

Critical Military Epistemology: Designing Reflexivity into Military Curricula

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I have been heavily involved in military education for over fifteen years, ranging from designing and facilitating US senior service college and staff officer college curriculum to presently administering programs as a military university dean. I do not think anyone can claim to be an 'expert' educator in military science or in any social science discipline for that matter. Military education, in particular, is too complex of a transdisciplinary process to have a positivist *onto-epistemology*² that seeks to emulate the monistic assumptions of the natural science disciplines. I argue that the conventional onto-epistemological assumption in US military modern education is that of overly narrow objectivism.

My intent here is to propose concepts that may help military educators approach curricula designs pluralistically. The approach I offer stems from onto-epistemological juxtapositions about knowledge creation and how more reflexive practice may be possible. I bring to the table a discipline of sociology that has provides more flexible onto-epistemological assumptions, to include that of subjectivism. That discipline is the

¹ All statements of fact, opinion, or analysis expressed in the main text of this essay are those of the author. Such statements of fact, opinion, or analysis reflect neither the official positions nor views of the US government, the Department of Defense or the Department of the Army.

² An onto-epistemological perspective, in other words, serves as the "underlying logic of practice" per Jorgen Sandberg and Haridimos Tsoukas, "Grasping the Logic of Practice: Theorizing through Practical Rationality," *Academy of Management Review* 36 (2011): p. 340. I maintain that scientism and its assumed objectivity is the institutionalized underlying logic of modern military practice.

sociology of knowledge (SoK). SoK is ultimately a philosophical ‘antiseptic’ to an underlying logic of practice strictly associated with scientism. With regard to SoK, I endorse the following postmodernist propositions about the social construction of reality which would serve as a very different guide to the development of educative approaches to heightening military practitioners’ critical reflection.

1. Military epistemology is an outgrowth of an historic socialization process. The history of meanings in institutions reveals that humans both perceive and conceive the world through socially constructed, shared habits of mind. SoK asserts that we can trace the intersubjective human construction of reality and correspondent structuration of language by studying the institution’s history of meanings. Hence, SoK requires “an inquiry into the manner in which this reality is constructed”...and maintains that institutions “always have a history of which they are the products.”³
2. Using Searle’s fact continuum, we can reveal the subjectivity of military knowledge by exposing the *objectivation*⁴ of socially constructed facts. In other words, based in the SoK onto-epistemological pluralistic perspective, we can illuminate the social construction of military-centric reality by exposing ‘social facts’ with respect to ‘natural facts.’
3. US military scientism is an ideology, hence, a potential social hazard for those who criticize scientism as the underlying logic of practice. There is an ideological bias and power politics associated with US military science. There are risks associated with employing the SoK perspective, as it may be quite disruptive to the traditional institutional sensemaking. To illustrate, I will relate my own story.
4. Critical Military Epistemology⁵ (CME), based in the other three propositions, is one educative approach, which will enhance reflexivity, providing a plurality

³ Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (New York: Penguin, 1966), pp. 30, 72.

⁴ Objectivation is “[t]he process by which the externalized products of human activity attain the character of objectivity....” Ibid., p. 78.

⁵ See Paul T. Mitchell, “Stumbling into Design: Radical Action Experiments in Professional Military Education at Canadian Forces College,” *Journal of Military and Strategic Studies* 17, no. 4 (2017). Paul describes courses of instruction in the Canadian Forces College designed with intent to promote “critical operational epistemology.” I merely upped the idea to use ‘military’ in lieu of ‘operational’ signifying a

of underlying logics of practice. By portraying a wide spectrum of disciplines relationally across higher order doctrinal functions, I build a case that US military knowledge is not a unified science as assumed by scientism. By revealing this comparative analysis through this method of CME, we enable military education to have an emancipatory effect and encourage critical reflection in practice. I shall address these propositions sequentially in four, interrelated parts.

Proposition One: Military epistemology is an outgrowth of an historic socialization process

[Military Doctrine] is not the social construction of war, but the social construction of the ideas we have about how to win them.

-- Harald Høiback⁶

The origin of the objectivist onto-epistemology was apparent in the US Military Academy (USMA) at West Point, New York, established in 1802 by President Thomas Jefferson. Jefferson was interested in surveying westward expansion; however, noted that civilian schools had no civil engineer programs that would redraw the enlarging maps of the United States. Accounting science researchers have studied the origins of the US quantitative methods to objectively manage efficiencies in delivering education and discipline to early engineering graduates of USMA. Academy trained officers commissioned in the US Army Corps of Engineers later held management positions in industrial activities, such as armories and railroads, incorporating scientism into the 1840s and through the US Civil War. These West Point alums were educated in the shared vocabulary of engineering and inculcated within a propensity for adopting organizational control measures meant to govern the organization and its cadets, departmentalized authoritative power structures segmented into line and staff, strict

critique regardless of an artificial 'level of war' being examined. Nevertheless, if CME becomes an eponym, it should be 'Mitchellean.'

⁶ Harald Høiback, *Understanding Military Doctrine: A Multidisciplinary Approach* (Abingdon, UK: Routledge, 2013), pp. 94-95.

uniformity in clothing, equipment, and drill, and the disciplined accountability structures of compliance-surveillance schemes. The institutional underlying logic of practice began to harden – that accountability equals objectivity.⁷

Through the continuing interaction of military and business social networks, by the start of the US Civil War – arguably the first major industrial war – a highly systematized managerialism emerged concurrently among other Western militaries, most noteworthy, in the Prussian Army. This engineering like precision clearly contributed to the allied success at Waterloo (1815) and of the wars of German unification (1864-1870). Michael Howard, in this seminal work, rightly attributes the Prussians' victory to the superior planning and measured control methods introduced by their General Staff that systematized large-scale mobilization and disciplined strategic maneuvers using railroads.⁸

By 1910, US Congress reformed the US War Department, employing many organizational structures which were innovated by the Prussians and also fueled by the pervasive US scientific management movement in the US Army orchestrated by Frederick Taylor.⁹ Increasingly since World War II, the US military institution has deeply invested its logic of action in systems engineering theory and its military variant, operations research/systems analysis.¹⁰ Military optimization of humans and machines as integrated systems (“cyborgs,” according to Edwards¹¹) began with the British military staff during World War I, becoming a full-fledged engineering subfield by 1937 with innovative developments optimizing the symbiosis of radar and Hurricane fighter-interceptor squadrons later used effectively in the Battle of Britain. Historians have also captured the successful application of operations research was witnessed particularly in

⁷ Keith W. Hoskin and Richard H. Macve, “The Genesis of Accountability: the West Point Connections,” *Accounting, Organizations and Society* 13 (1988): pp. 37–73.

⁸ Charles E. White, *The Enlightened Soldier: Scharnhorst and the Militärische Gesellschaft in Berlin, 1801-1805* (New York: Praeger, 1989) and Michael Howard, *The Franco-Prussian War: The German Invasion of France 1870–1871* (New York: Routledge, 2005).

⁹ Hugh G. Aitken, *Scientific Management in Action: Taylorism at Watertown Arsenal, 1908-1915* (Princeton, NJ: Princeton University, 1960).

¹⁰ Charles R. Shrader, *The History of Operations Research in the United States Army, Volume I* (Washington DC: Office of the Deputy Undersecretary of the Army for Operations Research, 2006), pp. 1942-62.

¹¹ Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: The MIT Press, 1996), p. 20.

structuring the efficient paired use of limited antisubmarine and bombing resources in the battles for control of the North Atlantic shipping lanes.¹² Over the course of the war, these quantitative research and analytical methods began to migrate to policy level decision making.¹³ One of the wartime staff officers who learned and embraced military scientism, working in the Pentagon's Office of Statistical Control, was Harvard Business School graduate, Army Captain Robert S. McNamara. McNamara later applied this science as an executive at Ford Motor Company and largely because of this assumed proven scientific approach to management, President Kennedy appointed him as his Secretary of Defense.

Well into the Johnson administration, McNamara governed the growing scale of US involvement in the Vietnam by systems analysis, treating war as a 'black box,' manipulating measured inputs (e.g., body counts) until the outputs are measurably meeting the demands of wartime policy (e.g., halt the spread of communism to South Vietnam).¹⁴ This scientism of systematic behavioral control became more and more pervasive as advanced engineered weapons and sensor systems created what Gibson called a "technowar" mentality.¹⁵

Today the US military continues to engineer its organizational designs around the integration of people, equipment and tasks that together perform the higher order "joint functions" described in written doctrine.¹⁶ It trains individuals (infantry, air crewmembers, unmanned aerial vehicle pilots, logisticians, pilots, coxswains, artillerymen, communications specialists, and so forth) as a technical part of military hardware and software – to perform standardized tasks from the highest to the lowest levels in the organization. Doctrine prescribes individual tasks that combine to feed hierarchically into unitized, cross-functional 'collective tasks' that are further codified all the way up to 'strategic' and 'national' level. Resulting from onto-epistemological assumptions of objectivism, inculcated members uncritically assume this carefully

¹² Shrader, *The History of Operations Research in the United States Army*, p. 5.

¹³ Hugh J. Miser, "Operations Research and Systems Analysis," *Science* 209 (1980): pp. 139-146.

¹⁴ Donald A. Schön and Martin Rein, *Frame Reflection: Toward the Resolution of Intractable Policy Controversies* (New York: Basic Books, 1994), p. 12.

¹⁵ James W. Gibson, *The Perfect War: Technowar in Vietnam* (Boston: The Atlantic Monthly, 1986).

¹⁶ US Joint Publication 3-0, *Joint Operations* (Washington DC, 2011).

engineered hierarchy of tasks comprises an array of functions that win wars. The institution objectivates doctrinal, task-based organizations and functions as ‘facts.’

Proposition 2: Using Searle’s fact continuum, we can reveal the subjectivity of military knowledge by exposing the objectivation of socially constructed facts.

[Professional military science] is ultimately a practical discipline, and military students are highly instrumental in their attitudes towards education: “Just the facts, Ma’am” sums up their attitudes towards learning.

-- Paul T. Mitchell¹⁷

While military students may not, as Paul Mitchell suggests, philosophers have long struggled with the idea of ‘fact.’ Plato, in *The Republic*, suggests we believe that we find truth, but do not realize that we are only be able to see shadows of it (i.e. we only can understand a secondary reality).¹⁸ Over two millennia later, a modern philosopher, Searle, developed a continuum to better judge the Platonic view of facts. Searle’s continuum ranges from ‘natural facts’ (things we can physically sense in nature, existing independent of man) through ‘type 1 social facts’ (things we can physically sense, but that have a human-conceptualized purpose), to ‘Type 2 social facts’ (ways communities of humans collectively assume truth – similar to Plato’s shadows of reality).¹⁹

There is little ambiguity, for example, when a human being from any culture for the first time sees a ‘mountain.’ While others might disagree linguistically what to call it and what it means for (e.g., in a military maneuver context, ‘take the high ground’), it is still ‘there’ in an empirical way. A human-manufactured *spear* is also ‘there’ but any member of a secluded culture who see it for the first time might not have the same sense of natural factualness about it as compare with the native who purposefully made it and uses it. Yet eventually those outsiders would probably be able to implicitly figure out for

¹⁷ Paul Mitchell, “Stumbling into Design: Radical Action Experiments in Professional Military Education at Canadian Forces College,” *Journal of Military and Strategic Studies* 17, no. 4 (2017).

¹⁸ Desmond Lee, trans., *The Republic* by Plato, 2d ed. (London: Penguin Group: 1987), pp. 316-325.

¹⁹ John R. Searle, *The Construction of Social Reality* (New York: Free Press, 1995), pp. 41-42.

what and how they can use it in hunting or warring. The reality of the *spear* is arguably less socially specific enough as to be as obvious as a mountain even though it also exists as a physical reality. Its militant functionality is implicit, but only explicit to the society that created it; hence, anthropologists would call this 'type 1 social fact' an artefact. At the far end of Searle's fact spectrum are the social facts pertaining to socially agreed to *concepts* that, without that social agreement, would simply not exist and certainly not be meaningful to any outsiders or among insiders. For example, like-minded military practitioners are able to communicate with map symbols depicting a main attack and mutually understand that these were placed there as the result of a sophisticated rational decision-making process. These more esoteric concepts represent Searle's 'type 2 social fact,' yet institutional members will objectivate these concepts as they would percepts.

Issues associated with building a culture and educational system based on objectivist view, that 'facts are facts,' become more apparent if military educators and students were to become more *reflexive*, with "...an awareness of the situatedness of scientific knowledge and an understanding of the... community from which knowledge has appeared."²⁰ Alvesson and Kärreman provide this description of reflexivity: "the struggle to acquire an awareness of how paradigms, sociopolitical contexts, frameworks, and vocabularies are involved in shaping the [practitioner's] constructions of the world at hand and his or her moves in doing something with the world."²¹ Practitioners achieve reflexivity by asking critical questions, such as:

Can I construct/make sense of this material in another way than suggested by the preferred perspective/vocabulary? Can I let myself be surprised by this material? Can it productively and fairly be constructed in a way that kicks back at my framework and how we—in my [professional] community—typically see and interpret things?²²

²⁰ Cynthia Hardy, Nelson Phillips, and Stewart R. Clegg, "Reflexivity in Organization and Management Theory: A Study of the Production of the Research 'Subject,'" *Human Relations* 54 (2001): p. 554. In the case of military science, the assertions made in doctrinal texts become vulnerable and subject to critical reflection as we lift its veil of objectivation.

²¹ Mats Alvesson and Dan Kärreman, "Constructing Mystery: Empirical Matters in Theory Development," *Academy of Management Review* 32 (2007): p. 1268.

²² *Ibid.*, p. 1270.

In addition to the objectivation associated with cultural *habitus*²³ that inhibits institutions from valuing reflexivity about social facts, there may also be power structures and normative pressures that suggest ideology may prevent critical reflection in coercive ways, at least if voiced openly.

Proposition 3: US military scientism is an ideology, hence, a potential social hazard for those who criticize scientism as the underlying logic of practice

My system, I believe, will enable the student to study the history of war scientifically, and to work out a plan of war scientifically, and create, not only a scientific method of discovery, but also a scientific method of instruction. Normal man will not think; thinking is purgatory to him; he will only imitate and repeat.

--J.F.C. Fuller²⁴

There are indeed alienating social hazards of openly being a reflexive practitioner or a military educator that promotes reflexivity. I have experienced many as a member of the faculty of the US Army's War College as well as its Command and General Staff College (USAWC and CGSC respectively). When I attempted to introduce postpositivist, multi-disciplinary, relational, interpretivist, and postmodern views into the readings of USAWC students in my second school year as a faculty member, I eventually received a written reprimand from my department head stating that my lesson plans were 'un-executable.' Within a year after that 'counseling session,' while still on active duty and with four years before my expected tenure on faculty was completed, I made arrangements to transfer out of the College. My purpose was to avoid what I perceived

²³ Pierre Bourdieu, *The Logic of Practice* (Stanford, CA: Stanford University, 1990). Bourdieu describes *habitus* as "principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the operations necessary in order to attain them" (p. 53). See also Pierre Bourdieu and Loïc J. D. Wacquant, *An Invitation to Reflexive Sociology* (Chicago: University of Chicago, 1992). Metaphorically, "when habitus encounters a social world it is a part of, it is like a 'fish in water': it does not feel the weight of water, and it takes the world about itself for granted" (p. 127).

²⁴ J.F.C. Fuller, *Foundations of the Science of War* (London: Hutchinson & Co, 1925), p. 35.

as a continuing stream of estranging experiences with those in my supervisory chain as well as some (but not all!) of my peers on faculty.

Later, during my tenure as a CGSC civilian associate professor I was under considerable pressure from my teaching department and the College's higher management to conform with the readings and 'objective' (true-false; multiple choice) examinations that we were ordered to administer. I was not happy with the idea of higher education (in this case accredited at graduate-level) that forced our students to acknowledge that there were true, false, and correct multiple choice answers in the study of national security and complex operations. Those in power rejected my argument –that we should not just teach orthodox doctrinal or rationalist-only approaches, but encourage our students reflexively to question these institutionalized "truths" usually part of an unchallenged "ethic of performativity."²⁵ In spite of my continuous fights with 'city hall,' I stayed in that faculty position for six years as I had a very supportive teaching team that was not only tolerant of these different ideas, but receptive in trying them out even if surreptitiously.

While these experiences were challenging for me, I can reflect that they were also important to shaping my approach and better communicate the importance of valuing reflexivity in our military education system. Instead of concentrating on changing the curriculum and pushing back against the intimidation by those in charge, I focused my attention to researching and writing on the subject, and, after publishing several articles in *Military Review* and *Small Wars* journals, my work culminated in the publication of a comprehensive book.²⁶ I also found sanctuary in corresponding, via electronic mail, with a small, cabal of practitioners and scholars who shared similar interests in changing the collective mind of the institutions we belonged. The feeling of emancipation for me, to be able exchange ideas freely with others of the same rogue breed, has been therapeutically pleasing. It is not that we all agree on issues and solutions, it was that we are able to exercise challenges to status quo military epistemology in our differing ways. Moreover,

²⁵ Lynda Stone, "Educational Reform through an Ethic of Performativity: Introducing the Special Issue," *Studies in Philosophy and Education* 18 (1999): pp. 299-307. The idea is to purposefully create "intriguing transgressions of what is 'taken-for-granted' about education and its turn to performance" (p. 299).

²⁶ Chris Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design* (New York: Bloomsbury, 2013).

we do so without necessarily calling for commensurability, but rather for a renewed respect to the value of comparative variation (the essence of relationalism). Under proposition four, I will describe what I presented at an October 2016 workshop titled “New Ontologies and Epistemologies in Armed Forces,” with some members of that cabal present.²⁷

Proposition Four: CME, based in the other three propositions, is one educative approach which will enhance reflexivity, providing a plurality of underlying logics of practice.

[U]nlike what happens in social science in general, the impact of the reflexivity concept on military studies has remained marginal...this surprising neglect is mainly the result of two factors: the dominant positivist epistemological foundations of the discipline...promoting an engineering rather than an enlightenment model....

-- Helena Carreiras and Ana Caetano²⁸

With a more reflexive attitude, one can conclude that military science is neither a separate nor a unified body of knowledge which can be isolated from other disciplines. My argument is that modern military science, particularly the US variant documented in doctrinal manuals, gives the superficial appearance of a well-organized and integrated discipline of study. In my view, the writers of military science, be they of reference booklets prepared for war college student readings or official doctrinal manuals used as textbooks in staff colleges, have created anal-retentive taxonomies of task-based knowledge and have hyper-functionalized approaches to warfare worthy of criticism. These are artefacts of scientism and give the appearance of a positive, integrated, progressive knowledge discipline. CME reveals that military science is a fragmented

²⁷ In the beginning, there were only five of us, to include four other authors in this issue – Grant Martin, Ben Zweibelson, Aaron Jackson, and Paul Mitchell. Now there are over four dozen with representation from half a dozen countries.

²⁸ Helena Carreiras and Ana Caetano, “Reflexivity and the Sociology of the Military,” in *Researching the Military*, eds. Helena Carreiras, Celso Castro and Sabina Frederic (Abingdon, UK: Routledge, 2016), p. 13.

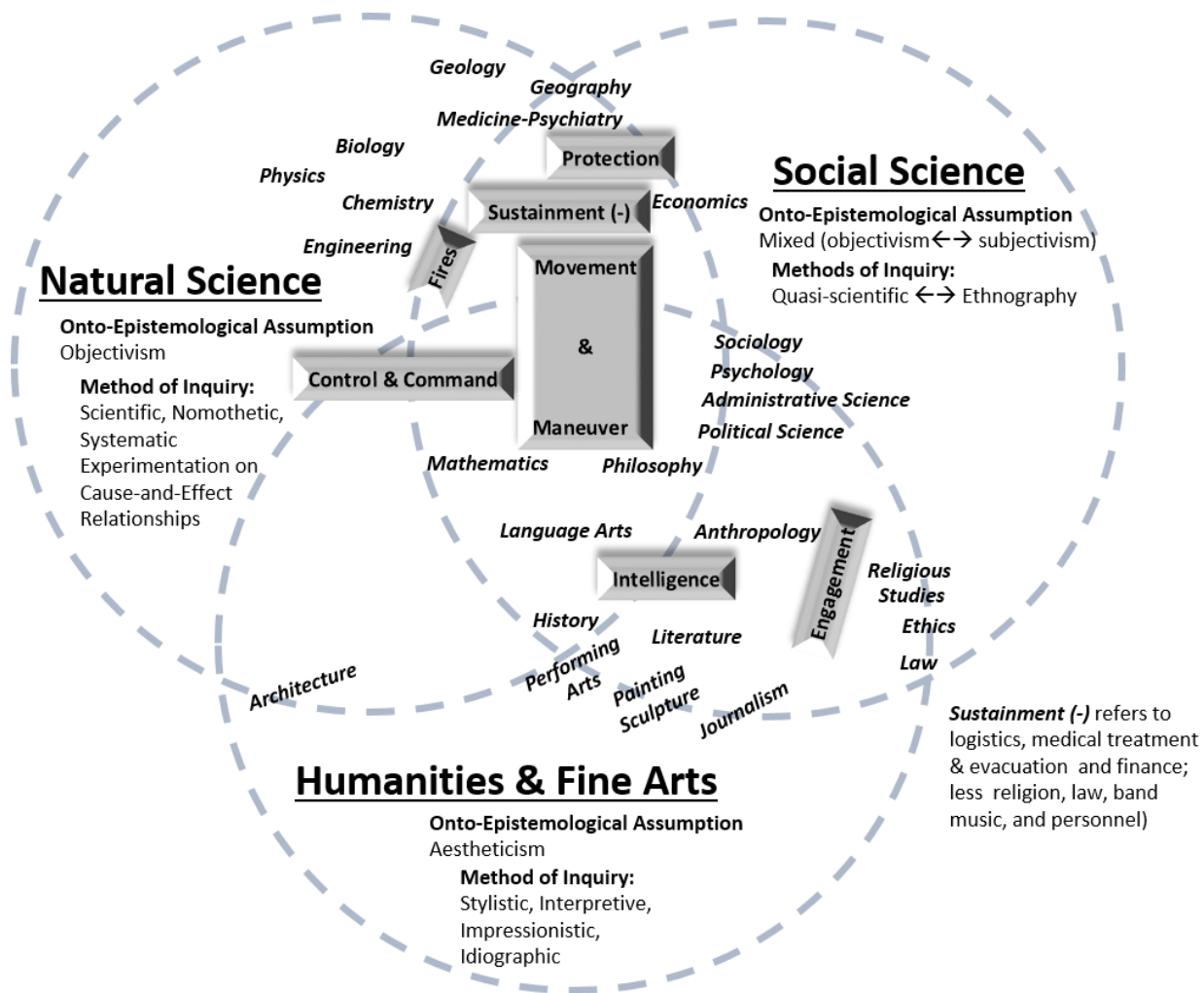
assortment of disciplines that shall remain forever onto-epistemologically incommensurate. I will model a CME approach in what follows.

US military doctrine writers (followed closely by NATO and other friendly militaries' doctrines) have divided military operations into "joint functions:" movement and maneuver; intelligence; fires; sustainment; command and control; and, protection.²⁹ There has been recent discussion, particularly in the US Army, of a seventh function, "engagement."³⁰ I incorporate into a CME-enabled gestalt view of joint functions by overlaying them onto disciplines of study for comparative purposes (Figure 1). As the Venn diagram indicates, the joint functions relate to multiple onto-epistemologies along with varying assumptions and methods, overlapping those of the social sciences, the fine arts, and the humanities. However, in traditional US military writings, all tasks and functions seem tied to the objectivism associated with the natural sciences (represented in the upper-left circle), and particularly rooted in the discipline of engineering.

²⁹ US Joint Publication 3-0, *Joint Operations*, x.

³⁰ US Army TRADOC Pamphlet 525-8-5, *US Army Functional Concept for Engagement* (Fort Eustis, VA: Training and Doctrine Command, 2014).

Figure 1. A CME, “Transdisciplinary” Reflexive View of US Military Doctrine.



CME, for example, would call for an *aesthetic* performativity (that effect of knowledge which cannot be measured) as a counterweight to that of the *objectivist* (that effect which can be scientifically measured) underlying logic of practice.³¹

What I hope this diagram conveys is that one can apply the CME viewpoint to demonstrate the diverse onto-epistemological assumptions and methods that *should* feed necessary changes to military knowledge structuration and derived schooling methods. More specific to CME, Holland defines ‘transdisciplinary reflexivity’ as going beyond the

³¹ Stone, "Educational Reform through an Ethic of Performativity," p. 302.

traditional view of 'unidisciplinary' logics of practice and into multilevel, reflexive analysis in order to fend off self-fulfilling prophecies and other confirmation biases.³²

Conclusion and Recommendations

“Discourse is, with respect to the relation of forces, not merely a surface of inscription, but something that brings about effects.” Thus, we should study discourse “as ways of conquering, or producing events, or producing decisions, of producing battles, or producing victories.”

--Michel Foucault³³

I have to admit here that any application of CME methodology in terms of practitioner or organizational performance would be difficult to “assess” behaviorally in practice as these four assertions are more about enhancing tacit knowledge, emancipatory thinking, reframing, and critical reflexivity involved in making sense of novel situations rather than a step-by-step decision scheme designed to approach more familiar situations. Theoretically, educative methods toward creating new military designs should be transdisciplinary as Figure 1 depicts. My thoughts about what educators can do to introduce reflexivity and CME methods in military schooling include four interrelated ideas.

³² Ray Holland, “Reflexivity,” *Human Relations* 52 (1999): p. 466.

³³ As cited in James D. Marshall, “Performativity: Lyotard and Foucault Through Searle and Austin,” *Studies in Philosophy and Education* 18 (1999): p. 309. Readers should not take this Foucauldian view of “effects” literally as would modern US joint doctrine. Foucault repeatedly uses military figures of speech in his work, in this case referring metaphorically to the discursive “battle” with the dominant narrative of modernism that subjugates other knowledge. Marshall interprets as a calling for a profound disclosure of how modern education has lost touch with effecting ideals “like personal autonomy or emancipation” (p. 310) as is the case I am arguing about traditional military education in the present essay. While CME methods may not produce obvious constructive counsel, this sort of Foucauldian logic may lead to a transformational reconceptualization in performativity (what Donald Schön referred to as both *reflection-in-action* and *reflection-on-action*). See Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1983).

1. Explore the history of US military scientism through CME lenses. In other words, enhance critical reasoning and intuitive processes through discursive interpretations of military science of past times.³⁴ The institutionalization of meanings over time creates an institutionalized “normal science” much like Kuhn describes.³⁵ Have student practitioners compare how the military schools today exalt systematized operations research methods of military decision making and planning with the underlying logics of prosecuting yesteryears’ wars. Present day staff colleges, for example, base curricula logic and knowledge structures in cyborg-like, discursive approaches to problem solving, where a military decision is conceived as an optimized solution for allocating resources against a time-based construction of a desired end-state much like an engineer would manage a construction project. The engineering analogies to military thinking are rather startling: composing a plan (the visualization of an end-state), a bill of materials and workers (orders of battle) and a US Navy-developed Program Evaluation Review Technique-like chart that indicates synchronization and integration of man, machines, and materiel in time-phased warfighting activities symbolized on a map. How were the military sensemaking structures different during the Peloponnesian wars from the perspective of Sparta? Athens?
2. Expose faculty and students to a plurality of paradigms and theories enabled by CME. Rely on studies that would be unusual to US military traditional war college and military doctrine writers such as those offered by the *sociology of*

³⁴ Examples include: Gibson, *The Perfect War*; Edwards, *The Closed World*; Richard E. Neustadt and Ernest R. May, *Thinking in Time: The Uses of History for Decision Makers* (New York: Free Press, 1986) ; and, Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: Free Press, 1991).

³⁵ Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3d ed. (Chicago, IL: University of Chicago, 1996), p. 10.

knowledge,³⁶ the sociology of war;³⁷ the field of cognitive linguistics,³⁸ multi-paradigm relationalism,³⁹ and, the desired confluence of philosophy with organization theory.⁴⁰

3. Summon Schönian ideals of professional reflective practice. CME can be a valuable way to educate military professional toward the need for a more adaptive, reflective practice.⁴¹ This initiative should also change the way war and staff college instructors approach the seminar room, perhaps repurposed as 'design studios.' An edited 'how to' book by Mezirow, *Fostering Critical Reflection in Adulthood*, should be a desk reference for military educators interested in enhancing reflexivity in practice.⁴² Realistically, countering the

³⁶ Examples include Louis Wirth and Edward Shils, trans., *Ideology and Utopia: An Introduction the Sociology of Knowledge* by Karl Mannheim (New York: Harcourt Brace Jovanovich, 1936); Werner Stark, *The Sociology of Knowledge: An Essay in Aid of a Deeper Understanding of the History of Ideas* (London: Lowe and Bydone, 1958); Robert K. Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (Chicago: University of Chicago, 1976); and, George Ritzer, *Sociology: A Multiparadigm Science Revised* (Boston: Allyn and Bacon, 1980).

³⁷ Examples include Sinesa Malešević, *The Sociology of War and Violence* (Cambridge, MA: Cambridge Press, 2010), and, Anthony Giddens, *The Nation State and Violence: Vol. 2 of a Contemporary Critique of Historical Materialism* (Berkeley: University of California, 1987).

³⁸ Examples include Donald A Schön, *Displacement of Concepts* (London: Butler & Tanner, 1963); George Lakoff, and Mark Johnson. *Metaphors We Live By* (Chicago, IL: University of Chicago Press, 1980); Yuen Foong Khong, *Analogies at War: Korea, Munich, Dien Bien Phủ, and the Vietnam Decisions of 1965* (Princeton: Princeton University, 1992); and, Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York: Columbia University, 2009).

³⁹ Examples include Gibson Burrell and Gareth Morgan, *Sociological Paradigms and Organizational Analysis: Elements of the Sociology of Corporate Life* (Portsmouth: Heinemann, 1979); Haridimos Tsoukas and Mary J. Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity," *Human Relations* 54, no. 8 (2001): pp. 979-1013; Graham Allison and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis* (New York: Longman, 1999); and, Marianne W. Lewis and Mihaela L. Kelemen, "Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox," *Human Relations* 55 (2002): pp. 251-275.

⁴⁰ Examples include Karl E. Weick, *Sensemaking in Organizations* (Thousand Oaks, CA: Sage, 1995); Gareth Morgan, *Images of Organization* (updated edition) (Thousand Oaks: Sage, 2006); Haridimos Tsoukas and Robert H. Chia, "Introduction: Why Philosophy Matters to Organization Theory," in *Philosophy and Organization Theory, Research in Sociology* Vol. 32, eds. Haridimos Tsoukas and Robert H. Chia, (Bingley, UK: Emerald, 2011), pp. 1-21; and, Mary J. Hatch and Ann L. Cunliffe, *Organization Theory: Modern, Symbolic and Postmodern Perspectives* (Oxford: Oxford University Press, 2013).

⁴¹ Examples include Schön, *The Reflective Practitioner*, and Donald A. Schön, *Educating the Reflective Practitioner* (San Francisco, CA: Jossey-Bass, 1987).

⁴² Jack Mezirow, ed., *Fostering Critical Reflection in Adulthood: A Guide to Transformative and Emancipatory Learning* (San Francisco: Jossey-Bass, 1990).

institution's objectivations based on scientism as the underlying logic of practice may take generations, but the process has to start sometime.

4. Employ CME to stimulate professional debate. While strategic and operational concepts may vary within the same objectivist approaches,⁴³ I have found little of no evidence of debate about the substantive impact of varying the onto-epistemological modernist premises of military scientism. The debate should be about whether military science should continue or discontinue (a) as an assumed positive, unified, and progressive discipline of study; and, (b) as underpinned by the fallacious presumptions of engineering-like objectivity. This discourse should commence immediately.

The promise of designing reflexivity into military curricula is to enable the transdisciplinary construction of novel underlying logics of practice based in alternative assumptive structures revealed by the Sociology of Knowledge and methods of Critical Military Epistemology. I have set forth proposals and recommendations that should help military educators approach curricula design efforts with transdisciplinary and onto-epistemological variation; thereby, promoting reflexivity in practice.

⁴³ Robert Lummack, "Don't forget about Boxer: Teaching Systems Thinking, Complexity and Design to NCMs," *Journal of Military and Strategic Studies* 17, no. 4 (2017). Here I reference my colleague's work in this issue pertaining to complexity science. His description involves objectivations of presumably observable, interacting variables presented in a causal loop diagram. Complexity science is another form of scientism, indicating also an objectivist underlying logic of practice. I would not characterize complexity science as an alternative paradigm from objective scientism discussed in my essay. However, one could treat complexity science (borrowed from concepts and logics of biological systems and meteorology) as a source of metaphors; hence, this would recognize complexity science as a subjective onto-epistemological perspective as Bousquet does in his book, *The Scientific Way of Warfare*.