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Design and the Prospects for Mission Analysis

by Christopher R. Paparone

We can by improvements in our knowledge limit the sovereignty of Fortuna, bitch goddess of unpredictability; we cannot dethrone her.

--Alastair MacIntyre, *After Virtue*

This is the third article in a series exploring the impact of design philosophy and whether a military renaissance is potentially afoot.[1] This episode attempts to expose the myth that design is a "methodology" that leads to "understanding" that eventually leads to good military planning as suggested in the US Army's latest doctrine, particularly its Field Manual 5-0, *The Operations Process*. The focus is to reveal the issues associated with "mission analysis," that is, the breaking down of a "problem" into manageable tasks that, when all put together into a military plan or order, serve to solve the overall "problem." Beyond conventional, "force-on-force" fights, this essay argues that mission analysis is a misconception when it comes to framing complex operations.

Two contemporary authors have critically reviewed the propensity of the military community to use the decomposing or "scientific method" to solve problems. Antoine Bousquet's *Scientific Way of Warfare* traces the roots of "techno-scientific regimes" that have historically dominated the way we conceive of war – from the machine age to the present frame around the "information paradigm."[2] He also projects the use of complexity science and chaos theory as the emergent frame. In her recent monograph, anthropologist Anna Simons deftly chastises those who seek modern scientific-style cumulative learning into doctrine and TTP (she coins the terms, "genericize" and the T.E. "Lawrence Paradox" to signify these learning mythologies).[3] Simons exposes the institutional failure to appreciate the depth of experiential learning and intuitive forms of "visioning" needed in complex warfare describing how several famous persons in history envisioned not through a scientific form of learning, but through immersion into- and the unique development of- local situations.[4]

The logic of mission analysis appears quite rational to the Western *classical empiricism* mindset: military commanders and staffs can face difficult situations by decomposing them into definable problems; figure out what tasks (together called "the mission") need to be performed to solve them; and divide those tasks among subordinates who, in turn, do the same down the line (from the strategic level to the individual trooper). At the end of the day, the accumulative

[1] See "Design and the Prospects of a Military Renaissance," http://smallwarsjournal.com/blog/2010/05/design-and-the-prospects-of-a/) and "Design and the Prospects for Deviant Leadership," http://smallwarsjournal.com/blog/2010/09/design-and-the-prospects-for-d/.

[2] Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (NY: Columbia University, 2009), p. 13.

[3] Anna Simons, *Got Vision? Unity of Vision in Policy and Strategy: What It Is, and Why We Need It* (Carlisle, PA: US Army Strategic Studies Institute, July 2010). "TTP" stands for tactics, techniques, and procedures, assumed by the institution to be applicable to future situations.

[4] Ibid., p. 21.

logical linkages between these tasks (at the lower levels called "tactical" missions and individual tasks) are believed to solve the larger, "strategic" problem at hand. Joint doctrinaires named these cumulative linkages "logical lines of operation" signifying that the intermediate levels' (such as theater and joint task force headquarters) job one is to provide for those linkages between the tasks at lower echelons of command and tasks the highest national and coalition policy agendas.[5] On the surface, the logic seems very seductive; yet, the assumptive structures can be criticized to the point of exposing the myths at work.

Critical realist, Roy Bhaskar, traces the philosophy associated with classical empiricism where it is assumed that "atomistic events" are "facts" and that reality can be broken down into facts that's can be linked and which will constitute a science of learning.[6] The alternative ontological view (and its accompanying knowledge structures) Bhaskar associates with *critical realism*, that exposes these "facts" as a social belief system, not an objective reality. The critical realist argument proposes that the construction of facts is a social process and that such facts do not exists independent of human creation. Rather, they are created through a cultural reification processes that involve language, beliefs that become common sense, and perception.

For the military community, this alternative worldview that critical realism represents overturns the belief that mission analysis (a classical empiricist-derived process of atomizing "the problem" and developing hierarchically linked tasks) will lead to a desired, objective reality. (Note that the community, through the classical-empirical lens, even calls the desired conditions "objectives" – a telltale sign of the cultural penchant for classical empiricism.)

From the viewpoint on left side of the continuum, tasks are "mission-analyzable," that is they can be pre-programmed or planned. Organization theorist Charles Perrow called these types *routine tasks* (accomplished by standing, requisite organized capabilities—core competencies or, for the US military, "METLs"[7]) and *engineering* (planning organized capabilities in combination—task organizations) tasks.[8] Looking from the right side of the continuum, tasks are unpredictable and improvisational; hence, Perrow called these *craftwork* (the creative, improvisational use of already organized capabilities) or *emergent* (requiring the localized reforming into novel organizational entities) tasks. Here are more specific descriptions of each kind of task:

[5] What may be startling to an outsider is that the institution has elaborated this belief system to the point of reification (i.e. without challenging the underlying assumptions behind this believed-to-be-unchallengeable reality). One of the strongest artifacts of this reification process is the *Universal Joint Task List* that has broken war down into levels of tasks. The purpose is explained as "…the basic language for development of a joint mission essential task list (JMETL) or agency mission essential task list (AMETL) that identifies required capabilities for mission success" (p. A-1). (CJCSM 3500.04C, *Universal Joint Task List* , 1 July 2002 , accessed online at http://www.dtic.mil/doctrine/jel/cjcsd/cjcsm/m350004c.pdf with an accompanying data base of tasks constituting almost 1200 pages available at http://www.dtic.mil/doctrine/training/ujtltasks/ujtl_tasks.pdf?keyword=afdd).

[6] Ron Bhaskar, Chapter 2, "Philosophy and Scientific Realism," pp. 16-47, in Margaret Archer, Roy Bhaskar, Andrew Collier, Tony Lawson and Alan Norrie (Eds.), *Critical Realism: Essential Readings* (London: Routledge, 1998), p. 19.

[7] Mission Essential Task Lists – the mission-analyzed tasks that are expected to comprise unit operations at various levels of command. METLs are used to drive training resource requirements and define military readiness in the US system. Mission is defined by the *DOD Dictionary* as "the task, together with the purpose, that clearly indicates the action to be taken and the reason therefore."

[8] Charles Perrow, *Complex Organizations: A Critical Essay*, 3d ed., (McGraw-Hill, 1986). Perrow called the emergent tasks "nonroutine tasks." The present author changed the name to reflect the language of complexity science.

- **ROUTINE**: These are tasks that technology has solved. They tend to be physical and observable -- like a manufacturing assembly line. In the military context, conducting a pistol marksmanship range is a good example. For routine tasks, analysis and performance metrics work very well.

- **ENGINEERING**: These tasks are more complicated in that they involve detailed planning (as would development of a blueprint for a building and all the logistics required to have things come together in time). Good military example is engineering a plan to attack Iraq in 1991 during the first Gulf War. Here analysis and metrics work well, but can be spoiled by unforeseen variables (such as weather, etc.); hence, contingency branch plans and phased sequels are also engineered as hedges.

- **CRAFTWORK**: This sort of task involves art and the accompanying aesthetic qualities of doing something new/unique/novel and is mostly improvisational -- working with what is at hand (the French call this *bricolage*). For example, a military context may involve investigative/intelligence work in addressing something that has not quite been seen before. For these sorts of tasks, analysis and use of metrics become quite problematic because each situation is unique and morphs over time; hence, if task performance can be measured, that measure probably does not apply in future craftwork (so standardization of metrics is implausible).

- **EMERGENT**: Here the troops are faced with something so novel that we do not have the language structure to "frame" the situation into a definable problem, so even craftwork is not sufficient. These usually involve complex judgments of action learning (called reflective practice).[9] In military work this may involve dealing with very complex situations with a multitude of "competing values" -- such as whether to detain a poppy farmer or whether to burn his crop. It may involve highly contextual activities that even the skill set one has developed are not appropriate. These are situations are wicked. Yet we want the troops to deal with them and exercise *appreciative judgment* as they go.[10] They have to act in order to learn. Performance metrics are nonsensical in these cases.

The chart below (Figure 1) depicts the continuum between treating military operational tasks from the classical empiricist view and that of the critical realist. Organizations involved in the "task environment" in complex operations have to deal with both sides and in-between.

[9] Christopher R. Paparone and George Reed, "The Reflective Military Practitioner: How Military Professionals Think in Action," *Military Review*, Mar-Apr 2008, pp. 66-76.

[10] See Geoffrey Vickers, *The Art of Judgment: A Study of Policymaking*, NY: Basic Books, 1965, where Vickers describes appreciative judgment as making intuitive, aesthetic-qualitative decisions about the "state of the system," both internally and in its external relations (applicable to seeing "island communities" defined below, as social systems). Anthropologist Gregory Bateson described appreciation as looking at life through a big enough macroscope. Also see David L. Cooperrider and Michel Avital (Eds.) *Constructive Discourse and Human Organization*, Volume 1, Advances in Appreciative Inquiry, Amsterdam, NE: Elsevier, 2004, for a wide range of theory concerning the art of collective appreciation.

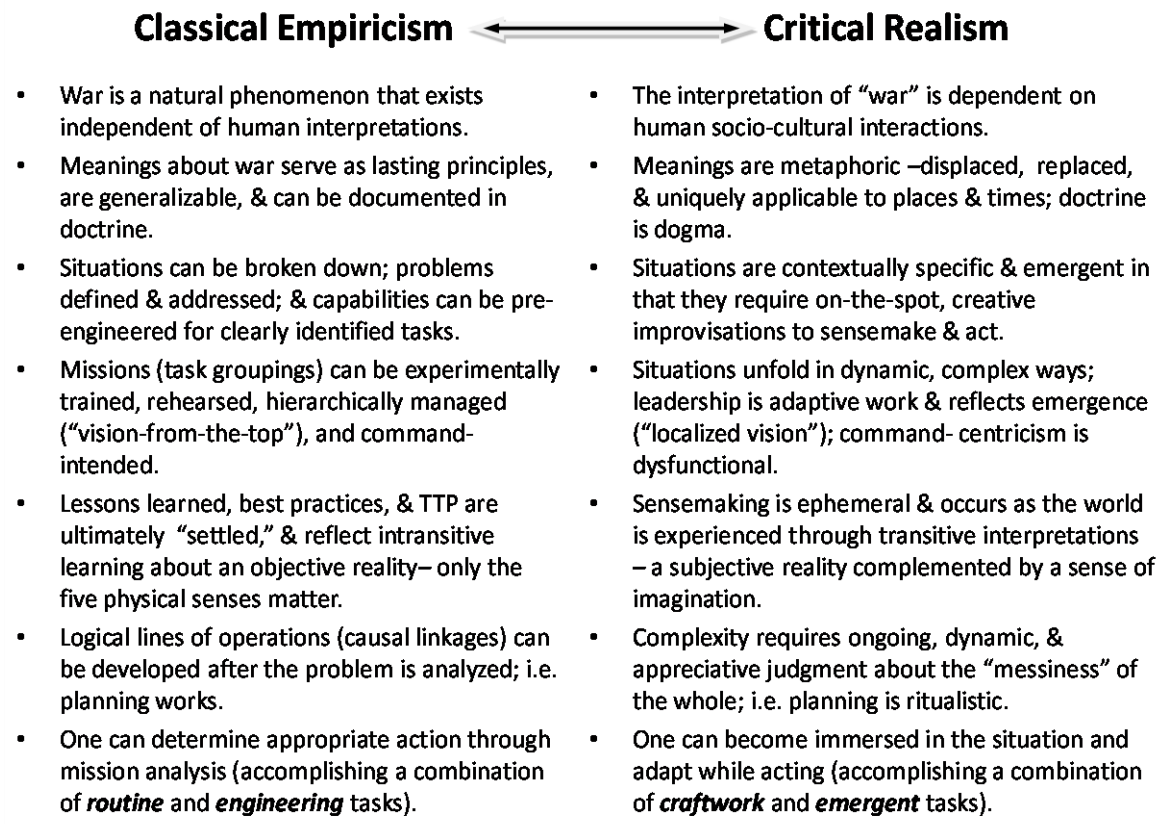

Figure 1. Between Two Worlds. Continuum between the classical empiricist world and the world seen through the critical realist lens. Mission analysis works well on situations associated with the left side; while it does not work with situations described on the right.

Armed with Perrow's typology of tasks, one can envision multiple framings of campaigning—traditional and inverted. Traditional campaigning, associated with conventional force-on-force warfare, is primarily composed of a hierarchy of *routine* and *engineering* tasks. Here the "snowman model" of war is an appropriate theory of effectiveness based in classical empiricism (Figure 2). Mission analysis is a reductionist process to determine this hierarchy of routine and engineering tasks necessary to meet policy goals. National policy is envisioned as the synthesis of tasks to be performed to achieve its objective; hence, individual and "tactical" tasks can be rolled up into campaign tasks, which can, in turn, be rolled up into strategic tasks.

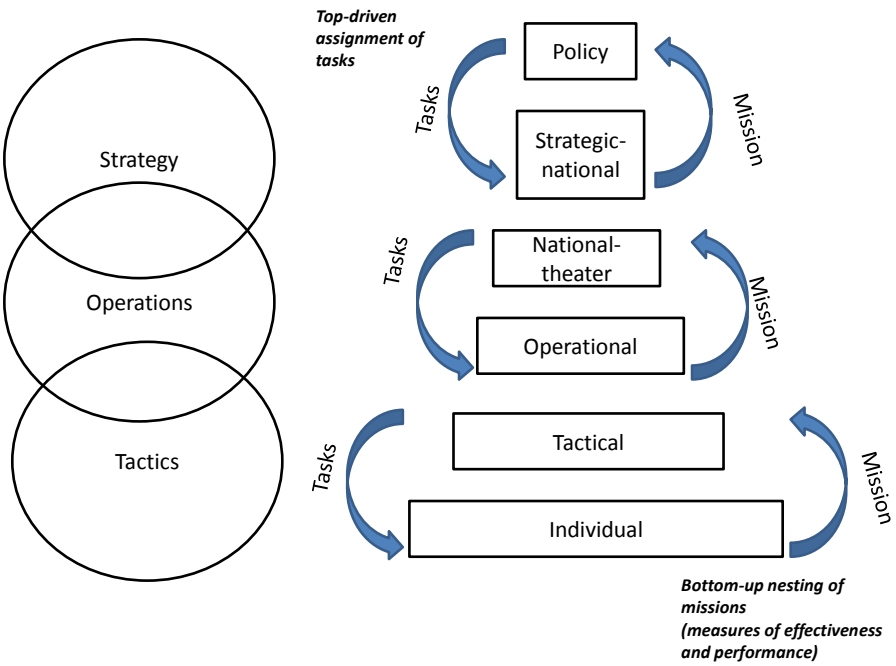

Figure 2. Traditional "Snowman Model." Explicit is the requirement for imbedded levels or "nesting" of mission analyses at corresponding levels of hierarchical organization. The mission analyses of the higher echelon produces tasks that are then assigned to lower echelons. The lower echelons convert (through their own mission analyses) assigned tasks into mission statements and send these results back up the echelons for approval. This model works well for routine and engineering types of tasks that together can be planned as they are "rolled-up" into a "campaign plan" or into a larger strategy or policy formulation.

From the polar opposite, critical realist point of view, the empowerment is inverted (the present author proposed the idea of the inverted campaign in the author's previous *Small Wars Journal* article concerning design and leadership-as-deviance). Stratagems are developed in local contexts and each is unique (Figure 3). Here institutional hierarchies are incapable of commanding or approving tasks at the local levels because neither the commanders nor policymakers can know what needs to be done. In such complex conditions, tasks are better typed as craftwork or emergent because these types require higher echelons of command to admit ignorance. At best, the institutionalized hierarchy serves to provide values-based context and the resources in support of the localities (what the present author called *island communities*).[11] The *inverted campaign* is based in localized *action research* (dynamic

[11] One can find evidence the "inverted campaign" is at work from artifacts such as General Petraeus' 1 Aug 10 memo, SUBJ: COMISAF's Counterinsurgency Guidance," to his troops that emphasized immersion: …"Consult and build relationships.…Earn the people's trust, talk to them, ask them questions, and learn about their lives. Inquire about social dynamics, frictions, local histories, and grievances…." Also he indicated his values-guidance: "Stay true to the values we hold dear. This is what distinguishes us from our enemies…." In Afghanistan Mathew Hoh, the State official who resigned in Oct 09, called island communities "valleyism." In a Washington Post interview, he said, "The [Afghan] terrain is formidable to put it in an understated manner. The societal makeup to include the interaction of village to village and valley to valley, is such that allegiances seem to be to family and then to village/valley above and beyond anything else. This is why I use the term 'valleyism' to explain the reasons why local populations are fighting us and the Afghan central government." (http://www.washingtonpost.com/wp-dyn/content/discussion/2009/10/27/DI2009102703143.html)

design).[12] Troops artfully invent tasks as they become immersed in situation requiring the appreciation of craftwork or emergence to deal with the novel task environment.[13]

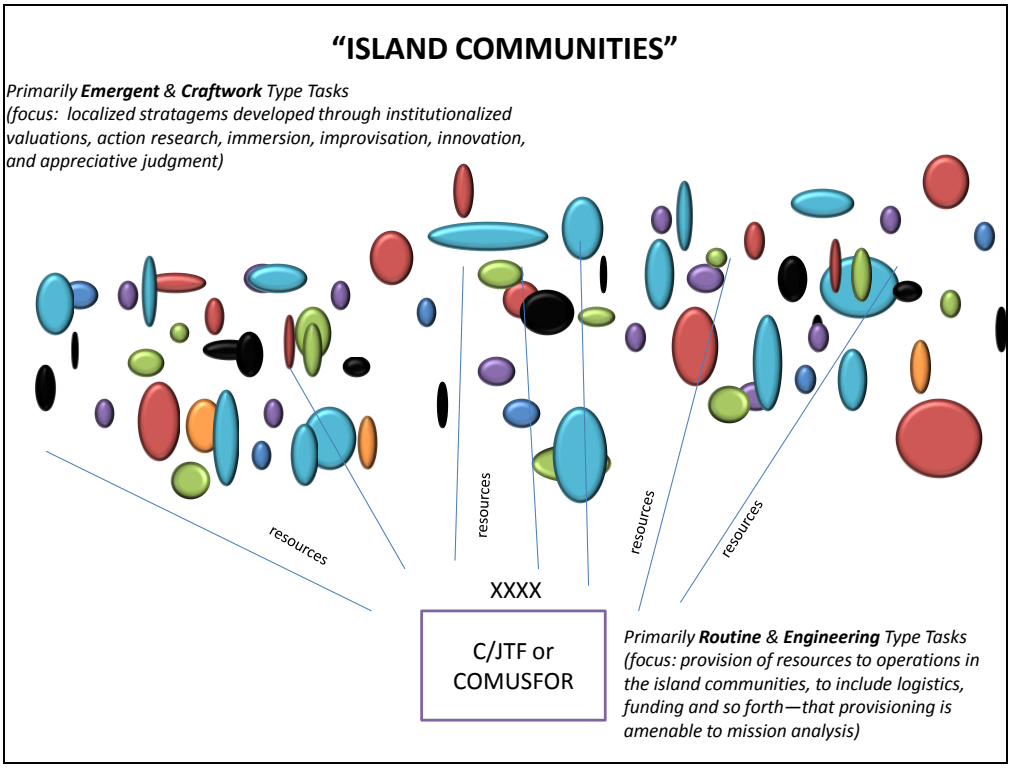

Figure 3. The Inverted Campaign. Troops operating in "island communities" cannot rely on mission analyses from the theater command echelon that would traditionally assign their tasks; however, they do rely on institutional values and the responsive channeling of resources from the theater-level headquarters.

In conclusion, tasks that are effective in complex operations are those that are not prospectively analyzable (i.e. not subject to mission analysis and its related planning). The more complex the situation, the less likely that the classical empiricism paradigm is appropriate and the more likely the practitioner will need a critical realist perspective. Traditional mission analysis, a hallmark of classical empiricism, is ineffective except for assuring routine and engineered type tasks are performed in support of localized craftwork and emergent tasks. The "inverted campaign" is a way of signifying this upside-down nature of the task structure for the required dispersed strategies and operations that are improvisationally developed through situational immersion and action research. Craftwork and emergent tasks have to be invented-in-action and changed-in-action as the local situation morphs and as those immersed in it can better

[12] Action research is a concept developed in the 1940s by the MIT professor Kurt Lewin. He turned away from a *best practices* (the idea behind military concept development, doctrine and lessons-learned programs) approach to solving complex social problems to a dynamic, real-time, and pragmatic method of *theorizing-while-practicing*, resulting in continuous personal and organizational development. His ideas have been further developed by a host of students of social psychology and organization theory. Prosecuting the full range of military operations requires action research as an effective professional military methodology. Variations on this concept include *action science*, *collaborative inquiry*, *action learning*, and *interactive social science*.

[13] Again, this is essentially the thesis of Simons' monograph, *Got Vision? Unity of Vision in Policy and Strategy: What It Is, and Why We Need It*, cited earlier.

make appreciative judgments. In short, design is not a methodology toward understanding. It is a philosophy associated with embracing the unpredictability of tasks yet to be accomplished.

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