

## HYBRID PEDAGOGIES FOR HYBRID WAR

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**Abstract:** *Paper presents the main characteristics of hybrid war and the new requirements for military educational and training system related to the new challenges of these irregular threats. The hybrid wars require innovative thinking, a more flexibility in action, and enhanced cognitive skills. This paper lays out some findings of neuroscience. In this respect we can conclude that neuroscience should be used as a tool in educational policy. Knowing that the education is a powerful form of cognitive enhancement we consider that the neuroscience research could identify the mechanisms of learning and the sources of individual differences in learning ability in order to develop the cognitive skills needed in the hybrid framework of the battle.*

**Keywords:** *hybrid war, cognitive skills, sociology of neuroscience.*

### 1. HYBRID WAR – A NEW FRAMEWORK FOR THE MILITARY EDUCATIONAL AND TRAINING PERSPECTIVES

The hybrid war was identified by the numerous security analysts at least ten years ago. Frank Hoffman's paper on Hybrid Wars at The Potomac Institute for Policy Studies [1] presented a large interest for many military and policy leaders in U.S. Department of Defense and for major military educational institutions. As this paper reveals, hybrid threats incorporate a full range of different modes of warfare including conventional capabilities, irregular tactics and formations, terrorists acts including indiscriminate violence and coercion, and criminal disorder. During the history, many wars have had both regular and irregular components. However, in most of cases, these components occurred in different stages, theaters or formations. In Hybrid Wars, these forces are emerging into the same force in the same time and in the same battlespace.

According with Hoffman's study the emergence of this new type of war does not mean that the traditional warfare is disappeared. Contrary, beside conventional warfare the hybrid war will complicate the defense planning in the future. Even though the aim of this paper is not to present the complexity of this relatively new concept, we will analyze the main dimensions of it in closed relation with new challenges for education and training. Due to the influence of hybrid war we have to think at many other creative pedagogical approaches to develop innovative thinking and stimulate strategic thought. In my opinion this could be very provocative circumstances for military education and training system who is recognized as promoting more obedience, conformity, compliance instead of initiative, creativity and critical thinking. In this respect, the same author expressed the view on role of education as main factor for enhanced readiness.

So, the required cognitive skills to cope with difficulties provoked by hybrid warfare are recognized as the main human capabilities, as it requires mental agility and tolerance for ambiguity or uncertainty to recognize or quickly adapt to the unknown. Also, beside decision-making skills and tactical abilities of our military leaders, the military educational policy could comprise specific actions in order to design and develop the military learning organization as proper educational environment for preparing the future graduates as *Hybrid Warriors* in diverse educational experiences, equipped with all required traditional and new skills, including or together with abilities from domain as cultural intelligence, cyber defense and public diplomacy. This will require not just to modify our mindset but also, in order to achieve all requirements for confronting new mode of war, a rapid adaptation at both individual and institutional level.

In fact, there are also many opinions which consider “Hybrid War” as a combination of previously defined types of warfare, whether conventional, irregular, political or information. More recently, Frank Hoffman defined the hybrid threat as, “Any adversary that simultaneously employs a tailored mix of conventional weapons, irregular tactics, terrorism, and criminal behavior in the same time and battle space to obtain their political objectives.” [2].

Russell Glenn analyses the inconsistent usage of the various manifestations of hybrid warfare. In this context, he concludes that even though are many authors who consider “none-too-consistent usage of the term in light of its applicability to the security challenges of today and tomorrow” he argues that hybrid conflict is ultimately a concept whose character is better described in terms of other constructs that offer superior clarity and will be better understood by students of conflict, that the term may serve to educate even if the concept represents nothing new. [3].

The literature regarding the future security environment has not a precise definition of hybrid war. However, all definitions of hybrid war tend to emphasize the blending of regular and irregular approaches to warfare in novel and unexpected ways. Therefore, within the recent strategies designed for planning and conducting of military operations, in opposition with the material approach, based on the use of violence for political ends and founded on the belief that physical or material advantages represent a decisive advantage on the battlefield, a complementary approach is developing, the cognitive approach.

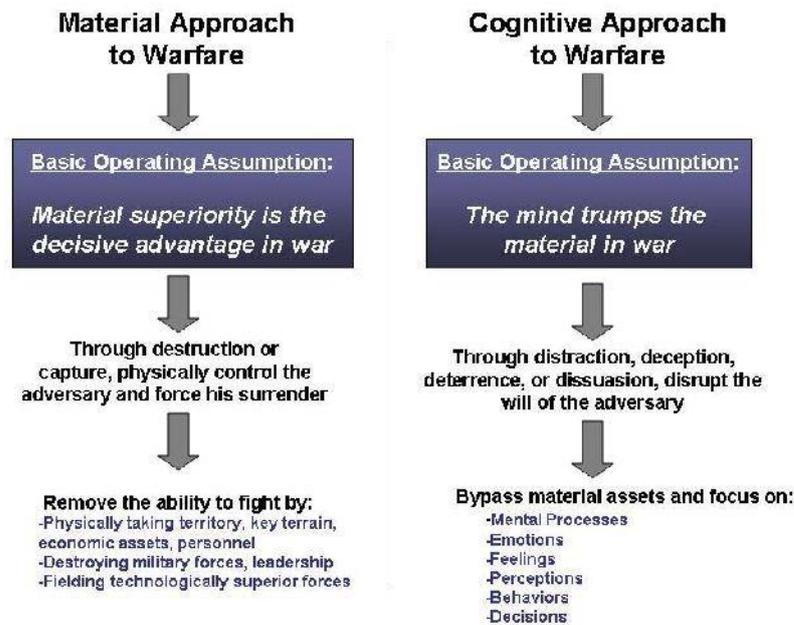


FIG.1. Approaches to Warfare.

Source: D.Sadowski and J. Becker, *Beyond the “Hybrid” Threat: Asserting the Essential Unity of Warfare*, <http://smallwarsjournal.com>

The cognitive approach to warfare is based on the notion that the will of the adversary is central in war. In this approach, belligerents attempt to bypass the material assets of an adversary altogether and focus on the mind, mental processes, emotions, feelings, perceptions, behaviors, and decisions of a person, group, nation, or other community. “By its nature, it is less expensive than the material style of warfare but, to be effective, it also requires a significant level of professional competence, in addition to intangible cultural factors such as social trust, a high degree of discipline, and ideological cohesion.” [4]. According to NATO’s new strategic concept of 2010, hybrid threats are “those posed by adversaries, with the ability to simultaneously employ conventional and non-conventional means adaptively in pursuit of their objectives.” [5].

## 2. COGNITIVE SKILLS TO COPE WITH HYBRID WARFARE

Hybridity of war requests the use of both material and cognitive approaches to warfare, or, with other words, it needs both training and education. As argument for this assumption we use the main ideas and conclusions gathered from a conference organized by Marine Corps Training and Education Command and the United States Naval Academy in 2007 [6], whose paper argued that without a clear understanding of the role of training and education - to regularize the competencies associated with irregular war - all efforts to transform Professional Military Education (PME) to meet new challenges may fail. LtGen Sir John Kiszely (Defence Academy, UK) consider that the educational requirement is far more about teaching officers “*how to think*” than “*what to think.*” He claims that all armed forces need to recognize that grounded on training and doctrine alone as tools for achieving success in post-modern warfare is improper, and that an important factor in the process—more important than in modern warfare—is education. He appreciates the role of education to focus on the development of minds, the development of understanding, wisdom and good judgement and concludes that militaries will need more time for professional military education.

Regarding the role of PME in producing paradigm shifts, Howard Coombs (Queen’s University at Kingston, Canada) stressed the role of cultural and cognitive abilities in the contemporary conflict environments. Gil Ariely (Israeli Defense Forces) proposed that requisite qualities for learning are learnable, and appreciated that the result is an adaptive ability that may act as a catalyst for change, so necessary in very dynamic and volatile environment of the war. This vital ability for military organizational evolution should be pedagogically installed through education of commanders in order to help transform the military to develop real-time adaptive-abilities.

According with David Betz (Department of War Studies, King’s College, London), the skills evoked by irregular war share some interesting characteristics: they are not strictly ‘military’ (or indeed principally military in most instances); they are best learned outside of a uniformly military institution; they are depending on the synthesis of deep knowledge across fields, through an integrated programme of study including aspects of political and military history, strategy, international relations, and area studies. Another retained idea from Betz’s paper is that if change is the new norm then continuous learning throughout one’s career is essential.

From Joseph J. Thomas, director at Lejeune Leadership Institute, Marine Corps University, who is starting from the overall premise that the first step in inculcating a spirit of adaptability is to change the way we teach rather than to simply change what is taught, we retained that a new balance between training and education should be established.

So, an asymmetrical environment calls upon a mind-set not often encountered in entry level training or occupational specialty producing schools. Those environments are organized around the principle that knowledge, skills, and abilities will be provided and assessed. They are *training*. The asymmetric fight does demand thoroughly trained individuals, but recall the axiom “*we train for certainty and educate for uncertainty.*” Education is, in this context, paramount. Speaking on the importance of developing adaptive leaders, he stressed the need of change. “*If the current and future battlefield can be characterized by an uncertain non-uniformed enemy, vague and rapidly changing missions, cultural sensitivity of war-fighters, and a chaotic environment, then leadership development models crafted in times of a certain and predictable enemy, leadership roles, and methods of fighting must be changed*”. [7]

In this regard, there is a large opinion according to that we have to identify and deliver the well-adjusted combination of training and education. Therefore, training is viewed as learning process focused on technical and procedural abilities or standard solutions (certainty) applied by personnel to predictable circumstances, *a familiar problem in a familiar context*. Complementary, on the other hand, education is viewed as process by which we transform the theoretical knowledge of the soldier into cognitive skills such as critical thinking, problem-solving, communication and cross-cultural competence, interpersonal skills and cultural flexibility, tolerance for ambiguity, selfregulation, and social initiative. Shortly speaking, all of these represent skills needed to thrive or adapt to VUCA environments (Volatile - rate of change; Uncertain - lack of predictability; Complex - diversity and chaos; Ambiguous - haziness of reality).

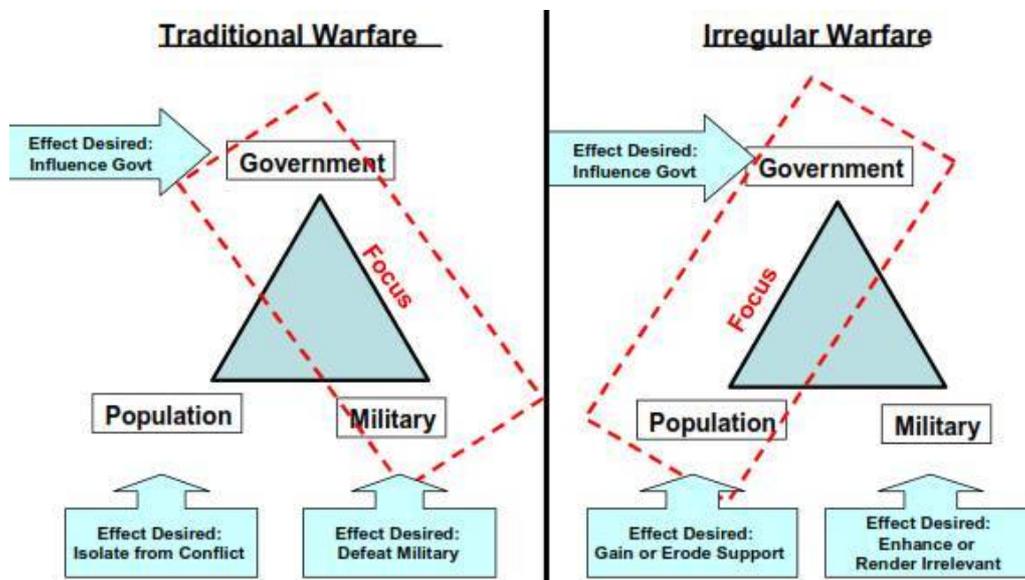
Another presenter at the above mentioned conference, Miriam Weinstein from Israeli Defence Forces Ground Forces Command – Military Psychology Centre, argued that success in the military is not one-dimensional, but consists of different aspects—such as adaptability to the system, combat effectiveness, and suitability for command. In this respect, military action requires distinct qualities for different contexts and the qualities required in training may be different from those in actual fighting, i.e. independence, tolerance to changes, etc. Also, according with Bill Monfries, Head of Education and

Training Systems Branch at Royal Australian Army Educational Corps, the soldiers and military units must be cognitively ready. Cognitive readiness represents the potential of individuals and units to perform well in combat or other military operations, based on an assessment of their mental preparation. In this respect he mentioned the following aspects regarding the cognitive readiness:

- The factors that determine cognitive readiness are associated with not only the traditional cognitive (thinking) factors, but also personality and disposition, motivation and emotion, and beliefs and attitudes.
- Cognitive readiness is a significant concept associated with critical thinking and problem solving for soldiers who must adapt quickly to rapidly emerging, unforeseen challenges.
- In the ordinary course of training, individuals and units must be prepared for tasks that are anticipated for mission success. But the readiness of individuals and units to acquire the additional capabilities required to meet the unexpected, unforeseen challenges associated with the asymmetric battle space is an increasingly vital element of their preparation. Cognitive readiness is a measure of that preparation.

Nick Marano, (Marine Corps Training and Education Command, USA), presented the main paradigm shift between traditional warfare and irregular warfare, the last one being based on the use of indirect, non-conventional methods and means to subvert, erode, and exhaust an adversary rather than defeat him through direct conventional military confrontation.

The figure 2 presents different focus of operations within irregular warfare on the erosion of an adversary's power, influence and will, and gaining the support of the population.



**FIG.2. Differences between traditional warfare and irregular warfare**

Source: Nick Marano, *Building Small Unit Leaders in the Long War*, Marine Corps Training and Education Command

### 3. NEUROSCIENCE AND TECHNOLOGY DEVELOPMENT AS SUPPORT OF COGNITIVE PERFORMANCE AND READINESS

Among military services is observed a very high interest and concern on enhancement of cognitive performance of their own soldiers or reducing performance of an enemy military force's ability to fight by applying different findings of neurosciences or using the development of technologies in order to modify natural human physical and cognitive performance [8].

Cognitive enhancement usually refers to increased mental prowess, for instance, increased problem-solving ability or memory. Such enhancement is usually linked with the use of drugs or sophisticated technology. However, when compared with these means, education seems the most broadly and consistently successful cognitive enhancer of all. Education provides, for instance, access to strategies for abstract thought, such as algebra or logic, which can be applied in solving a vast range of problems and can increase mental flexibility. Literacy and numeracy change the human brain, also enable human beings to perform feats that would not be possible without these cultural tools, including the achievements of science [9]. Sum up, neuroscience researchers from Science Policy Centre, The Royal Society, UK, concluded that education is a powerful form of cognitive enhancement. According to them, findings from neuroscience and cognitive enhancement include the following:

- Education can build up an individual's cognitive reserve and resilience, that is, their adaptive response to stressful and traumatic events and illness, including brain injury, mental disorder, and normal ageing. Cognitive reserve and resilience can be built up at any point during life. Research on cognitive reserve has found an inverse relationship between educational attainment and risk of dementia, which means that keeping the mind active slows cognitive decline and improves cognitive abilities in older adults;

- Physical health, exercise, sleep and nutrition are crucial to physical and mental wellbeing and their effects on cognitive functions are mediated by the brain. For example, neuroscience research on sleep and sleep deprivation can explain some highly specific effects on memory and other mental functions. Both physical and mental exercise are known to benefit older people, for example by acting as protective factors against, and reducing the symptomatic impact of dementia;

- Pharmacological cognitive enhancers, sometimes referred to as *smart drugs*, are typically prescribed to counteract cognitive deficits in diagnosed conditions. But they are increasingly being used *off-licence* in people with normal brain function, along with many other over-the-counter drugs. These smart drugs have been used to overcome jet-lag, reduce the need for sleep, and boost motivation and concentration, by affecting the role of neurotransmitters in certain cognitive processes.

The emerging field of educational neuroscience presents opportunities as well as challenges for education. It provides means to develop a common language and bridge the gulf between educators, psychologists and neuroscientists. Therefore, some recommendations given by the experts are as follows:

- Neuroscience should be used as a tool in educational policy. Neuroscience evidence should inform the assessment of different education policy options and their impacts where available and relevant. Neuroscience evidence should also be considered in diverse policy areas such as health and employment. Stronger links within the research community and between researchers and the education system are needed in order to improve understanding of the implications of neuroscience for education.

- Findings from neuroscience that characterise different learning processes can support and enhance teachers' own experiences of how individuals learn. These findings can be used to inform alternative teaching approaches for learners of different abilities.

- Neuroscience can make valuable contributions to the development of adaptive technologies for learning. New educational technologies provide opportunities for personalised learning that our education system cannot otherwise afford.

However, new findings and knowledge from neuroscience suggests a number of potential military applications [9]. These can be divided into two main goals:

- performance enhancement, i.e. improving the efficiency of one's own forces;
- performance degradation, i.e. diminishing the performance of one's enemy.

There are several areas in which advances in neuroscience might confer performance advantages in a military context, namely recruitment, training, operational performance and rehabilitation. Throughout history the military's need for technical innovation has proved a powerful stimulus for scientific research. According with the new findings, with advances in neuroscience and our increased understanding of the brain, potential military applications for the enhancement of personnel have never been so prominent.

## CONCLUSIONS

Among specialists on the national security policy, there is a relatively new debate on the nature of future threats and, related to it, on the capabilities that will be required to maintain competitive military forces.

The ability to achieve balance between material and cognitive approaches to warfighting is both the essence of the future threat, as well as part of the struggle to build a force that is *adaptive* in organizational design, capabilities development, and campaign design and execution.

Applying the existing NATO doctrines and directives against hybrid threats / challenges is particularly difficult, because in the most cases the multi-layered hybrid tactics are designed to stay below NATO's response threshold. Additionally the hybrid adversary is very flexible and adapts quickly to the changing conditions. In response to the conflict in Ukraine, on the Wales Summit NATO has decided to take on an ambitious task: developing a set of tools to deter and defend against adversaries waging hybrid warfare. During the NATO Foreign Ministers Conference in May 2015 (Turkey) NATO and EU decided to intensify co-operation against hybrid warfare.

I have argued that to move beyond the realm of hybrid wars and threats, it is necessary to examine the present context of pedagogies concerned with military training and education. Failure to address these hybrid aspects of pedagogy can lead to the assumption that educational solutions to contemporary battlefield problems are to be found the addition of more science based military training and education for adaptability to VUCA environments.

Even the most progressive of current curricula approaches requires reflection on pedagogy in terms of questions of theory and educational practice. I have argued that new kind of threats or hybrid wars offer openings for rethinking military education through hybrid pedagogies, but are limited due to the idea that mentality changes have to start from military decision makers, an assumption that should set *education* in advance of particular *training* related to predictable circumstances or contexts. This is not a plea to an absolute solution; it is also a mistake to accord privilege to one or another forms of military grounding, education or training, to traditional or to irregular approach of warfare.

Finally, I have tried to suggest that new pedagogies have to be well-balanced between preparing for both traditional and irregular military actions, to stress more on critical thinking, problem-solving, communication and cross-cultural competence, interpersonal skills and cultural flexibility, tolerance for ambiguity and needed changes, selfregulation, and social initiative and to avoid promotion of obedience and non-rational compliance by education among future military professionals.

The article reveals concerns arising at least ten years ago among foreign military specialists and scholars on the new or hybrid pedagogies with a clear intention or hope that similar efforts would be made by the Romanian military pedagogy in order to find adequate educational solutions for the development of cognitive skills to ensure a cognitive readiness of the military personnel.

**Disclaimer;** Any opinions, findings, conclusions, or recommendations expressed in this paper are those of the author and do not reflect the view of the organization.

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