the homepage article titles from Small Wars Journal (and placed, in parentheses, the borrowed meanings that constitute frames):

- **Powerful** (science of physics)
- **Roundup** (getting everyone corralled)
- **Taliban Play Let's Make a Deal** (compete in a game show)
- **Arming** (the extremity of the human body used for fighting)
- **Fight** (boxing competition or a street brawl)
- **De-evolution of Insurgency** (Darwinian "adapt or die" logic)
- **Shift** (physical displacement from a known path)
- **Bismarck's Lesson** (historic analogy to a Prussian unificationist)
- **Re-Structuring the BCT** (renovating, re-designing)

One can identify similar metaphors from the military community. "Doctrine" has its link to meaning from Christian catechism. The US Army's "Full Spectrum Operations" is imaged from the physicist's study of light. "Stability" is akin to a desired quality of compounds in the science of chemistry. "Intelligence" is borrowed meaning from the measure of animal cognitive ability.

Reflexivity: Professional Awareness of Linguistic Morphology.[10] What does finding linkage to past meanings have to do with design? The logic is: if one is cognizant of how meanings are extended, displaced, and replaced, one can better exercise reflexivity.[11] **Reflexivity** is described by social theorist Alfred Schutz:

> …meaning is dependent upon reflexivity—the process of turning back on oneself and looking at what has been going on. Meaning is attached to actions retrospectively; only the already-experienced is meaningful, not that which is the process of being experienced.[12]

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[7] Donald A. Schön and Martin Rein, *Frame Reflection: Toward the Resolution of Intractable Policy Controversies* (NY: Basic Books, 1994), p. 23. Likewise, this is an essential reading to comprehend "framing."

[8] See also Erving Goffman, *Frame Analysis: An Essay on the Organization of Experience* (NY: Harper Colophon, 1974).

[9] For a political science perspective, see Deborah Stone, *Policy Paradox: The Art of political Decision Making* (NY: W.W. Norton, 1997). She examines political arguments around multiple frames, such as equity, liberty, market, and efficiency.

[10] The idea of design is debatably tied to the worldview of ***contextualism*** as described by Stephen C. pepper, *World Hypotheses: Prolegomena to Systematic Philosophy and a Complete Survey of Metaphysics* (Berkeley, CA: University of California, 1942). By worldview, Pepper means how social groups develop theories about the way the world is. He investigated three other worldviews: *formism*, *mechanism*, and *organicism*. All of these play into this essay to some degree; however, and perhaps ironically, the logic of the present argument is arguably placed from the *contextualism* (a narrative of neighboring events [p. 278]) worldview that would recognize the other three as metaphorically-based.

[11] According to Cynthia Hardy, Nelson Phillips, and Stewart R. Clegg, reflexivity is ". . . an awareness of the situatedness of scientific knowledge and an understanding of the researcher and research community from which knowledge has appeared (from "Reflexivity in Organization and Management Theory: A Study of the Production of the Research 'Subject,'" in *Human Relations*, Vol. 54, No. 5, 2001, p. 554). Ray Holland, in his article, "Reflexivity," in the journal, *Human Relations*, defines "transdisciplinary reflexivity" as going beyond the traditional view of "unidisciplinary" reflexivity and into four levels of reflexive analysis (Vol. 52, No. 4, 1999, p. 474).

[12] Alfred Schutz, "Studies in Social Theory," *Collected Papers* Vol II, (The Hague, NE: Martiners-Nijhoff, 1964), p. 244.

Reflexivity requires not only suspending belief (for example, in one's otherwise dogmatic assertions) but also asserting that we do not know how to obtain ultimate knowledge at this time. This does not mean abdicating intellectual integrity or rigor when theorizing. Reflexivity is a quality associated with professions – social groups that continuously examine the roots of their arguments and that consider other assumptions, while purposefully creating dissonance that, in turn, create opportunities for transcendence or transformation of meaning. To find meaning in a profession, there must be a willingness to look outside itself, "trans-professionally," to question itself and its institutionalized paradigms or realize the confines of its own discursive formation.[13] In order to design new meanings, professionals are reflexive about the meanings they already use (e.g., Donald A. Schön associated such reflexivity with "the reflective practitioner").[14]

The reflective military practitioner,[15] for example, can rediscover the meaning of "strategy" (literally "leading from higher ground") that likely stems from ancient times when the head of an Athenian Army stood on top of a hill to literally see the battle so he could better decide what to do next. The meaning of "operations" (a state of moving) is linguistically linked to "maneuver" (vulnerable to the human hand). Clausewitz's use of the warfare metaphor "center of gravity" can be reimaged through the breakthrough knowledge of his time – Newtonian physics.[16] More recently, the military has imported the idea of "design" signifying the perceived need to return to the art of attributing newer, purposefully morphed meanings to warfare. The reflective military practitioner designs meanings through dynamic frame reflection.

Frame Reflection: Being Creative yet, Humbly, Always Wrong

As reflective military practitioners seek to appreciate the novelty and uniqueness of the situation, they find ways to extend and displace old meanings into new meanings. To do so requires having a wide exposure to many knowledge disciplines as well as having a diversity of life experiences that contribute to their tacit knowledge (i.e. knowing more than they can tell or "intuition"). They may also engage in critical dialogue (see Essay #4 in this series) to explore meaning construction with a diversity of others, preferably those who are not categorically tied to the same professional jargon. Indeed, design philosophy requires an eclectic set of metaphors from which to choose (a hallmark of potential creativity) and to then judge the usefulness of the proposed metaphor (the hallmark of critical reasoning). Such appreciative judgment is derived from a sense of creatively and critically examining the efficacy of a proposed metaphoric frame.

Reflective practice is about being tuned in to the linguistic morphology and being able to reflect on the use of creative extension (in the aforementioned story of Fallujah), that includes a generative blending of metaphors. The displacement of the concepts of insurgency and civil war into something new is an aspect of creative thinking. Yet a designer must also be critical of the under-lap of associated meanings (i.e. finding the meanings contained in the metaphor that are inadequate to the situation at hand). The situation in Iraq had qualities associated with both past insurgencies and civil wars, yet there were unique attributes that were alien to the history of warfare and in-the-moment novelty of Anbar as experienced now in October, 2010 (for example

[13] Thomas Kuhn, *The Structure of Scientific Revolutions* (3d ed.) (Chicago: University of Chicago, 1996).
[14] Schön (Op. cit.), 1983 and 1987.
[15] See "The Reflective Military Practitioner" in the Dec 08 issue of *Military Review*.
[16] Interestingly, Clausewitz used the term *schwerpunkt*, which may be better translated to "focal point" in the physical science of his time (referring to refractive light). This demonstrates how linguistic morphology can reveal possible distortions in the displacement of meaning (which aids further in *frame reflection*). See German language version of Clausewitz's *Vom Kriege* (Berlin: Dümmlers Verlag, 1832) online, searchable, at http://www.clausewitz.com/readings/VomKriege1832/TOC.htm.

the dynamic play of religious beliefs and clan leadership that could not be duplicated in a study of the past and into the future). Attributed to Mark Twain, "History does not repeat itself, but it does rhyme."[17]

A Proposed Model for Frame Reflection. To recap, reframing involves metaphoric reasoning (discovering past concepts that can be extended and displaced into new meanings) and critique. According to Schutz, metaphors "reorganize alien realms."[18] Metaphors carry the logic of old to the new. While this creative linguistic morphological process seems profound, professional reflexivity demands that the designer also look for disparities in logic that should not accompany the root metaphor. Therefore, the model for this proposed reflexive metaphorical reasoning looks something like Figure 1.[19]

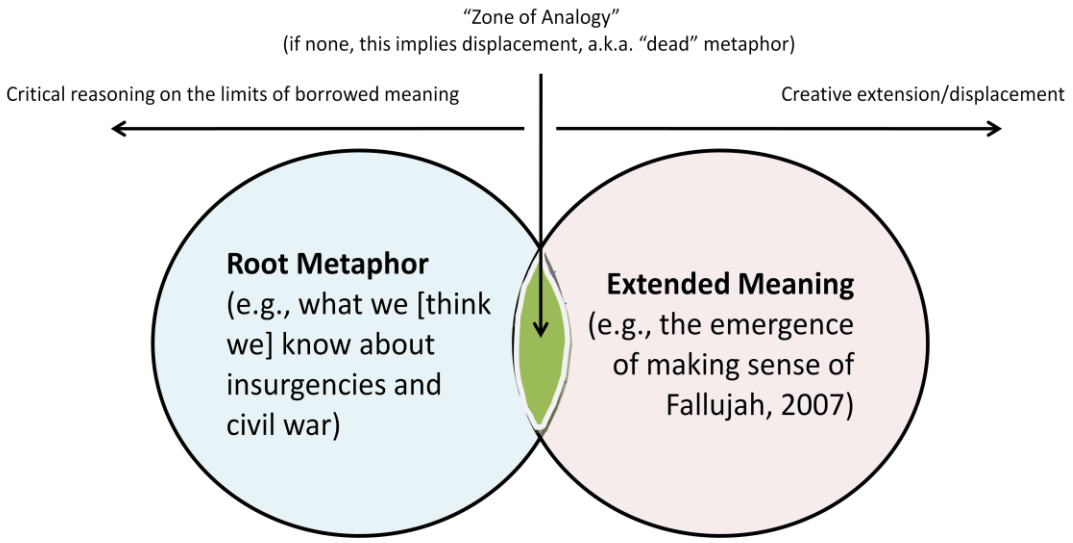

Figure 1. Frame Reflection. We use our knowledge of the past (root metaphors) to make sense of an otherwise nonsensible situation. Designers exercise creative deviance[20] by transforming old meanings related meanings (finding a "zone of analogy") or displace the old meanings entirely (the latter referring to "dead metaphors"). Designers also remain critically reflective on the under-lap of meaning – that meaning which does NOT transfer to the new situation.

[17] Scholars have not agreed that he actually said this…I could find no reliable source. However, the quote is often attributed to him.
[18] Schutz (Op. cit.), p. 244.
[19] The present author created this diagram based on the descriptive theory of Schön (Op. cit.), 1963. Related articles by the present author are available "Learning to Swim in the Ocean" and "Metaphors We Are Led By." Also see related concept (heuristics) developed in Blair Williams, "Heuristics and Biases in Military Decision Making, *Military Review*, Sep-Oct 2010, pp. 40-52.
[20] Recall Essay #2 in this series that concerns the vital role of deviant leadership in design.

A subtle, yet effective, illustration of this model was inadvertently described by CJ Chivers, former US Marine officer and author of the Pulitzer Prize-winning book, The Gun.[21] Chivers describes that the design of the US M-16 rifle was framed around marksmanship ranges and "maximum effective range" to hit static targets while aiming. The Russian-designed AK-47, however, was framed on putting lots of rounds toward a target in order to keep the opponents' heads down while doing other things (like calls-for-fire, or, in the current lingo, setting off IEDs) to kill them. In the case of the M16, the metaphor of the rifle range was inadequate to produce an effective infantry weapon for the Vietnam War because few soldiers actually aimed in combat while under fire. The frames of reference (engineering metaphors) for the AK-47 design were ruggedness, durability, simplicity, ammunition supply, and parts-interchangeability. While this example is admittedly a limited example of framing, it endorses the concept of framing (and frame reflection) and speaks to the potential extension and displacement of meaning to the more abstract situations of war.

A Sampler of Metaphoric "Logics"

A deeper examination of framing should include the logics that accompany the frame. In this section we will look at the logic structures of several metaphors: general systems theory, improvisational jazz, dramaturgy, and health. There are countless more, but the logics of these samples may be sufficient to provide more insight into framing.

General Systems Theory.[22] Antoine Bousquet speaks to the root metaphor "cybernetic" and how it relates to how the Germans reconceptualized warfare in the interwar years: "Founded on Wetanschauung that drew its conviction from the practical engineering successes of the informational sciences, cybernetic warfare strove to shape military affairs into perfectly modeled and controlled closed world."[23] Cybernetics is a close relative **systems engineering** and has long been the dominant metaphoric logic for how US doctrinaires conceive of warfare. Here is a 1969 quote from then US Chief of Staff, Army, General Westmoreland that demonstrates how the US took the "closed system" metaphor to extreme:

On the battlefield of the future, enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer-assisted intelligence evaluation, and automated fire control. With the first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opponent becomes less important. I see battlefields that are under 24-hour real or near-real time surveillance of all types. I see battlefields on which we can destroy anything we can locate through instant communications and almost instantaneous application of highly lethal firepower. [...] In summary, I see an Army built into and around an integrated area control system that exploits the advanced technology of communications, sensors, fire direction, and the required

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[21] *Interview with C.J. Chivers on National Public Radio, "The AK-47: 'The Gun' That Changed The Battlefield," Fresh Air, 12 October 2010.*

[22] See Ludwig von Bertalanffy, *General Systems Theory: Foundations, Development, and Applications* (NY: Braziller, 1969). Bertalanffy seminally introduced a generalizable version of systems theory to the world in 1945.

[23] Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (NY: Columbia University, 2010), p. 125.

automatic data processing [...] With cooperative effort, no more than 10 years should separate us from the automated battlefield.[24]

The closed-systems metaphor (derived from the engineering sciences) has dominated military thinking for decades and may still contain the dominant logic in our conceptualization of operations and force design – oriented on controlling one's own and the enemy's "system" by making it closed to outside inputs to enable the frame of total control.

With the advent of **open systems theory** (an extended logic, structured on the more ecological dynamic of the environmental sciences), the US military more recently oriented on a more complex view of warfare. Current US joint doctrine is closely tied to this source of reasoning. Here are some conceptual links to open systems theory in Joint Publication 3-0, Joint Operations:

> …strategic purpose…attributed to…the systems perspective of the operational environment [p. x]….A systems perspective of the operational environment is fundamental to operational design [p. xix]….[joint force commanders] must integrate and synchronize stability operations…to maintain or reestablish a safe and secure environment [p. xix]…. [And so on].

Note the emphasis on "stability" signifying an extended frame that includes the assumption that manipulating control on open systems entails greater uncertainty. Bousquet suggests further that the military community is beginning to incorporating terms and concepts from the next level of systems thinking – drawn from complexity science and chaos theory. The future conceptualization, Bousquet asserts, will likely ride on extending and displacing, what he terms "chaoplexic," metaphors such as **complex adaptive systems** and **emergence**.[25]

There are, however, other metaphors that doctrinaires may have overlooked in finding a refreshed logic of war. Here are three examples that may invoke different stratagems (through extension and displacement):

Improvisational Jazz. Rather than the more traditional orchestration metaphor (complete with sheet music [plans] and a conductor [the commander], fighting a war is better conceived as ensembles playing improvisational jazz. Desired characteristics include:

- Dealing with the unforeseen
- Reworking pre-composed material while playing
- Spontaneous and intuitive
- Taking the lead is fluid and shifts naturally (without a conductor)
- Highly interpretive[26]

What comes to mind with this metaphoric framing is that military teams can operate like improvisational jazz ensembles, acting "in the flow" of the situation at hand. While there may be a recognizable base "melody," [e.g., rehearsed combat action drills] the team members exercise embellishment and variation on the theme as they act. Radical forms of improvisation in "COIN" may no longer resemble the "march" of the original "tune" (e.g., conventional, force-on-force engagements).

[24] Ibid., p. 126.
[25] Ibid., p. 185.
[26] Karl E. Weick, "Improvisation as a Mindset for Organizational Analysis," *Organization Science*, Vol. 9, No. 5, 1998, p. 544.

Dramaturgy. "War" is a play on a stage [in a theater of war] or an arena by a diverse set of actors, bad guys, good guys, and some are just in the background. Some lines are scripted some are improvisational. Grease painted actors, some leading, in wardrobe, enter the stage, left, right, or sometimes in a surprising way (fly in or appear from the bottom). There are props and changes to settings. We tell the story through prologue, monologue, dialogue and epilogue in acts or scenes. There are a lot of stagehands and gaffers that work behind the scenes. Some productions, after lots of rehearsing, may involve orchestration, dancing, and singing. Some of the audience observes from the balcony while others have front row seats. There are heroic quests, tragedies, ironies, deceptions, dramas, melodramas, comedies, allegories, caesura, chiasmus, climax and anticlimax. There are curtain calls and encores.

Here, framing the military activity is geared to an audience. This frame may be well-suited to the idea of swaying locals and/or world opinions based on images projected from the "stage" (e.g., an operational staging area). Events can be "staged" and also exposed as façades. Can war seem more "just" when "conceptualized as a fairy tale with villain, victim, and hero, when the villain attacks the victim and the hero rescues the victim"?[27]

Health. Terrorist networks are a disease like cancer. Cancer can be prevented, sometimes treated, and even cured. Patients can be diagnosed and the bad cells destroyed or altered through interventions, such as medicines and operations. Treating health disorders and taking preventive measures require educated professionals and practice requires credentialing and licensing. There are certain ethical and moral aspects to that practice and an esoteric body of knowledge that separates the professionals from laymen.

The health metaphor affords the generation of analogies that include treating military members as "professionals" who diagnose situations of conflict derived from both book learning and hands-on experience and "treat" them with a "full range of military operations." Like stabilizing a patient, the military professional seeks to stabilize a village or town (or put it on "life support"). The metaphor also includes ideas such as iatrogenic that may be helpful in describing setbacks in complex operations – when the physician inadvertently causes harm to the patient even when treating with ethical intentions and the best science available.

Frame reflection would require the designer to also examine the weaknesses of these metaphors and how the logics contained in them are only partially adequate to address complex conflict situations. For example, can the jazz metaphor be applied in large scale operations? Planned operations rarely follow a script—yet why do we continue to plan? Can the medical metaphor be applied to "fence sitters" populations in war? Yet these questions can lead to other valuable insights. Finally, considering situations from multiple logics can also generate ideas.[28]

Appreciative Inquiry and Frame Conflict

One more important issue with framing and reframing is worth discussing. **Critical dialogue** (reference Essay #4 in this series) may involve spirited disputes over whose frame is better with a view toward defining problems and finding solutions. Schön argues that these are illegitimate disputes as frames are "not reducible to arbitrary choices which lie beyond

[27] George Lakoff, "Contemporary Theory of Metaphor," in Andre Ortony (Ed.), *Metaphor and Thought* (2d ed.) (NY: Cambridge, 1993), p. 243.
[28] Donald A. Schön (cited throughout this paper) has written on this extensively – he uses the phrase "generative metaphor."

inquiry."[29] As they are figurative, frames cannot be debated with an appeal to facts and metrics. Debates are really about conflicting stories that each contribute in some way to "making sense of experience, different meanings and values – then becoming aware that frame conflicts are not problems."

This leads back to the beginning – the original idea of design was to shape meaning about wicked or high VUCA situations from which the designer cannot understand but may be able to appreciate (through such inventive allegories). Therefore, design is about inquiry, asking insightful questions, and considering multiple frames of reference. Design is not a reductionist method of finding a best frame; it is about considering as many as possible, that is a continuous call for multiple views. This sort of inquiry is not like the traditional, instrumental form that addresses "problem solving" (such as "mission analysis," and other sorts of decision processes that are based in classical empiricism and getting to closure).

Conclusion

While framing has been introduced to the military vernacular (particularly in recent US Army doctrine), there has been scant attention paid to what the framing process entails. Military professional practice includes reflection-in-action, that is, the awareness of "how my organization and I are framing what's going on and whether that framework is appreciatively working." This involves both a critical self-inquiry and creative deviance as the designer seeks to extend and even displace current meanings – that is, exercise frame reflection.

Set frames are provided in military doctrine. Ironically, if doctrinaires were to adopt the original open philosophy of design, they would be self-defeating. Facing wicked situations, there can be no doctrine of design. Frame reflection entails a continuous questioning, extension, and replacement of knowledge. Knowledge may be debated in professional forums, recognized as intuitive (tacitly knowing more than one can tell), and/or ephemeral (applying only to the unique novelty in time and space). As David A. Kolb stresses, "…knowledge is a transformation process, being continuously created and recreated, not an independent entity to be acquired or transmitted."[30] In this regard, epistemologically, **design is an anti-doctrine**.

Author's interim coda: My hope is that readers see value in the footnotes of this essay (as well as those in the previous four essays). There is an abundance of great books and articles out there on the subject of design, framing, metaphoric reasoning, and reflexivity—and they keep coming across all disciplines of study! Neither this short essay nor my others did justice to these evolving concepts. I also believe that the military community has to be vigilant to avoid becoming insular in their approach to design (that is, becoming spirally self-referencing). In my opinion, the issues and discussion about design have become more and more insular as the institution seeks to indoctrinate its worth. As a more reflexive professional community, we should consider taking measures to take design out of doctrinal staff decision processes and retain the necessary interdisciplinary and eclectic qualities that design philosophy demands. Professional military education should reorient on providing practitioners a wider scope of "logics" from nontraditional sources of metaphor: complexity science, chaos theory, critical theory, and social construction theory, to name a few. Stay tuned for a few more essays in this series addressing these concerns.

[29] Donald A. Schön, "Generative Metaphor and Social Policy," Ortony (Op. Cit.), p. 150.
[30] Kolb (Op. cit.), p. 38.

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