FRENCH AND US ARMY'S DILEMMA BETWEEN ATHENA AND ARES: KEEP A SENSE OF HUMANITY IN A TECHNOLOGICAL WARFARE?

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The United States and French Armies have experienced a decade of war. The operations turned from a technology driven target process to a human approach in counter-insurgency fighting. In both approaches, these armies deployed in operations many assets enabling operators to fight from a stand-off position, perceiving the enemies through many sensors. These technologies could modify the relationships between soldiers and their adversaries and be a potential transition to an era during which western fighters could get impunity in combat.

In fact, these armies look for fielding ground unmanned assets and lethal autonomous robots in a distant future. Thus, this thesis tries to analyze the possible trends of the French and US Armies' current perception of their enemies on the ground. To answer this question, a survey and two interviews emphasize the possible effects of virtuality on the battlefield, of simulation in training as well as video gaming. The study also defines how soldiers learn from their enemies, understand them and evaluate the ethical consequences of this future change.

Lastly, considering current military education, this paper formulates some potential lessons which could be inserted in officers school's curriculum in order to prepare future Army leaders to deal with these innovations.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

FRENCH AND US ARMY'S DILEMNA BETWEEN ATHENA AND ARES: KEEP A SENSE OF HUMANITY IN A TECHNOLOGICAL WARFARE, by Lieutenant Colonel Etienne Krier, 128 pages

The United States and French Armies have experienced a decade of war. The operations turned from a technology driven target process to a human approach in counter-insurgency fighting. In both approaches, these armies deployed in operations many assets enabling operators to fight from a stand-off position, perceiving the enemies through many sensors. These technologies could modify the relationships between soldiers and their adversaries and be a potential transition to an era during which western fighters could get impunity in combat.

In fact, these armies look for fielding ground unmanned assets and lethal autonomous robots in a distant future. Thus, this thesis tries to analyze the possible trends of the French and US Armies' current perception of their enemies on the ground. To answer this question, a survey and two interviews emphasize the possible effects of virtuality on the battlefield, of simulation in training as well as video gaming. The study also defines how soldiers learn from their enemies, understand them and evaluate the ethical consequences of this future change.

Lastly, considering current military education, this paper formulates some potential lessons which could be inserted in officers school's curriculum in order to prepare future Army leaders to deal with these innovations.

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It was during a night of 2009, in Afghanistan when I was crew chief of a MEDEVAC helicopter that I first reflected on my perception of our enemies. I was picking up a young wounded girl and her family in a village when at the same time, a helicopter Tiger was firing on insurgents to protect my Landing Zone. These combatants had family ties with this girl. I could read the fear on her father's face through my night vision goggles and the infra-red camera. I was wondering how these enemies considered us: ghosts, robots, evils. . . . I searched then reading about Ethics to try to find an answer to this question.

When I started this thesis, I was not really sure of what I was looking for. Thus, my Committee deserves to be individually acknowledged as they kept me on track for this project. Chaplain Wead for his advice on ethics, M. McMillin for his kind guidance in order to respect timing, M. Snider for his constant support during the year. However, I certainly owe the completion of this thesis to M. Carmichael, not only because of his invaluable technical help, but mostly for his daily example as my "never give-up" man. The discussions with him were useful guidelines, even if all the conclusions within this paper are my views and not the one of the French or US Department of Defense.

I also thank the French society SECURYMIND for the publication and the authorization to quote a thesis dealing with the relationship between Human beings and robots. I am also deeply grateful to French Général Benoît Royal and Colonel Marc de Fritsch for their time and answers to questions related to this study.

This work, in addition to an exceptional year in CGSC really helps me to grow as an officer, a possible future leader but surely as a man who could experience combat again.

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ACRONYMS

AO	Area of Operation
CGSOC	Command and General Staff Officer Course
COIN	Counter Insurgency
FCS	Future Combat System
GWOT	Global War on Terrorism
ILE	Intermediate Level of Education
PTSD	Post Traumatic Stress Disorder
UGV	Unmanned Ground Vehicle

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CHAPTER 1

INTRODUCTION

In 2014, Secretary of Defense Chuck Hagel announced an important reduction in the size of the United Stated (US) Army to strength levels that would make it the smallest ground force the US has maintained since World War II. Nevertheless, this force is supposed to remain just as agile, trained, capable and modern as the Army is today. Priority of budget expenditures is to remain focused on the Army maintaining the ability to achieve a technological advantage over any possible adversaries and-or enemies. The threat, in whatever form we might face, as defined in the American Strategic and Defense Security Review, or in the French Livre Blanc, is far from being as clearly defined as it was during the Cold War Era. The result is the Army is now faced with operating in real uncertainty and ambiguity. But a quick overview of recent French and US operations in Libya, Afghanistan, Mali and Iraq offers a different perspective on the role given to their armies on the battlefield. While the Army has been a key player and had a major role in counter-insurgency (COIN) operations in Afghanistan, it has only played a limited role in the NATO led victory in Libya during Operation Unified Protector in 2011. French attack helicopters played a key role in the destruction of many of colonel Qaddafi forces. Qaddafi's forces and his regime were defeated so quickly, many Western societies were left with the false perception that the ability to defeat an enemy only through an air campaign is a viable way to handle future conflicts and-or threats. It is viewed advantageously because it avoids the necessity of putting US and French "boots on the ground." Some specialists on Defense matters in France predict that the will of Western societies will be to keep their technological advantage in warfare to avoid using forces

wherever and whenever possible. But, with societies more risk adverse, they will provide these resources to supported insurgents or ground forces. The idea would be to avoid society's inversion of support like happened in France after the uprising of an Insider Threat against their forces. It will lead to the Army withdrawal of Afghanistan. Surprisingly though, French societal opinion supported the governments military intervention in Mali just a few months later.

Thus, the role of the French and US Army will be very difficult to define in the next few years. Presently, it is very complicated to assess what the level of support, as well as the size of the ground forces, would be if committed to another operation like in Afghanistan. Current thinking and ensuing decisions by leaders in regard to their armies, in both France and the United States, are to maintain a sizeable force, but with a robust upgrade of all technological systems and weaponry.

While the role of the Army in future conflicts is difficult to predict, the one element tends to remain constant is that on the battlefield soldiers from western countries respect their enemies in agreement with the laws of war and ethics established by the 1949 Geneva Conventions prescribing acceptable battlefield behaviors. Most of the time, our soldiers respect not only the letter, but the spirit of these rules. They treat terrorists or insurgents the same way they would a conventional opponents. Any dereliction of this duty is severely punished as it was for the U.S. soldiers and leaders involved with the Abou Ghraib incident in Iraq or French soldiers on a peacekeeping mission to the Ivory Coast involved with the killing of Firmin Mahe a known Ivorian Bandit.

Western societies pay close attention to the ethical education and training of their soldiers due to the requirement of maintaining the legitimacy of an operation. Many of these rules simply result in the preservation of a sense of humanity in warfare.

But the pace of technological development on the battlefield is slowly changing how soldiers interact with their enemies. In the recent years, the United States government has greatly expanded the use of drones. Today they utilize them to strike insurgents on the battlefield within an area of operations, but after realizing their high success rate and efficiency, government leaders extended their use to attacking insurgents (targets) well outside of the customary AO. One of the biggest advantages the use of drones affords is the large stand-off distance or range it provides between the enemy (target) and the operator of the system who serves as both a sensor and shooter. Armies have always sought advantages in stand-off, but heretofore have been limited by technology. Either the sensor or the shooter, which were normally separate entities, or both, were always operating within range of the effects of the enemies weapon systems and-or capabilities. Sensors, for example a forward observer team, due to the requirement when delivering high explosive ordnance is to have "eyes on the target" for control (prevent fratricide, determine battle damage assessment, etc.,) always operate within range of the enemies weapon systems and capabilities. Unlike the sensor, the shooter or operator of the weapon system may or may not be within range of the enemy's weapons systems or effects depending on the type of weapon being used. For example, mortars, usually operating within the enemy's range, versus field artillery, which may or may not depending on the caliber, versus naval gunfire support which operates outside of the enemies' impact. So seeking this advantage is not something that is new per se, but

operating with both the sensor and the shooter being completely out of range of the enemy's systems, especially when it is a continent away for the battlefield, this is a new phenomenon of which we are yet to fully grasp all the implications.

The object of this essay is precisely that, to study the potential impact of these new technologies on how we perceive the enemy in both the French and American Army.

Research Questions

How can French and American Soldiers, from the field grade officer level to the lowest enlisted ranks, maintain any sense of humanity toward their future enemies and-or adversaries while waging warfare when they will be isolated from them due to the world's continuous technological advancements allowing for greater stand-off than ever before from all the killing in battle?

Secondary Questions

S1: Does the current trend of our armies Soldiers using advanced technological weapon systems and equipment, allowing greater stand-off than ever before in the history of warfare, through the use of an assortment of different sensors and screens to locate, monitor, track, engage and-or kill our enemies (adversaries) alter our perception of reality to where we modify or no longer harbor any humane considerations whatsoever toward the enemy?

S2: What can our armies do, with respect to training and education, to help both our Soldiers and their leaders to adapt to this changing phenomenon, without losing their sense of humanity and the human aspects of war, while preparing them for the advent of robotization on the battlefield which will further serve to insulate our forces?

Definition of terms

Current way of warfare: The study will analyze the way the French and American Armies fought the wars in Afghanistan, Mali, Libya and Horn of Africa. Like many western countries, these two Nations place great stress on keeping and maintaining the initiative by gaining supremacy with armed forces being better equipped than their opponents. Recent military operations have underscored the importance the use of technology plays from the strategic level down to the common soldier on the field of battle. To understand, visualize, describe and direct operations, these forces utilized and relied more and more on interfaces like advanced technological systems capable of instantly sharing information through various types of optical screens and linked to non-human sensors. The goal of both armies, whenever and wherever possible, would be to limit the exposure of combat units to high risks on the battlefield and in particular the destruction that can be caused by air or unmanned aerial and-or ground assets. Nevertheless, in a stability environment, the ground combat forces maintain a key role as only they can directly interact with the population.[1]

The robot, particularly the ground robot, presently constitutes more of an appendix to the soldier's eye and arm, since it is not capable of autonomous decision-making, than an independent attack system. Recent combat operations conducted in Afghanistan clearly demonstrate this point. Despite the growing number of robots deployed by military forces in the Afghan theater, the role of the soldier and the fundamental characteristics of warfare continue to prevail despite the growing use of remote-control devices.[2]

Different taking away of soldiers on the battlefield: Caroline Galactéros-Luchtenberg, a seminar director in the French War College, defines three different removing of soldiers from the battlefield.[3] The first one is the increasing distance between a high technology equipped soldiers and the target. The second is a taking away from the different cultures he faced, resulting from the priority given to a coalition approach in which they are engaged. The third and last one is an increasing distance with his Nation that does not consider him as a hero anymore (mainly in France). Technology triumph and marginal human place in the armed forces turned into common place the military specificity.

Dilemma between Athena and Ares: In the Greek philosophy, Ares was the God of War and Athena the Goddess of the same realm. Nevertheless, whereas Ares who enjoyed the destructive aspect of the battlefield with much bloodshed, Athena was looking for a wise use of violence in warfare. Even if highly skilled in combat, she preferred peaceful resolution of conflicts with always a strategic vision and planning process.

The dilemma for the French and US Armies between Ares and Athena with technological warfare means a choice to do whether the additional technologies add chaos in combat or if they ease conflict's resolution or prevention. It also implies a dilemma concerning the fielding of these technologies. Athena would study all the ethical consequences of such a choice, whereas Ares would act first and deal with the consequences after.

Enemy: This notion of what we think of when we conjure up the enemy is a core element of this study. The enemy will be defined in chapter 2 and will describe the

differences between adversaries, opponents, insurgents, terrorists, and different theoretical approach of the enemy.

When presenting an enemy, the military forces will try to define its contour; it means the main features which defines its existence and ability to act. It can be the social roots, the chain of command, its resources, its center of gravity, its critical requirements and vulnerabilities.

Frantic technological world: As predicted by Gordon Moore[4] in 1964, the number of computers circuit components has doubled every two years. The capacities of data processing follow an exponential increase. Computers are but only a restricted example of the many new developments in a digitalized world. Military forces have closely followed this pace and at times have even initiated or been the catalyst behind some of the new inventions like the Global Positioning System or GPS. Developing superior technologies had always been a specificity of Western countries throughout history. Today, a globalized world is following the pace of these new developments.

On a ground perspective, if the objective of fielding one third of the US Army ground vehicles with unmanned assets in 2015[5] won't be respected with the end of the Future Combat System, the research and development processes are still going on.

Human approach: According to their doctrine, soldiers are the "core" of both the French and US Armies. The soldier can be defined as a human system. Important decisions that must be made during combat situations, always require a human or soldier in the loop–usually the leader. Aside from a few rare exceptions, the decisions made in combat cannot follow a defined or predetermined check-list because of current inability to account for all the various elements on the battlefield that might play into a process.

Most of the time, our Armies and their soldiers are exposed to grey areas, where much doubt exists. But in each of these key decisions, there are a men and women taking the decisions and mostly the responsibility of friendly actions. The complexity of war in a Clausewitzian approach cannot be solved by machine in the next few years. Nevertheless, the Transformation of US forces during the last decade, with an important emphasis on the technology of information could lead to a change in the human approach on warfare.

Robotization: It is impossible to find a single standard definition of military robots. Thus, this thesis will use the definition provided on a study published by the French military academy research center.[6] A military robot is most frequently defined as a system:

1. Possessing capacities of perception, communication, decision making, and action.
2. Supervised by human combatants or acting autonomously according to preset behavioral rules.
3. Capable of improving its own performance through automatic learning.

Mark Hagerott, Captain (Ret) US Navy and currently professor in the US Naval Academy is a specialist of the Cyber-Robotic Revolution. He offers also an adequate model of the level of robots integration in warfare.[7] He defines three different realms describing the level of integration of robots in military affairs:

1. the Social-Human Realm where social factors and values precedes. It means that robots only help human soldiers in their tasks;

2. the integrated Realm where human and machine action are integrated. It means that a specific mission is subdivided into different tasks shared between operators and machine;

3. the machine Realm where human are not present or have very limited access. The cyber world is a good example of such a realm.

A potential incentive to build and use lethal autonomous robots for Western countries could be the protection of the access to global commons and maintain a superior power on adversaries. The advantage of having no moral inhibition in the machine realm would not be a drawback if the machine can really avoid affecting non-combatants.

Nevertheless, concerning the strategic environment in the use of robots, the armed forces of countries other than the United States seems somewhat reluctant to embark on massive battlefield robotization programs.[8]

Sense of humanity: From a military perspective, it is the ability to first respect human dignity, but not only through the respect of international laws (such as Geneva Convention, Humanitarian assistance). As mentioned by a French searcher Henri Hude, "human dignity is not a peaceful legacy to be enjoyed. For each of us it is a responsibility, a question, a burden and a struggle."[9] The sense of humanity is also demonstrated by the use of the only required force and constant worry of limiting any collateral effects of our actions. Overall, it is the way to not apply to an enemy any unnecessary suffering that the soldier would not accept to be experienced by his own forces and-or society.

Significance

Both France and the United States are drastically reducing their defense budgets and spending from what is has been in the recent decades. In both countries, the public mood changed and now there is more emphasis clearly on each country maintaining more of a technological-industrial military base by supporting research and development and material acquisition of systems that reduce the need for large amounts of forces. The Air Forces and Navy clearly support this new shift in policy since it conforms to the strategy they have always relied upon to prepare for warfare–enhanced technology. It is the opposite for both French and US Armies. Thus, there is a significant potential risk to both Armies by turning their focus from conducting combat where soldiers are deployed among the host nation population[10] to gather information and fight versus using stand-off, highly technologically advanced assets instead. Without having any real human contact with locals or even our enemies how will that impact the way soldiers wage warfare? What will be the ethical impact of this new reliance on technology? Development of these new technological assets has growing support, like some of the current unmanned ground vehicles and in the future robots, which will allow both Armies to maintain part of their existing budgets. As stated by French journalist Caroline Picquet, current developments in the US make no doubt of Army interest for robots.[11]

Moreover, an opposition is growing up against the development and use of lethal robots. On 30 May 2013, UN special rapporteur on extra-judicial, summary or arbitrary executions, Christof Heyns submitted a report to UN general assembly[12] describing current legal problems raised by use of UAVs. In an interview,[13] he requested a moratorium on use of lethal autonomous robots and to stop current productions of such

assets due to ethical problems. He recommends building a framework for use of such weapons in accordance with International Human Rights.

As the main issue raised by this report is the human consideration for drone targets, this study tries to detect if current use of stand-off assets like AH64 and additional technologies to perceive reality modifies the relationship with the enemies. In addition, it will try to find some solutions for the Army to justify new developments of lethal robots.

Assumptions

The main assumption of this study is that French and the United States Armies will continue to support development of ground new technologies in order to defend their reduced budgets. The second assumption is that, in absence of a major perceptible threat against their countries, their societies will remain in a mindset to be friendly losses adverse. Even with a constant globalized terrorist threat, these two country population will support only short duration operations and react excessively like in the US for Operation RESTORE HOPE in Somalia (1993) for the US forces or Operation ISAF in Afghanistan (2010) for French forces. The third and last assumption is that military technological development will reproduce civilian one. It is difficult to believe that interest in development of robots in Japan could not lead at least to research in dual technologies.

Delimitations

The subject of this study concerns more than just the French and American Armies. Nevertheless, the study will be limited to these two countries for easiness to

access the information and for time available to conduct a larger development. The current paper will not try to give any judgment on the way this two Armies fought their recent wars. The goal is to objectively identify some of the major trends resulting from the use of these technologies and emphasize the impacts they are having on the perception of our enemies. Finally, to potentially offer some suggestions for mitigating some of the future risks from using this technology in warfare. In fact, the study will try to underline ethical and psychological issues that both Armies can expect to encounter at the tactical and strategic level.

Limitations

The subject is also sensitive as some operational lessons learned or issues related to the current development of these advanced technologies are classified. Only recent operations like Afghanistan (Operation Enduring Freedom, ISAF), Iraq (Operation Iraqi Freedom), Mali (Operation Sabre and Serval), mainly in a counter-insurgency context, will be included in the study. The only exception is the crisis in Libya during which the only conventional Army elements involved were attack helicopters. The psychological effects of detachment in combat created by the use of drones operated at such great distances from the battlefield will be part of the study. In fact, Air Force pilots are pioneers in this new way of conducting warfare and analysis of their lessons learned should help future development of such technologies in the Army.

Thesis Statement

Current generation of French and US Armies soldiers maintain a high sense of humanity toward the enemies they fought due to their counter-insurgency combat

experience. Nevertheless, some branches in these Armies fields highly technological weapons systems, placing their soldiers in a physical or psychological stand-off position from the battlefield. Combined with more training simulation, an increasing use of video gaming and a constant instability in the operational environment, this trend can lead to a diminishing empathy for these Nations' enemies, along with a lack of understanding. Thus, this generation of Army soldier faces the dilemma of embracing additional technologies on the battlefield, the Western way of war advantage, but also without cutting the human relationship between foes during a conflict. If on one hand, Western Defense industries continue technological improvements for armed unmanned ground assets and potentially killer robots, on the other hand, the debate about their fielding is not mature in French and US Armies. The ethical consequences the juridical framework to use such technologies, has not yet been defined. Therefore, at least Army's staff College should prepare their officers to these new challenges and use the lessons learned from the US Air force in its combat drones' use.

Conclusion

This study will try to define the consequences of "technologisation" and robotization in modern warfare. Soldiers, like civilians, more and more are beginning to perceive their enemies as target sets. Our notion of enemy is not clear because of the complexity we now find in the world today with respect to the way current terrorist groups, insurgents, drug cartels and other criminal organizations interact with one another coupled with the sophistication of how they all operate. The literature review will first define the different definitions of our enemies that currently exist, highlighting the different perceptions that a soldier may hold. After defining the enemy, the research will

transition to studying the impact that new technologies and robitization are having on our military structures, our doctrine, and equally if not more important with the new challenges our Armies now face, exactly how we will train to fight. The methodology, mainly qualitative, will be explained in chapter 3.

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[1]Department of the Army, Army Doctrine Reference Publication (ADRP) 3-07, *Stability* (Washington, DC: Government Printing Office, August 2012).

[2]Didier Danet and Jean-Paul Hanon, "Digitization and Robotization of the Battlefield: Evolution or Robolution?" In *Robots on the Battlefield: Contemporary Perspectives and Implications for the Future*, ed. Gérard de Boisboissel, Jean-Paul Hanon, Didier Danet, and Ronan Doaré (Fort Leavenworth, KS: Combat Studies Institute Press, 2013), xvii.

[3]Caroline Galactéros, "Soldat augmenté, victoire fragilisée," *Medium* 35 (February 2013): 17.

[4]Gordon Earl Moore, American businessman and co-founder and Chairman Emeritus of Intel Corporation.

[5]Department of the Army, *Robotics Strategy White Paper* (Fort Monroe VA: Government Printing Office, 19 March 2009), 8.

[6]Gérard de Boisboissel, Jean-Paul Hanon, Didier Danet, and Ronan Doaré, *Robots on the Battlefield: Contemporary Perspectives and Implications for the Future* (Fort Leavenworth, KS: Combat Studies Institute Press, 2013), xvii.

[7]Mark Hagerott, "Robots, Cyber, History and War," in *Robots on the Battlefield: Contemporary Perspectives and Implications for the Future*, ed. Gérard de Boisboissel, Jean-Paul Hanon, Didier Danet, and Ronan Doaré (Fort Leavenworth, KS: Combat Studies Institute Press, 2013), 22.

[8]Danet and Hanon, "Digitization and Robotization of the Battlefield," xix.

[9]Benoit Royal, *L'Ethique du soldat francais, la conviction d'humanité* [The Ethical Challenges of the Soldier: The French Experience] (Paris: Economica, 2012), 49.

[10]Gen Rupert Smith, *The Utility of Force, the Art of War in the Modern World* (New-York: Alfred A. Knopf, 2007).

[11]For example, Northrup Grumman develops the robot CaMEL, able to support by fire a platton in contact. Caroline Picquet, *des robots tueurs devraient apparaitre d'ici*

cinq ans sur les champs de bataille, slate.fr, October 2013, http://www.slate.fr/life/79158/robots-tueurs-guerre-arm%C3%A9e (accessed 8 March 2014).

[12]UN General Assembly, Report of the Special Rapporteur on Extrajudicial Summary or Arbitrary Executions A/68/382 (New-York: United Nations, 13 September 2013).

[13]Christof Heyns, *Robots Decide Whom to Kill*, slate.fr, June 2013, http://www.slate.fr/life/73273/robots-tueurs (accessed 8 March 2013).

CHAPTER 2

LITERATURE REVIEW

The literature is really abundant in regard to the definition of the notion of enemy. In fact, since the days of the Roman Empire, the ability to describe an enemy was key to federating forces and to gaining the population's support. Since 1648 and the Westphalia Treaty, the enemy has generally been easy to recognize as they were most often represented by a distinct Nation. This understanding of who our enemy or adversary was survived up until World War II. Events dating back to the Chinese Revolutionary War coupled most recently with the 21st Century advent of Globalization have largely modified this perception.

In parallel of this major change in the concept of enemies, Western countries have maintained a high pace for technological developments within their military forces. There is currently a major interest in France on robotization, or the technological development or robots in general, along with the potential for using them on the battlefield in lieu of soldiers. In particular, one French study details in depth the ethical, doctrinal, organizational challenges in development of drones and robots. This study also identifies current problems encountered by armed drone pilots, how operating a system so removed from their enemy or adversary alters their perception of reality, and classifies some of the consequences these soldiers suffer as Post Traumatic Stress Disorder (PTSD). A second study underscores all the challenges of robotization on the battlefield and attempts to define the main implications of their future employment. This study, conducted through the Saint-Cyr French Military Academy Research Center, contains a number of articles

which are written in an Army perspective making most of the conclusions very relevant for this essay.

Last, it is difficult to find any researches really defining the current impact of the many sensors employed on the battlefield to fully understand and visualize the reality of their impact. There are many technical reports that address how to improve the interface between the human-machine but very rarely were there any studies with an ethical focus on this thesis and research questions.

This chapter will then present first the different aspect of what a society commonly designates as an enemy. In a second part, the consequences of the use of more stand-off combat assets and robots. Lastly, it presents the current developments in ground robotics.

Definition of the Enemy

In order to adequately determine the extent to which the perception of the enemy is currently being modified, if at all, by additional stand-off technologies, it is important to define the various aspects of this notion of enemy.

The enemy is necessary to form a Nation. Carl Schmitt[1] emphasizes that it is the role of the State to designate its enemies. From his point of view, he would argue that designating an enemy is necessary to build a Nation because any community is able to emerge in a unique positive perspective. For example, each year both France and the United States publish their annual strategic defense and security reviews based on analysis from an untold number of government agencies and organizations. While these assessments might be criticized, due to the context in which they were written, it is

impossible to deny that each country continues to define in their respective documents what kind of threats can potentially adversely affect their societies.

The enemy has various aspects (adversary, opponent, antagonist). Pascal Gauchon and Jean-marc Huissoud[2] provide a simple framework to understand this notion of enemy. First, the enemy is the "other" that every speech will try to depreciate, to exteriorize, to describe him as a barbarian and to dehumanize him. The enemy is also an adversary, which means that he is on another side (border, line, legality,). He can also be the antagonist, which means that he constitutes the entity against which we evaluate our own strengths. For these two authors, our enemies used to be our neighbors in the past, but the globalization of conflicts and interests imply now that unidentified enemies or more of a hybrid threat[3] prevail. Lastly, the enemy is mainly a "game" of perceptions, but one which can be modified, usually over time. For example, France and Germany who were profound enemies seventy years ago, are now friendly competitors.

We create the enemy we need. Pierre Conesa,[4] a former member of the French Strategic Thought Board in the Department of Defense emphasizes how western societies are able to shape the perception of their enemies.

The enemy is first an ideological construction. For the US, our foe was often a comparable enemy, a worldwide rival such as the former Soviet Union. Today, two main trends appear: a conceptual enemy with the global war on terrorism, commonly referred to as GWOT, and the media enemy which results from the western "culture of fear." People want to be informed of what is occurring around the world, but expect to maintain a safe and secure environment in their own homeland, on their own soil. Thus, Western societies want to maintain a safe haven at any cost. Quoting Dominique Moisi, he

outlines what he calls or refers to as the new culture of fear risen within Western societies creating roots into a real anxiety market. The anxiety is caused by the constant threats societies face in today's world, along with the fear of instability associated with these threats. Therefore, their goals are that these type threats must be, if at all possible, barred from their countries and engaged outside of the limits of Western societies. Within these countries, as a result of this culture of fear many societies advocating for individual protections for all their citizenry, civilian and military, have been created. The key point of these societies is their fear of death. Death has become a real taboo subject to the point that many Western societies have evicted this notion from their daily environment. For example, cemeteries have been placed out of sight of certain cities.

Military culture influences the actions against the enemy. From a military perspective, he outlines the differences in the "Warrior Ethos" against this notion of enemy between French and American soldiers. For instance, the US Soldier's Creed states, "I stand ready to deploy, engage, and destroy the enemies of the United States of America in close combat. I'm a guardian of freedom and the American way of life." The French soldier's version states, "Controlling his combat power, the soldier respects his adversary and sees to spare population. He obeys the orders in respect of laws and customs of war and international conventions." This comparison suggests a different perception of the enemy between the two allies, one which this study will try to go in depth to explore, analyze and describe.

The understanding and perception of the enemy is largely the result of the media's construction. Media groups influence the perception of public opinion and have demonstrated that they can support the idea of conducting a war. A good example is

Operation Desert Storm which was completely legitimized by the unprovoked invasion of the sovereign State of Kuwait by Iraq. World media even covered a false story of Iraqi forces having killed babies in a Kuwaiti hospital to further alienate people toward Iraq and strengthen the hostile, negative public perception of Saddam Hussein. This change occurred very quickly and ironically after many long years of the Iraqi regime benefitting from the support of many Western countries in its war against Iran. This clearly shows how information operations are an important element to consider in the Army Military Decision Making Process when planning for an operation. The description of what occurs in the theater of operation can not only influence domestic opinion, but also the opinions of the soldiers who are deployed. What is at stake is less the strategic success than it is the political victory that can be drastically influenced by the media coverage. As Operation Desert Storm was finishing, journalists quickly turned public opinion of the coalition success by describing the coalition's lethal air strikes against fleeing Iraqi Army elements from Kuwait back toward Iraq as being strikes directed against a flow of poor refugees and disbanded Iraqi troops dubbing it a "Highway of Death."

The enemy can choose the ideological protection of a victim status. In many European societies, the "victim" status has more influence than the war hero. Therefore, by manipulating the use of the media, the difference between enemies and victims can sometimes be very difficult to determine. So, the notion of an enemy from the media's vantage point can really fluctuate and this particular enemy is not always perceived as a real strategic threat to Western societies. An example is, there are some groups linked with Al Qaeda terrorist groups operating in Yemen who do not hesitate to present themselves as the poor victims of US illegal targeting with drones. If their message is

adequately carried by some important media outlet, it can totally hide their malicious intent and actions directed against Western interests.

French and US Army currently have no enemies per se, but instead, only deal with threats. Neither the current French, "Livre Blanc," and the US "Strategic and Defense Security Review," define any enemies, but instead only threats in the world. Designating potential adversaries as an enemy allows for the use of "hard power" as a diplomatic way for dealing with it which could escalate in a violent reaction from one of their adversaries. However, instead of labeling them as an enemy and only defining adversaries as a broad threat avoids stigmatization. For example, the US current strategic rebalance is toward the Asian Pacific Theater, but never does the US define one major power in this hemisphere as an enemy. Zbigniew Brzezinski outlined that the most important thing today is not the enemy, but the upholding of supremacy by managing new emergent powers.

The vacuum of humanitarian status for irregular fighters and insurgents. The notion of enemy is present in International Laws governing how nations wage war. Under current law, the presence of irregular fighters on the battlefield and-or civilians in uniforms are denied any protection under the Geneva Convention Rules if they are not members of a State.

This last point could become more crucial in the next few years in France. In fact, the resort to legal actions over soldiers death in military operations is still a relatively new phenomenon, but one that is gaining traction. In August 2008, a successful ambush against a French company in the Uzbeen Valley close to Kabul, Afghanistan led to the death of nine soldiers. After this event, seven of the nine soldier's families filed a

complaint against the French military hierarchy claiming the deaths were a result of negligence in the chain of command. As a result, an examining magistrate has categorized the case as involuntary homicide. The verdict has not yet been published, but this intrusion of common laws into an armed conflict could create immense future difficulties in regard to the legal status of French opponents on the battlefield. The use of lethal force is directly a consequence of this characterization. Admiral Edouard Guillaud, French Chairman of the Chief of Staff, has qualified this new phenomenon of "judiciarisation"[5] as his first matter of vigilance in order to maintain the operational efficiency of the French Armed Forces.

In his conclusion, Pierre Conesa suggests that the causes of each conflict could be reduced if political leaders agreed to give up the political capital that a belligerent narrative can bring.

So what is the Impact of all of this on the Perception of the Enemy by Current French and US Army Soldiers

Both Armies have been committed to combat in counter-insurgencies operations or COIN for almost a decade.

The Contour of the Enemy was Difficult to Visualize

The enemy was considered more of as a terrorist threat by their own societies rather than a traditional insurgent. So, a major problem from the outset for our forces was attempting to understand who and exactly what the Host Nation Forces were fighting in their country. In Afghanistan, prior to 2005, since some of the international fighters the Taliban had recruited were actually linked with deadly terrorist groups, soldiers

employing the Targeting Process made few distinctions between Taliban, foreign fighters, and-or local insurgents.

A First Perception of the Enemy Largely Influenced by the Media

Aside from those military personnel working in the intelligence world, most soldiers' perception of their future or current enemies during a deployment was acquired through the presentation made each day in the news. Since many of the Western countries media outlets cover mainly sensational news events such as terrorist attacks or asymmetric fights, to the casual observer their understanding of the operational environment is almost biased.

Restricted Time to Understand its Opponents

In France, as well in the United States, the professional Army is built in a way to intentionally maintain a certain amount of youth among the troops. Youth helps provide a certain level of vivacity in fighting. Along with this youthfulness, it also brings into the force the influences of civilian society on each generation. Our current Armies are full of young soldiers born in the 1990s. Since their birth, they have grown accustomed to a constant change similar to TV zapping in both their professional and private lives. So, this generations soldiers do not spend much times trying to figure out or better understand the operational environment in which they are placed. Moreover, due to the wide variety of operations they have been involved with over recent years, nothing has influenced them to modify and-or change this kind of habit. Nevertheless this phenomenon can be mitigated in the near future by the French Army due to its decision to maintain forward

bases overseas (mostly in Africa) and US Army's recent concept of "Regional Alignment" which calls for aligning its subordinate brigade combat teams (BCTs) and others with specific geographical combatant commands.

A Generation of Soldiers Trained on Simulation, but Largely Combat Experienced

On 21 January 2013, Prince Harry compared his role as a gunner on an Apache helicopter, charged with killing his enemy-the Taliban, like that of playing a video game. In this single, simple sentence, he emphasized many of the complex issues that are implied by the use of these new, advanced technologies: with shrinking defense budgets overreliance on the use of virtualization and-or simulation of combat in lieu of live training; the increasingly modified perception of reality posed by repetitive use of simulation—virtual reality; the growing detachment from any humane thinking toward your enemy and instead simply viewing your enemies as "targets" along with the vast array of ethical consequences that can accompany this type of disconnection; and finally, the psychological impacts and stress it places on the soldiers or operators who repeatedly use these new technologically advanced weapon systems. Despite these emerging issues and trends, no studies were found that really describe these impacts, especially the effects of simulation on human feelings in soldiers toward their enemies.

A Potential Disconnect Between Armies and Society's view of the Threat

The Clausewitzian approach describing complexity and friction in warfare is less and less understood by a society developed in a positivist way of mind (Auguste Comte). The fog of war, with enemies seeking to surprise friendly forces is not accepted. It led a

few years ago to the emergence of a "No Death" concept linked with a network centric warfare and use of precise and smart ammunitions. Thus, every effort is now being made to protect soldiers or fighters to the maximum extent possible though it is highly unlikely that any society or Army will ever be able to deny their enemies the use of all his lethal assets. France and the US repeat the old story of adaptation between the sword and the shield.

The Psychological Effects of Recent Operations

Young generations of soldiers today sometimes experience what the battlefield is like and conditions they might encounter through the broadcast of and viewing of multiple wartime videos. Categorized as warporn, these movies, adorned with music and voiceover comments have become commonplace viewing. These videos show how easily the power of Western Nations can be used to employ lethal fires against their enemies, to administer death at any time or any place of their choosing. These videos have become so popular and available that video game companies have identified this trend or fascination with violence, captured these images to parrot them in their games, and today broadcast advertisements depicting an equivalent or even higher level of violence. Violent death is really common.[6]

Robotization and the Relationship with the Enemy

Development of unmanned technologies has one main goal, to protect soldiers' lives whatever the costs are for the adversaries and local population. This Western

rationality quite force their adversaries to employ irregular warfare (guerrilla, terrorist and-or suicide attacks).

These same kinds of technologies, through economies of scale, gains in productivity and proliferation of these type sciences, will likely just as quickly become developed and accessible to potential adversaries and enemies of the Western world. It is very likely that they will adapt their won methods of waging warfare to using these same technological advantages by leveraging low cost equipment with high pay-off effects, much like the different types of Improvised Explosive Devices or IEDs used to inflict casualties in the recent years.[7]

Social Aspects of new Stand-off and Robotical Technologies

"The fear of the enemy destroys even the end of hard feelings against him."[8]

"Each new military technology, from the bow and arrow to the bomber plane, has moved soldiers farther and farther from their foes."[9]

Peter W. Singer considers that all technological breakthroughs in weaponry and targeting systems enabling the ability to kill from a remote position out of enemy range are just the premise of a revolution in military affairs.

The society Securymind provided a study in January 2012 to the French Delegation for Strategic Studies about the relationships between the human and the robots.[10]

If the subject on initial look seems to appear that it is not directly linked with this study, a careful read notes that the French report provides many details on use of stand-off weapon and targeting assets offering how it changes the perception of reality through

the use of different sensors. It also describes current developments in robotics, more specifically the development of ground robots.

Impacts of Using Sand-off Technological Assets and the Perception of Reality through Different Sensors

Modification of Warrior ethos. First, the "Warrior ethos" in western societies is affected by the use of stand-off technological assets. The fact is, to experience few physical risks when engaging the enemy and-or even no risks, as in the case of using UAVs when creating affects on the enemy, it changes the legitimacy of the military operations.

Dehumanizing and responsibility. A second important concern in using stand-off assets is the possibility of it dehumanizing the operator over time. This reaction is part of a natural psychological mechanism that people, in this case soldiers experience when they encounter human suffering. The main difference with an operator in a remote, stand-off position is the lack of any direct confrontation or the results that ensue so they are oblivious to this suffering. Over time, by being physically isolated away from the battlefield, the operator can begin to feel less empathy for the enemy thus lowering his threshold for being violent.

This concern also relates directly with the question of responsibility. An operator in a remote, stand-off position may conceive that they only have a small part of this responsibility in delivering lethal fires. This phenomenon was perfectly described in 1974 by Stanley Milgram.[11] Depending on who is designated as the authority, subordinates will perceive a dilution of the responsibility and might possibly act more aggressively and

with more violence than they would have acted if they felt they had full responsibility for their act.

Western countries designed the employment of their armed forces with a methodical approach involving a segmentation of the actions based on the synchronization and integration of an action by different Warfighting Functions each with their own unique set capabilities, systems and soldiers along with their own specific systems operators. As Jean-Jacques Frésard[12] indicates with Milgram experience, by segmenting the action the participants involved with the action have less, or a lower, perception of responsibility, if any, than you have when one person commits an action. Today, with the development and proliferation of all the unmanned assets and multiple systems that can be remotely controlled at great stand-off to deliver lethal actions or effects, it is vital to study the impact this kind of segmentation has on soldier's sense of humanity. It is a key element to fully understanding the impact of these advanced technological systems and sensors on the soldiers—operators ability to maintain their sense of humanity.

Technologies and modification of the perception of reality. The most important modifications brought about by the recent technological advancements in warfare for combatants is the great reduction in close contact heretofore required between them and their enemies on the battlefield to engage and kill their enemy. Instead, their enemies are now becoming targets due to the greater ranges they can operate from providing them with large stand-off distances through the use of more lethal, smart munitions and much better optical sensors, tracking devices, etc. The interfaces created by these new

technologies now provide our armies with more indirect approaches to delivering lethal actions than ever before.

Limited visualization of the battlefield. Military systems, like robots, drones or even helicopters, afford only a few sensors the operator can use to see or visualize the battlefield, what is really happening, thus limiting their view or visualization of reality. As a consequence, the operator can develop a "tunneled" view to their approach to combat and slowly begin to disconnect the battlefield from the ground campaign.

Fighting through Screens; the Different Aspects of the Image

"The virtualization change the perception that we have from the adversary thanks to an interface machine which is used as a perceptive buffer between the one who targets and the one who is targeted."[13]

The first problem of mediatization is a filtration. The operators' perception of the environment is made through sensors, which are apt to dilute the mood of the situation and tends to provoke a sort of sterilization of their perception making it seem somewhat artificial and less real. Moreover, the longer the operator views the operational situation through the screen and keeps his attention focused on it, the more selective his attention will be.

The second problem of mediatization is the impact of the image on the operator. The French Study of Securymind stated that there are only a few scientific studies that examine the psychological consequences of military personnel using robots, on the battlefield. Nevertheless, despite having access to an abundance scientific data on robots,

the psychological impact an image can have on person can be drawn from other studies focused on the impact of media and video games.

Two attitudes result from the repeated exposure to extraordinary images. The first called the phenomenon of "habits" means the person or operator of the game, system, etc., demonstrated less emotional reaction to the images or situation due to the fact that they have seen it before. The second attitude is a "generalization" of the stimulus by which the viewer reacts strongly as if they were on the scene.

The problem with the phenomenon of habits is that the soldier will be inclined to become less affected by their role in killing their enemies. The disconnect generated by distance will ease the act to kill and allow more abusive behaviors.[14] Moreover, the repeated exposure to very violent images, like in video game, conducts to an increase of aggressive thinking, anger and aggressive behavior. It could desensitize to real violence[15] and result in a loss of empathy for the adversary. To mitigate these potential consequences and-or risks, soldiers will need to receive some type of morale lessons or teachings to remind them of the rules of engagement. Plus, they will need to be closely monitored by their peers and commanders.

Concerning the potential for soldiers to overreact to negative stimuli, the French study raised the problem of the high quality of images viewed by soldiers. For example, the high resolution cameras in the cockpit gave a clear picture of enemies on the battlefield. Therefore, it brought back the enemies in the aircraft, which could lead to a psychological overreaction of the crew.[16]

A Study about the Psychological Effect of Distance on the Act of Killing

Lieutenant Colonel Dave Grossman, a retired Army officer, wrote a study in 1995 where he defined the act of killing by describing the psychological process that leads a soldier to the act to kill their enemies. In particular, Grossman studied the effect physical distance creates in killing enemies.

Grossman considers the maximum range as a distance at which the killer is unable to perceive his individual victims without using some form of mechanical assistance-binoculars, radar, periscope, or remote TV camera.[17] For this study, our description includes most Army, Air Force and Navy manned or unmanned assets.

One important factor in this circumstance is the lack of feeling any responsibility in killing when the physical distance between the operator and his enemy is so great. Grossman states he found that, there is no difficulty for the artillerymen, a bomber crew or naval personnel to kill. In fact, these personnel are protected by a very powerful combination of group absolution, the mechanical distance between them and the enemy, and by the mere physical distance being so great in the case of the Air Force or Navy pilots or indirect in the case of the artillerymen that it denies these personnel any direct visual connection show in the horrors of war horrors. At the time of his though study, Grossman never found one single instance of any individual having refused to kill the enemy under these circumstances. Likewise, nor did he find a single instance of any soldiers exhibiting any psychiatric trauma associated with this type of killing.

The long-range is defined as the distance at which the average soldier may be able to see the enemy, but is unable to kill him without some form of special weaponry such as a sniper rifle, anti-armor missiles, or tank fire. In this study, this range is dedicated for

Army assets like Apaches in Close Combat Attack (CCA) range with 30mm machine guns, snipers or any ground vehicle with a remote control on machine guns.

For Grossman, this range implies some disturbance at the act of killing but, protected by the same potent combination of group absolution, mechanical distance and physical distance, they kill remorselessly. For snipers, "their observations and the accounts of their kills are strangely depersonalized and different from those that we will see at closer ranges."[18]

The Indirect Effect of a Distant Enemy on the Operator

The armed forces should monitor drone operators systematically and track the effects of living in this whiplash world, where you kill on a video screen and then go home to your spouse and kids. Human nature has never been tested in such alternating semi-virtual reality. We may well discover that it combines the worst of all three worlds: the stress of missions, the desensitization of video gaming, and the whiplash of transitioning between physical and synthetic environments.[19]

Studying the reactions of drone pilots after they complete their missions, William Saletan emphasizes the mixed emotional feelings affecting many of these soldiers. Even if not voluntarily, the enemy affects their efficiency in combat and can provoke Post Traumatic Syndrome Disease or PTSD.

The Potential Friendly and Enemy Considerations on Stand-off Assets on the Battlefield

The Securymind study underlines interesting historical examples on the friendly perception of using technologies allowing to be out of range of enemy physical effect.

Western societies built their forces around the warrior honor. The idea was to fight only an enemy who is armed, in a peer to peer confrontation.[20] Current stand-off positions from the battlefield clearly contradict this statement.

Moreover, modernity and new technologies has modified the position of men on the battlefield. When virtues like courage and heroism were central in military core competencies and are still important, technicality via qualitative or quantitative advantage can overcome them.[21] Thus, leaders in western countries are both taught on the necessary morale virtues but also their technical management role.

From the enemy perspective, the use by western countries of stand-off assets can be compared to cowardice. This effect is reinforced by the legacy of military operations in the 1990s. The US withdrawal from Somalia in 1993 after the death of few soldiers during an operation against Aidid reinforced the perception that Western societies do not accept any losses. Fighting out of range of enemy weapons or with unmanned assets is a proof of weakness.

This point of view is highly criticized by pro-unmanned assets supporters. For example, US Army retired officer, Ralph Peters clearly deny the fact that these kind of robot strikes increased the number of terrorists.[22] On his point of view, the targeting process is ethical through the number of authorities approval necessary before a strike and the effect to kill the more fanatic and skilled enemy leaders is more effective than the few young citizens who will enroll in terrorist (guerrilla) movements.

The Cultural Ditch Between Societies about Stand-off Assets

First it could be interesting to remind an assertion of Colin Gray[23] about military transformation in the post-Cold War era.

To quote Dr. Antulio J. Echevarria (Lieutenant Colonel, USA Ret.), the US military has "more a way of *battle* than an actual way of war." Unfortunately, perhaps, war is not only about the ever more precise delivery of stand-off firepower, and—if need be—the swift and decisive maneuver of mechanized ground forces. We can predict that although the transformation push may well succeed and be highly impressive in its military-technical accomplishments, it is likely to miss the most vital marks.

Without going in depth on an Asian perspective, Chinese will adopt this kind of fighting far from the enemy as it avoids losses within their troops. The Japanese, with a culture favorable in the development of robots will surely pursue this kind of development.

Current Development in Ground Robotics

The question of responsibility. French and US society seek mainly to define an individual responsibility in daily actions. The use of robots greatly affects this will. In fact, robots are not a common materiel assigned to a unique operator. Most of the time, armed robots will be part of a system with a chain of command and teams supporting their use (pilots, intelligence, sensors managers) and a responsibility also held by the designers of this machine. In fact, there are no real specifications or constraints for creating such assets, there is a real vacuum in defining who held responsibility. Moreover, the complexity of robot systems will deny the human to make a clear

connection between the effects and his act. As a consequence, the operator will likely not feel responsible for the robot acts.[24]

Thus, some specialists suggest to educate the soldiers on the gravity on lethal acts they commit. For example, Emmanuel Goffi considers that responsibility can only come from a direct confrontation with the adversary.[25]

The legitimate level of autonomy of a robot. There is a risk in letting too much autonomy in a robot. By doing so, the human will have only a kind of veto in the decision made by the assets. The study from Securymind gave an excellent example of the excess of trust a crew can give to a computer. In 1988, a frigate USS Vincennes, equipped with the AEGIS system shot down a civilian passengers' plane designated as an Iranian F14 by the system. The crews had many evidence denying this wrong identification but let the system shot down the plane and kill 219 persons.

The Real Equation of Robotization for Ground Forces

In an attempt to extrapolate what could be the winning equation in robotization, Christian Malis suggests:[26] Automation=Digitization x Protection x Downsizing of Armed Forces.

The prohibitive cost of technologies will imply a downsizing of Armed forces qualified as the demassification of military forces by Colin Gray. The forecast of future warfare could be an increase of combat contact given to entrusted robots when traditional conventional forces would be assigned to occupation and organization of the territory under dispute. The main focus should be to not encounter adverse strategic effects neutralizing tactical gains if robots are perceived as illegitimate by the local population.

Turn the war into a commonplace and deny the enemy any interest. The human dimension of conflict will be reduced with the use of robots. It can be expected a disinterest from public opinion of their actions as it is currently for daily UAVs strikes in Asia and Middle East.

The human limit in processing all the data.[27] The multiplicity of sensors and data transmitted to a soldier are prioritized and detect potential dangers. Nevertheless, it is difficult for human beings to deal with more than seven pieces of information at the same time. It can result in dramatic incidents. For example, the successful strike against the chief of military operations for Al Qaeda in Kabul in November 2001 was done without taking care of a school bus close to the target. This human limit affects the principle of double intention,[28] exposed by Michael Walzer. Normally, any military action must demonstrate a deliberate will to avoid any collateral damage to non-combatants.

As new approach to human consideration for the enemy, a professor from Georgia Institute of Technology[29] currently works to implement laws of War, ethical rules and rules of engagement in the database of a machine. The idea is to allow this machine in the next future to be autonomous in its decisions on the battlefield. The idea would be that the robot has a strict control of fire and always avoid any collateral damage. It is difficult to believe that such development can be used on the battlefield. The situations are often complex, and a law is never a mathematic model. It has always been subject to interpretation.

Is there a right to not being killed by a machine? This point is defended by Peter Asaro, co-founder and vice-chair of the International Committee for Robot Arms

Control.[30] The consideration we gave to our enemies and the decision to develop killing robots will clearly be a decision of the different societies.

A study from the New America Foundation[31] expressed doubts about US official estimation on civilian casualties resulting from unmanned assets strikes. According to this survey, between 2004 and 2010 30 percent of people killed by drones were non-militants. On the nine first months of 2010, this rate was evaluated to 8 percent by this association as the official rate was 2 percent.

It is also very easy to find articles debating about the use of unmanned assets to kill adversaries. A Swiss article written at the beginning of this year[32] mentioned that a drone operator by its remote position from the battlefield is not so different from an archer killing at distance a Knight during the Middle age. The main problem is the spirit of the lethal actions. Drone pilots need to operate in a grey area of Humanitarian International Laws. In fact, adversaries do not respect the criteria as being a combatant distinguishable from the population. On the other side, the United States proceed to kinetic preventive—preemptive strikes, and never disclose what was the potential or real (imminent) threat that was represented by this adversary.

On a religious perspective,[33] Christian churches, through their foundations and non-governmental organizations, are already very much involved in the debate on military robotics and the issues of unmanned weapons. Moreover, a potential issue could raise rapidly by the fact that many enemy targets of US and Israeli drones are Muslims. Enemies could use this aspect to delegitimize any further actions by these means.

For French General Vincent Desportes[34] the drone offers technical capacities but they could be a regression, as they don't solve the political impact of their use. Thus,

robotics or stand-off assets only provide a tactical solution in a short term against current terrorist's threats. They don't really match with the Clauswiztian approach on war by which they should be part of a political answer.

The Ethical—Legal Dilemma for US and French Forces with Unmanned Assets

French General Benoît Royal offers a good overview of the three main dilemma that need to face Western societies with the use of unmanned assets.[35]

1. Our current modern society is genuinely fascinated by robots. This fascination stimulates research and speeds up robotic development, since everyday, one finds new possibilities to use them, especially when it comes to preserving human lives.

2. The development of the use of robots alongside men, and especially of military robots aimed at inflicting wounds or at killing, already raises ethical issues pertaining to international laws and to the fundamental liberties which will increasingly be imposed on designers and on political authorities.

3. The "legalization" of Western societies, induced by the refusal of the inevitable and the search for the guilty in an environment highly saturated with media, will sooner or later force political leaders to consider the need to write laws concerning robots. The loss of religious feelings, mainly in France, reinforces the non-acceptance of fate and the increase of a legalization phenomenon in the society.

The same author considers also a harsh difference between French and US ethical approach on the use of unmanned assets.

In France the ethical reflection is first of all philosophical. The very first official document regarding the use of armed UAVs and robots published by the French Ministry

of Defense already associated the induced strategic stakes to the ethical reflections it causes.

In the United States, the legal advisor of the State Department borrowed Hilary Clinton's "smart power" catchphrase. This concept covers the smart use of all existing assets, including technology, human rights and international laws to justify the use of UAVs and their positive effects. As one can see, the more important point is to develop communication strategies rather than ethical rules.

The Necessity to Define an Army Doctrine and Robots Specificities

Antonin Tisseron, in his chapter on Land Forces facing technological developments of robots[36] cited in his conclusion Stephen Rosen, who consider that Land forces should adopt a technical approach favoring versatility, adaptability and flexibility, in other words, to work towards producing equipment that could be used in the majority of situations, corresponding to current economic and human constraints and to what we learn about the enemies of today and tomorrow. The pace of current technological development in UGV is not dictated by threats but by industrial considerations. It can create a discrepancy between a human (ethical) approach requested by ground forces and an entire technical approach of industries.

As ground robots are currently only assistants for ground forces in dirty, dull and-or dangerous tasks, it has not been necessary to write a specific doctrine to use them. But as Martin Van Creveld noticed, none of the main equipment that transformed warfare—from the aircraft to the battle tank—was born out of the doctrinal needs formulated by people in uniform.[37] Clearly, this new doctrine is not yet published or taught in the

Intermediate Level Education of French or US Army Staff College. It does not help these two Armies to grasp the future introduction of this kind of systems in their organization but also their use against current and future enemies.

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[32]David Spring and Allez Savoir, "Game of Drones," UNIL, 23 January 2014, http://www3.unil.ch/wpmu/allezsavoir/game-of-drones/ (accessed 12 March 2014).

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[34]Florent Polo, *La guerre des drones: quelles conséquences* (Les carnets du business, 23 May 2013), http://www.carnetsdubusiness.com/La-guerre-des-drones-quelles-consequences_a585.html (accessed 17 March 2014).

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[36]Antonin Tisseron, "Robotic and Future Wars: When Land Forces Face Technological Developments," in *Robots on the Battlefield: Contemporary Perspectives and Implications for the Future*, ed. Gérard de Boisboissel, Jean-Paul Hanon, Didier Danet, and Ronan Doaré (Fort Leavenworth, KS: Combat Studies Institute Press, 2013), 14.

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CHAPTER 3

RESEARCH METHODOLOGY

The research design adopted in support of that thesis is mainly focused on answering the primary research question which is to try to define how can French and American Soldiers, from the field grade officer level to the lowest enlisted ranks, maintain any sense of humanity toward their future enemies and-or adversaries while waging warfare when they will be isolated from them due to the world's continuous technological advancements allowing for greater stand-off than ever before from all the killing in battle?

The primary approach to answer this question is mainly qualitative by taking into account previous essays and studies which main conclusions have been emphasized in chapter 2. The main sources of information used for this thesis will be collected within French and US Department of Defense (DoD) publications in order to try to detect any objective approach in the consideration our soldiers are giving to their enemies. Nevertheless, as already done in chapter 2, main opponents or supporters of any additional unmanned ground assets will also be included as part of the study. The idea is to clearly avoid, as much as possible, a bias of only looking at the issue through the lens of French and military defense forces.

The first secondary question assessing if the current trend of our armies' Soldiers using advanced technological weapon systems and equipment, allowing greater stand-off than ever before in the history of warfare, through the use of an assortment of different sensors and screens to locate, monitor, track, engage and-or kill our enemies (adversaries) alter our perception of reality to where we modify or no longer harbor any humane

considerations whatsoever toward the enemy, will combine both a qualitative and quantitative approach. The impacts of new technologies have been studied by many civilian and military authors mostly after the collapse of the Soviet Union and again after operation Desert Storm.

In addition to these works, this thesis will try to integrate a survey realized within some specific US students attending the US Command and General Staff Officer Course Command (CGSOC), at the Command and General Staff School (CGSS), Command and General Staff College (CGSC) at Fort Leavenworth, Kansas. The main idea of the survey is to try to see, based on a sampling of US field grade officers, if the current new trends on warfare (virtualization, maximum range, remote fighting) are changing how they understand and visualize the enemy plus if it affects any empathy they might harbor toward the enemies they faced in recent conflicts (mainly Iraq and Afghanistan). The conduct of the survey and the research criteria used to define the questionnaire will be described in a following paragraph.

The second secondary question of this thesis, asking what can our armies do, with respect to training and education, to help both our Soldiers and their leaders to adapt to this changing phenomenon, without losing their sense of humanity and the human aspects of war, while preparing them for the advent of robotization on the battlefield which will further serve to insulate our forces, will only be answered through a qualitative approach. The author used his own personal experience acquired in both the French and US Staff Colleges to develop the educational and doctrinal strategies that could emerge in the preparation of lethal unmanned assets on the ground level.

Framing the Potential Problem

Based on Joint Operational Design in describing and visualizing a problem, the following diagrams will try to define what is the current operational environement (figure 1) and assumed environment in 30 years (figure 2) in the particular aspect of consideration to the enemy from France and United States. These graphics will try to broadly synthesize the main elements described in chapter 2.

Figure 3 represents a kind of operational approach to try to answer the primary and the two secondary questions of this thesis.

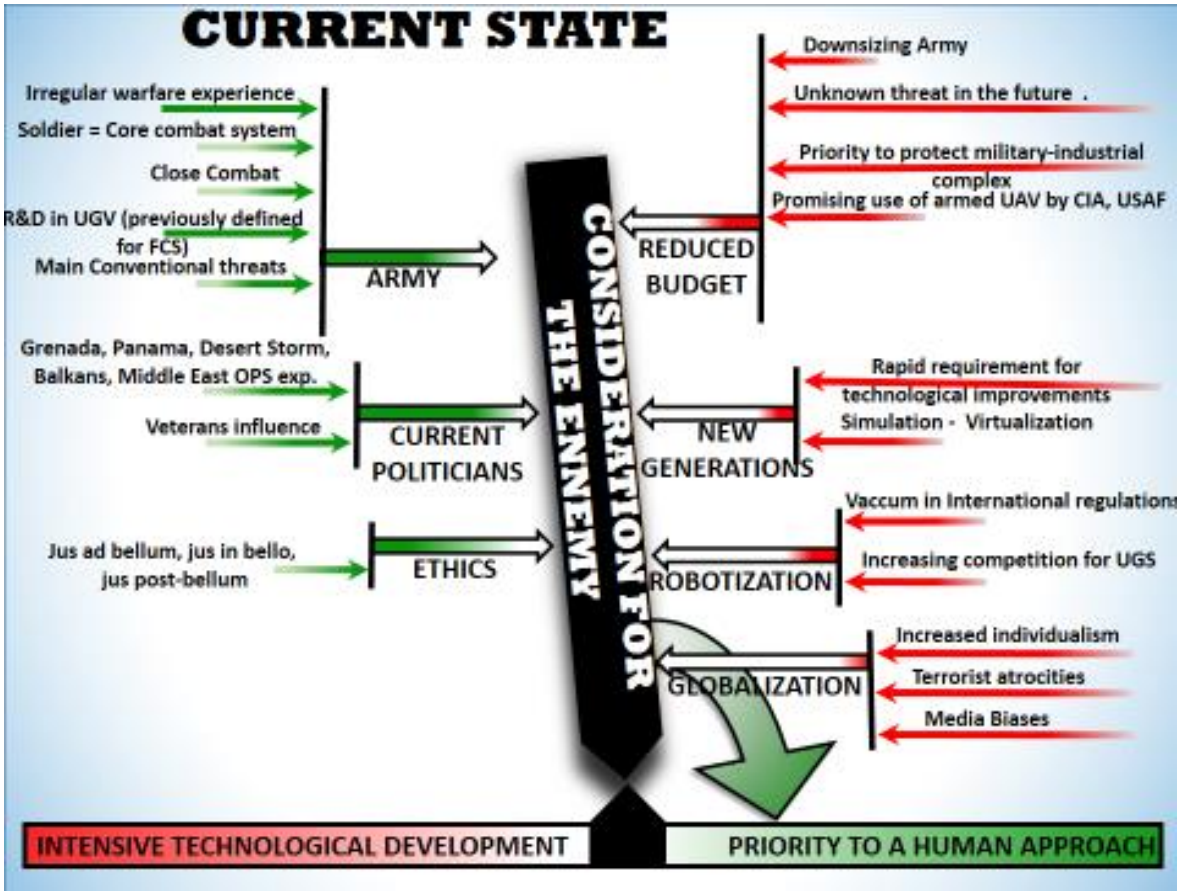

Figure 1. Description of the Operational Environment of Current French and US Soldiers

Source: Created by the author. Inspired from Joint Operational Design, Joint Chief of Staff, Joint Publication 5-0, *Joint Operation Planning* (Washington, DC: Government Printing Office, August 2011).

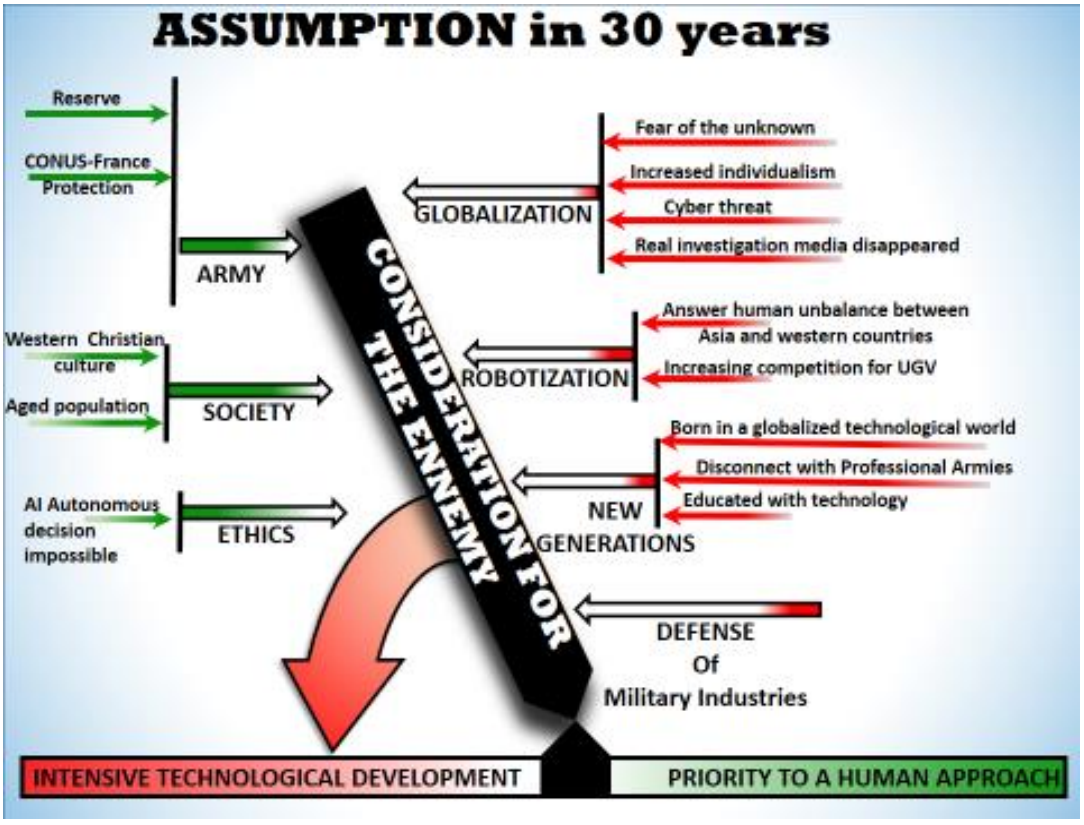

Figure 2. Description of the Author Assumed Operational Environment for French and US Soldiers in 30 years

Source: Created by the author. Inspired from Joint Operational Design, Joint Chief of Staff, Joint Publication 5-0, *Joint Operation Planning* (Washington, DC: Government Printing Office, August 2011).

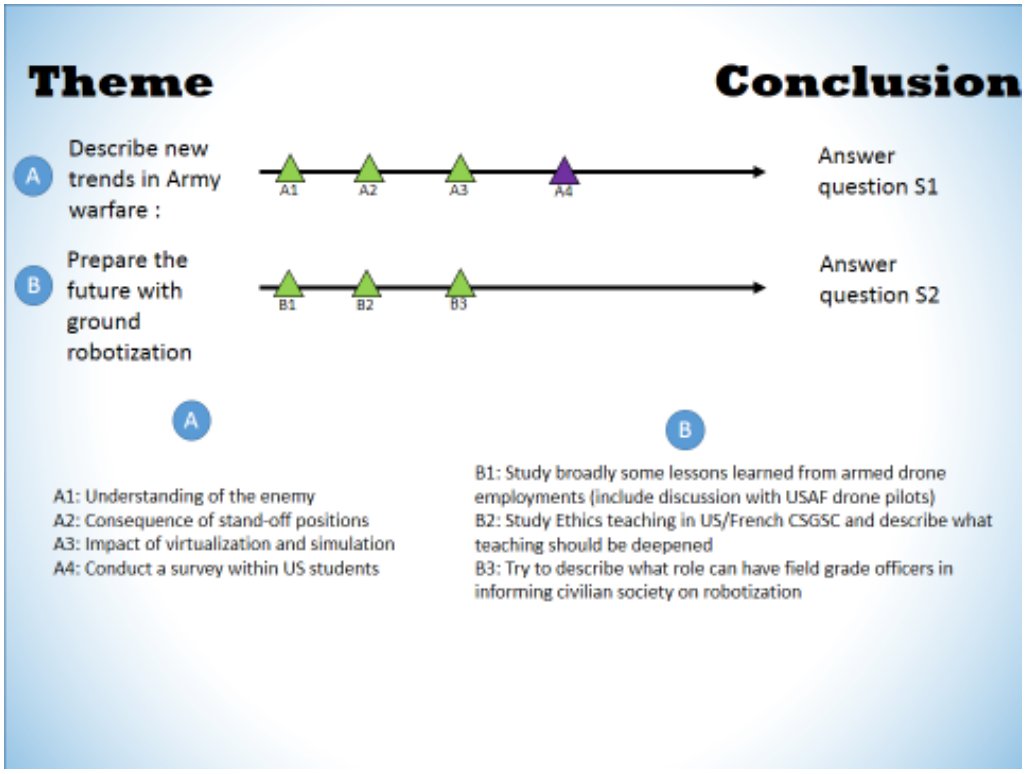

Figure 3. Thesis Approach to Answer the Research Question

Source: Created by the author. Inspired from Joint Operational Design, Joint Chief of Staff, Joint Publication 5-0, *Joint Operation Planning* (Washington, DC: Government Printing Office, August 2011).

Research Criteria

All the research conducted in order to write this thesis were done around four main criteria: the Ethics, the psychological aspect of killing the enemy, the sociological influence of the society on soldiers and a technical approach on current and future development of unmanned (lethal) assets for the Land forces.

Whatever the question asked or the research methodology used to answer it, these four aspects in the consideration of the enemy were mutually dependent. The author visualizes these four criteria in the consideration of the enemy as shown on figure 4.

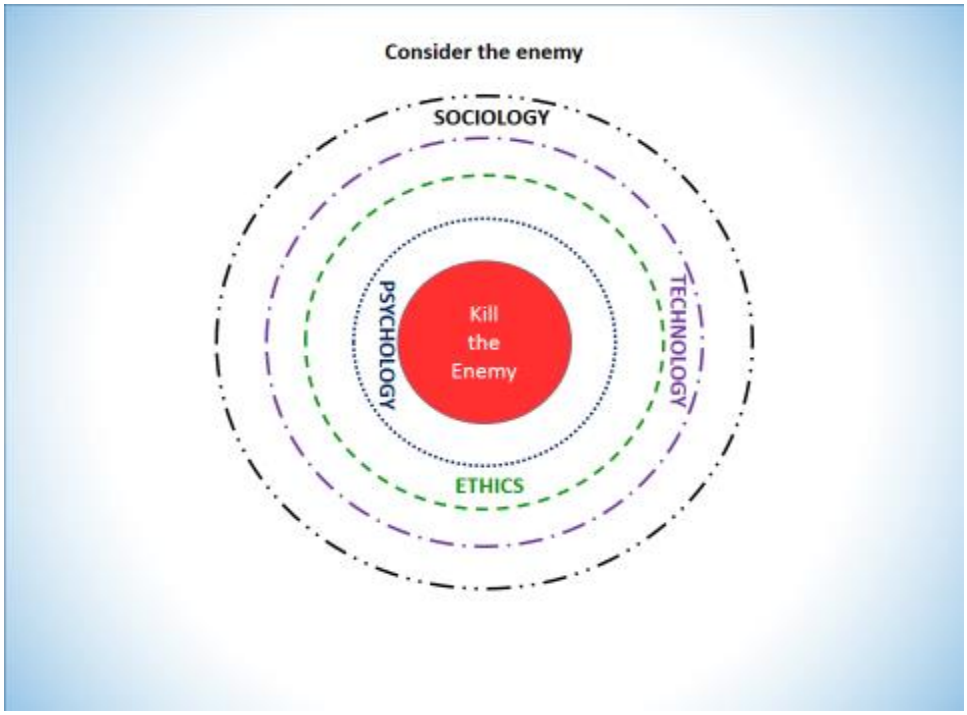

Figure 4. Consideration for the Enemy Through Four Main Criteria

Source: Created by the author.

Ethical aspect: This criterion encompasses all education, teaching, norms and morale or international laws known and applied by soldiers of French and US Army. The result of studying this aspect is to try to define when it is perceived the notion of responsibility of acting against an enemy.

Psychological aspect: It focused mainly on different external factors which could lower the threshold inhibiting the soldier in the act to kill. These factors can be technical like remote positions or virtualization of reality or emotional by the influence of social incentives like an enemy designation by the society or the media.

Sociological aspect: As soldiers are also common citizens of France and the US, all research tried to integrate the influence of these societies on their military actions against enemies. It has not been studied the direct influence of the primary group for soldiers (squad, platoons) and the modification that could occur by the integration of robots within these teams.

Technological aspect: The researches focused on broad aspect of technological development in computerization and robotization of the battlefield. The study never goes in real technical details about networks functioning, equipment's capacities of these two armies for both question of time and sometimes classification.

Qualitative Research

The majority of the information gathered in support of this thesis has followed a qualitative process to be accessed and exploited. Two main methodologies were used: article and books publications analysis as well as one survey. The survey was mainly conducted with an Army and Air Force perspective at the Field grade officer level. On the contrary, the analysis of existing publications were more open to current debate within the French and US military structure but also to debate in the media, the societies and even in International Organizations like the United Nations.

As already mentioned in the limitations part of chapter 1, some publications were not accessible for classification reasons. For example, strikes conducted under CIA authorities or procedures used by French helicopters to kill insurgents in the Adrar of Ifhogas in Mali could not be accessed neither disclosed in an unclassified thesis. Nevertheless, as already developed in the previous chapter, few studies conducted by the

French DAS (Strategic studies) and US Combined Arms Center provided enough conclusions and facts to enable the analysis phase.

Most of the publications never focused on the specific aspect of the enemy in the current technological race in robotization. Moreover, many articles are mainly written at a strategic level in order to inform and advise political and military leaders in the effects of ground robotization on the battlefield. Thus, the author requested the authorization to conduct a survey within US students of CGSC in order to obtain some data about their perceptions of the enemies they had to face in combat and the influence of external factors like societies, media, virtualization.

As already defined in chapter 2, Dr Grossman developed the influence of distance on the killing action. He had made a difference between maximum range and long range distance.

Maximum range is the realm of Air Force operators. Thus, it is the first population that has been identified within the CGSC.

Long range operators concerns mainly Army aviation, artillery pilots as well as officers who ordered targeting actions in Tactical operational center. The survey was then aiming to request the participation of US Army field grade officers combat badged.

These survey was dedicated to both 14-01 and 14-02 class. The questionnaire was generated by the author and then sent to the targeted audiences after control of the Quality Assurance Office (QAO). The survey was posted during one week on a secure internet site hosted by CGSC.

The Air Force is considered in advance in robotizing its forces. The number of Air Force operators is very limited, so it was not possible to make a comparison between

their answers and their Army counterparts. Nevertheless, qualitative readings of their comments would be useful in the analysis part of this study.

Survey

The Survey was reviewed and then approved by the CGSC Human Protections Administrator under the number 14-04-063. This survey targeted an audience of about 322 field-grade officers from CGSOC Class 14-01 and 14-02.

Of this number 43 officers from the US Army and 15 from the US Air Force agreed to complete the online survey, made up of 14 questions. Their participation was voluntary and confidential. Many questions let an open field enable them to add their comments on this specific question. A last question let them add any other comments about the survey or the subject studied.

The officers who answered had the following specialties:

Table 1. Specialties from the Population who Answered the Survey

	BRANCH	**TOTAL**
US Army	Field Artillery	7
	Armor	6
	Aviation	4
	Other	28

		TOTAL
US Air Force	Fighter pilot	1
	Other pilots/Navigators	2
	SOF	1
	Other	6
	Non defined	5

Source: Created by the author.

Besides their comments, the analysis of the answers from the Air Force officers was not executed due to the low level of answers.

A copy of the questionnaire is included in Appendix B. The first question focuses on the combat experience of the officers. More particularly, the question tries to define if the officers have already fired on enemies from a remote position and if such decision were taken through the use of technological sensors. One third of the Army officers who answered the survey had directly killed an enemy from a remote position using sensors or optic screens. Half of them have at least ordered this lethal action through the same kind of sensors.

The first set of questions emphasizes the main sources of understanding from their enemies. Officers experienced in operations mainly driven by the targeting process, the survey tried to see if the consideration of the enemy has been influenced by these combat experiences.

The second set of questions underlines the effect of distance when engaging the enemy. Another aspect studied is the correlation between the empathy and the virtualization of the battlefield. A third question sought a possible effect of simulation and gaming in a virtualization of the battlefield for the soldier. The last element of this part of the survey focused on the possible effect of media broadcast.

The third set of questions is linked with the ethical criteria of the survey. One question looks to the level of agreement of the Army officers with ethical issues raised by unmanned assets on the battlefield. It lastly requires the officers to assess their ethical training prior to CGSC for combat decision and then asked them if the CGSOC class prepared them to the ethical challenges of additional robotization on the battlefield.

The last set of questions emphasizes the impact of more unmanned assets on the American Warrior's ethos. The survey ends with questions about the relevance of developing UGVs and the effect of remote combat for decisions to kill enemy and the commander to have an adequate combat awareness.

CHAPTER 4

ANALYSIS

Based on the literature reviewed in chapter 2 and using the research methodology established in chapter 3, this chapter exposes a possible analysis of the current perception French and US Army officers have of their enemies. It also tries to define the ethical challenges of additional unmanned assets on the ground and the necessary education which should accompany these new technologies. This chapter will also quote a very recent book from Lieutenant Colonel Shane Riza, *Killing Without Heart: Limits on Robotic Warfare in an Age of Persistent Conflict*, as his conclusions, drawn mainly for the Air Force, are relevant to experiences in the US and French Armies.

The first part of this chapter highlights some trends from the current generation of Army soldiers. They are returning to their garrisons from a decade of war with a human approach to warfare inherited from their counterinsurgency (COIN) combat experience. In spite of all their experience, these soldiers will train more and more on simulators, mainly due to budget reasons. This coupled with the fact that the current generation of soldiers is more used to playing video games, makes them more adaptable to fighting through many screens. However, this thesis confirms a potential risk involved with simulation training, acquiring a virtual understanding of the battlefield can result from a reduced empathy by French and US army soldiers toward their future enemies. This generation of soldiers seems to be caught up in the transition to conducting combat more remotely, slowly transforming Cold War assets into targeting tools. In addition, it demonstrates some issues resulting from an intensive exposure to media as becoming accustomed to violence.

The second part of this chapter explains how the thesis emphasizes the way US Army officers understand their enemies. It reminds the psychological effects of the terrorist attacks on 9/11 and underlines some key conclusions from the survey: the officers who answered recognize that the best understanding of their enemies occurs when they were located on the battlefield and that they do not agree with opponents' arguments against drones and UGVs. The result is a possible misunderstanding between the French and US Armies and their enemies on the use of more stand-off technologies. A dramatic consequence could be to increase the exposure of French and US citizens to more retaliation as their soldiers are less exposed on the battlefield.

The last part of this chapter discusses ways, to mitigate this possible misunderstanding, this chapter argues for the necessity to begin an ethical and leadership debate as well as a class in US and French Armies curriculum on the advent of robotization. The main goal of such an education would be to develop military leaders able to advise their political leaders in the use of such technologies. They could use the lessons learned from the US Air Force on fighting with drones in order to avoid making the same mistakes with the UGVs. Finally, it would adapt both the US and French Army Warrior Ethos to the changes wrought by such a technological environment to always account for the Army Values.

Is this Generation of Officers Preparing the Transition to Robotization?

A Combat Experienced Generation Returning to Garrisons

The generation of officers, non-commissioned officers and soldiers who joined the Army after the 9/11 attacks, has fought in both Iraqi and Afghan campaigns. Due to

the reduction of the pace of operations, they are gradually all returning to a garrison environment. They have experienced combat conditions which may be divided into two successive periods: first, western countries conducted kinetic operations with an important reliance on new weapons' technologies and then, second more COIN focused missions which included building a close relationship with the population. The ability to maintain the knowledge base of these two opposite approaches is a subject of great concern within the senior leadership of the US Army. In fact, current veterans should teach the youngest recruits about their experiences during these two different and sometimes opposite operational approaches. It could allow the new generation to understand the ethical implications of a unilateral targeting process which failed to achieve a political success in Afghanistan until 2006.

Moreover, as many western countries are not able to define precisely the future threats, the French and the US Armies refocused the training of their forces on the most dangerous scenario, which is a conventional peer to peer conflict. Nonetheless, the current generation knows that these conventional assets can also be used in limited wars, with an overwhelming asymmetrical advantage over their enemies. This ability of soldiers to rapidly transition between different spectrums of warfare while retaining their respect of Army core ethical values must be kept. This generation has understood the "grey" aspect of warfare. Their actions were always filled in the ambiguous space between laws, morals and basic humanity.[1] It may also be argued that this return to garrison operations is not a linear and completed process yet. For example, the French Army, very soon after the withdrawal of one brigade in Afghanistan, committed the same amount of troops to Mali in January 2013 and at least one regiment to the Republic of

Central Africa at the end of 2013. Current instability in the Middle East and the important activities of jihadist groups affiliated with Al Qaeda will most likely require the future commitment of French and American troops overseas to suppress threats these groups pose. Nevertheless, we can assume that these operations will be accomplished with a lower profile than those ordered under President G.W Bush's administration.

A Generation Compelled to use more Simulation

Both France and the United States of America put a priority on preparing their soldiers to be combat ready in Iraq and Afghanistan. Simulation was used during the training process but soldiers also benefitted from live experiences and lessons learned from past exploits on the battlefield. As stated by some students during CGSOC Class 14-01, during this period there were very few limitations on resources available to train.

Currently, the French and US governments have ordered an additional reduction of their Armies. In France, the size of forces able to be committed overseas will be reduced from 72,000 soldiers (out of a total of 134,000 in the Army) to 66,000 by 2019. In the US, Secretary of Defense Chuck Hagel announced a reduction in February 2013 and would shrink the level of forces from 522,000 down to 450,000. In addition major troop cuts, defense budgets are also being drastically reduced which will make the use of simulation training highly relevant in the future to cut down on training cost.

The Impact of Budget Restriction: Simulation Training is not a Choice Anymore

A very recent article published on the internet emphasized this new and growing trend toward the use of more simulations: "Army looks to virtual training, shared intel

amid budget cuts."[2] In France, the increasing part of simulation in helicopter pilots came along with an important reduction of the number of aircrafts fielded in flight schools and regiments.

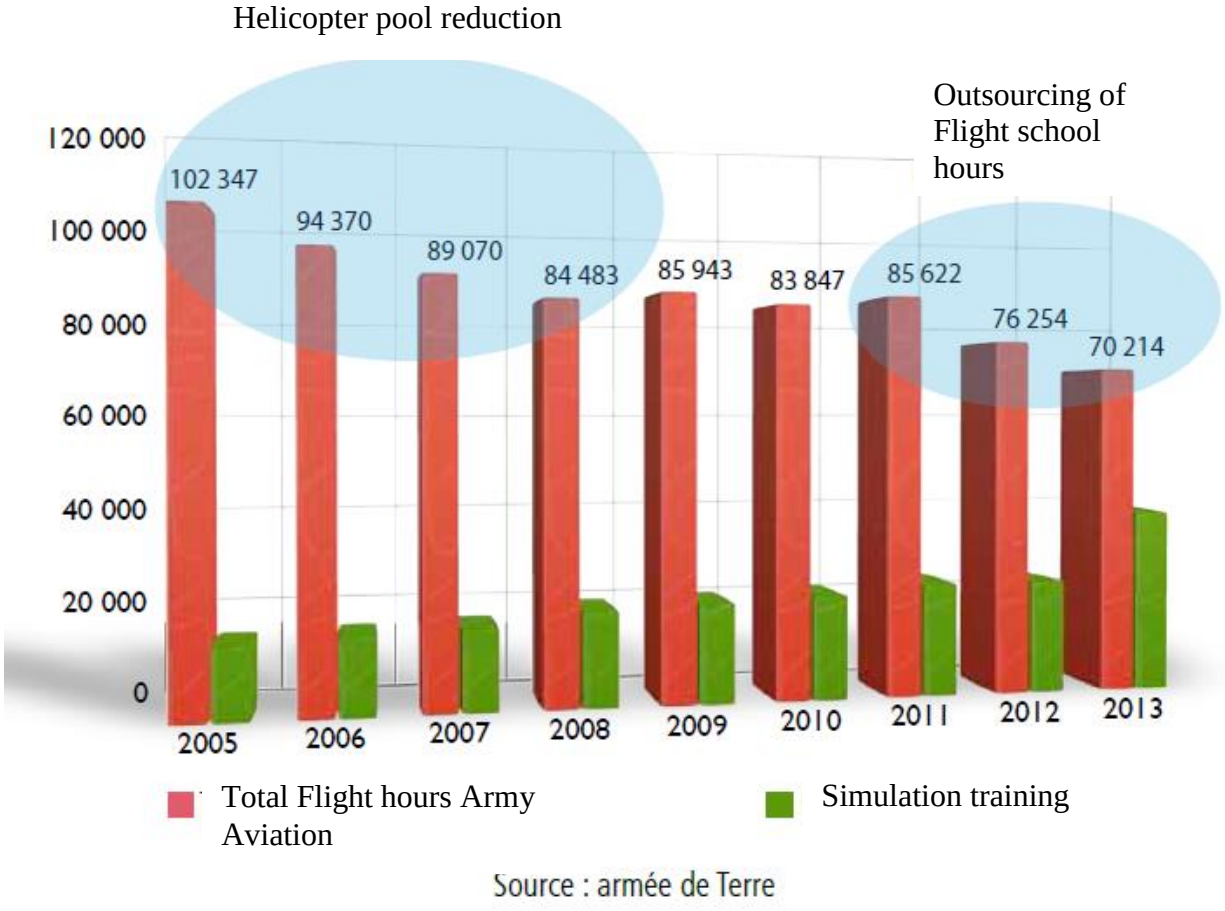

Figure 5. Increasing Importance of Simulation Training in the French Army Aviation

Source: French Army, CHEAr (Centre des Hautes Etudes de l'Armement), 45e session nationale, Comité 2, 2009, http://www.ihedn.fr/userfiles/file/larecherche/rapports/45sn-armement/SN45_T1_2.pdf (accessed 28 March 2014).

This study will not develop or debate the numerous advantages of virtual training. In addition to the major budget savings, the realism that can be achieved in virtual training can really push soldiers to the limits of their mental faculties and their stress. However, it is interesting to note that one major possible drawback of making the virtual battlefield more realistic is less studied, how this altered reality can impact or affect a soldier's humanity. No one has explored in any depth, if the use of simulation modifies the soldier's perception of soldiers of the battlefield reality, if so then this effect will continue to increase in the near future.

A Real Debate on the Consequences of Video Game usage by our Warriors

As previously mentioned in chapter 2, on Monday, 21 January 2013, during an interview with the Press Association, Prince Harry compared his job as an Apache gunner to that of playing a game on a video console. This remark provoked many angry reactions within and across all of the insurgent groups in Afghanistan. It clearly emphasized the potential psychological change implied by gaming activities that replicate real warfare conditions. Nevertheless, very soon afterwards, some other Apache pilots reported just the opposite reaction, stating that they really resent their actions as violent and bloody. The video capture of their actions keeps them closer and personally involved in the combat.[3]

Considering the latter perspective, the survey asked students from the US Army CGSOC Class 14-01 to assess what they felt the effects of simulation and gaming are or would be on the soldiers 'behavior on the battlefield.

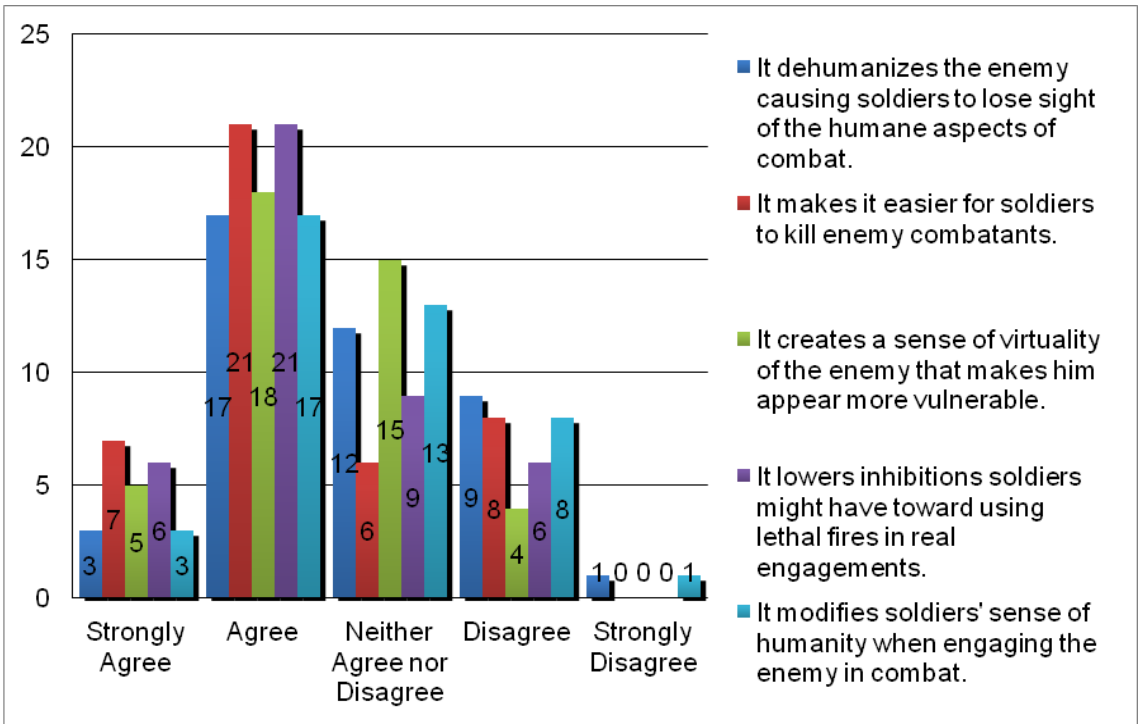

Figure 6. Effect of Simulation and Gaming on Soldiers

Source: Created by author.

The results of the survey emphasizes that Prince Harry's statement is a perspective shared by a majority of officers who answered this question. They feel that video games reinforce a sense of virtual reality when facing the enemy which ultimately could lead to less of a sense of humanity being present when engaging the enemy in combat. It tends to therefore reinforce one assumption made in chapter 2 about a possible increase of violence for video games players.

The other Aspect of Virtualization: Serious Video Games

In order to reinforce the attention the French and US Armies should have on the proliferation of video games, this paper should first underline the interest military organizations have exhibited in using serious video games to train soldiers. For example, an article published in 2012 explained that NATO Allied Command Transformation expected to enhance a very effective platform in teaching our warfighters individual and team skills through serious games.[4]

Current teenagers and young soldiers are accustomed to playing video games since their youth. This phenomenon is so engrained within Western societies that it has clearly become one of the best ways to attract and recruit new soldiers. To this end, the US Army has even established a relationship with the videogame industry, so it can be used to attract young people, with a free video game online that potential recruits can access.

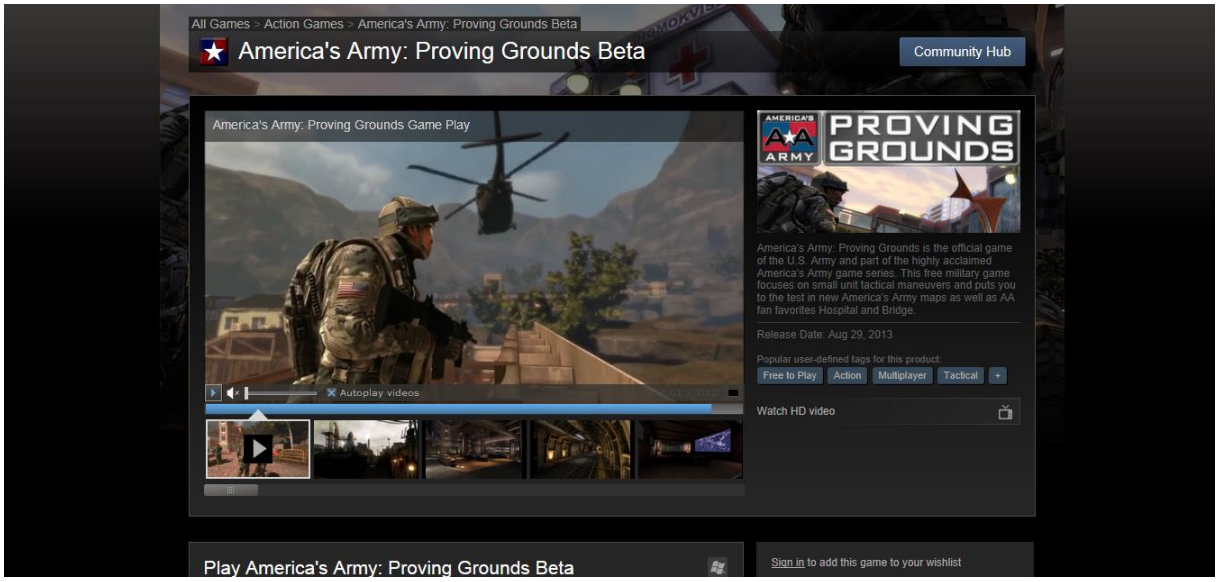

Figure 7. Presentation of the US Army Video Game

Source: US Army Recruitment, http://www.americasarmy.com (accessed 22 April 2014).

The author was not able to formally measure the amount of time spent by soldiers assigned overseas playing video games suffice to say it was a lot. However, based on his own overseas experience while assigned to various theaters in Africa and Afghanistan, serving with both the French and the US Armies, he observed first hand a significant increase in the use of gaming activities among soldiers when they are stationed for a long time in Forward Operating Bases (FOBs). This activity can remain leisurely and harmless pastime only as long as the soldiers do not isolate themselves completely from their peers or spend time dedicated to rest instead to playing video games. The isolation of some of these soldiers from their peer groups (teams, squads, sections), along with the nervous exhaustion some of these soldiers exhibit could be the cause of an inadequate use of force some of them show when faced with actual combat conditions.

Simulation and video games train for the stress not the fear on the battlefield.[5] Simulation will never be able to create the exact conditions, replicate all the surroundings, the same fearful environment that the average soldier will experience on a military operation in combat. Thus, increasing the amount of or quality of simulation in training, in and of itself, does not mean that soldiers will necessarily react any better when in combat. They may likely have more skills from all the simulated training, but the impact of fear on their actions against a real, live, thinking enemy threat cannot be predicted. In fact, a potential major drawback of increasing the use of simulations in training could be to create a generation of soldiers who are more risk adverse.

By design, current simulators do not integrate all the sociological and psychological effects soldiers might experience. In many situations, the goal of the training is simply to place soldiers in a complex or chaotic environment while faced with a large density of tasks they must accomplish. The training exposes these soldiers to stressful situations while teaching them how to quickly prioritize tasks and how to be better organized in their response to such situations. Routinely extending this kind of simulation, simulator and game realism into training, will help the French and US Armies create the type of environment their soldiers can expect to encounter on the battlefield. The aim of the training is to teach soldiers how to defeat the enemy while limiting their own exposure to risk. The case of the US pilots controlling the armed UAVs is a good example that clearly illustrates this idea. The danger though could be a generation of soldiers trained this way who have not been exposed to the human aspect of COIN operations, like in recent years, could be very receptive to the idea of using mainly armed robots with complete isolation from the battlefield.

As a consequence, the French and the US Armies have to increase the education of their officers to make them aware of the possible effects that additional simulation in training activities can cause. They must grasp the unexpected consequences of these new technologies and the ways they are used in the training of their soldiers.

Video Game Interfaces are Useful for Developing Robot Control

Learning to control all of the second or third order effects that the increased use of simulation and video games will have on soldiers in training will become even more relevant in the future with the proliferation of different types of robots begin appearing for use on the battlefield which will potentially use the same kind of interfaces to control their actions. Eric Stoner, a professor at Saint Peter's University, is opposed to further advances in robotics, and has written many articles to denounce this new trend. Here are some quotes from one of his articles online:

> Moreover, the similarity that the robots have to the life-like video games that young people grow up playing will blur reality further.
>
> If guys in the field already have difficulties distinguishing between civilians and combatants . . . what about when they are looking through a video screen?
>
> Rather than being a cause for concern, however, Major Michael Pottratz at the Army's Armament Research, Development and Engineering Center in Picatinny Arsenal, N.J., says in an e-mail that developers are in the process of making the control unit for the SWORDS[6] more like a "Game Boy type controller.[7]

To avoid this kind of criticism from the civilian society in regard to the further development of ground robots and additional virtualization, French and US Army officers will have to be prepared to communicate with the civilian sector about the intended use of these assets.

The Overwhelming Influence of Sensors and Different Kinds of Media

In Combat

Broadcasts originating from the battlefield are a very important part of the media's coverage of conflicts or war. In that perspective, military leadership is requesting more and more data and images than ever before from the battlefield in order to visualize, confirm and-or deny reports given by the media. Adding to this civilian trend of recording usual daily activities, combat videos are becoming an ever more common phenomenon, as they are popping up everywhere, are all over the internet, on website like YouTube, etc.; seems everyone with a recording device is filming anything they can and posting it for all the world to see. Likewise, many tactical operations centers broadcast live images from the unit's latest tactical actions, as a way to maintain a constant situational awareness. Facing insurgents or asymmetric situations, it can give the commander a feeling of omniscience, thus reducing enemies' activities as a battlefield parameter.

The Psychological Effect of Sensors in the Perception of the Combat Environment

Eric Stoner, in his article about killer robots mentions: "By distancing soldiers from the horrors of war and making it easier for politicians to resort to military force, armed robots will likely give birth to a far more dangerous world."[8]

The Useful Presence of Screens and Sensors between the Soldier and his Enemy

Every modern combat system, even for the infantrymen (i.e. the French Felin individual weapon system) has a screen broadcasting the image of the target. This screen

serves to protect the soldiers from the violent reality but it also places a filter on his perception. Christopher Coker theorizes that in Desert Storm, the grainy images of targeting information, contrasted with the computerized war games used for entertainment, distanced the public emotionally and psychologically. "Here was no community of fate with the enemy."[9]

Thus, when asked in the survey about the effect on their empathy for their enemies caused through the use of sensors and screens, 33 percent of the officers surveyed assessed that their empathy decreased while another 60 percent of those surveyed estimated that these filters (the sensors and screens) did not change anything.

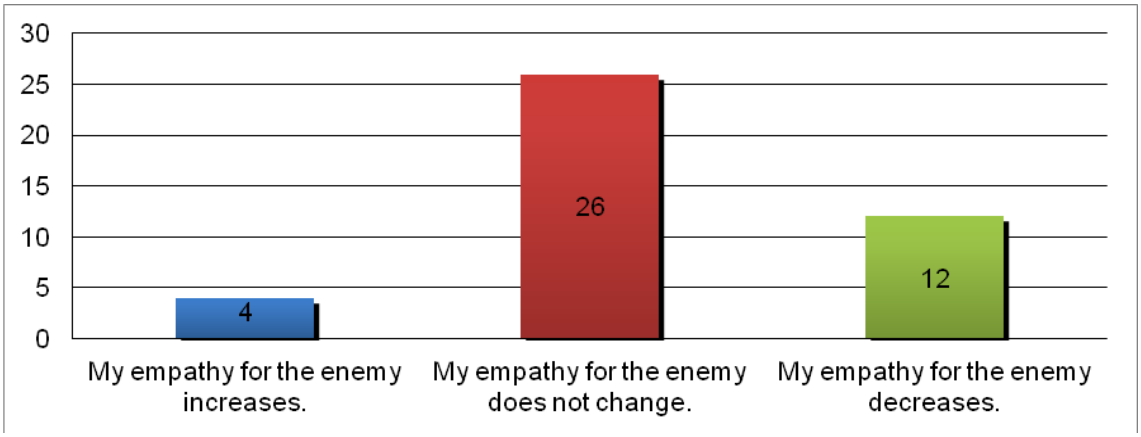

Figure 8. Modification of the Empathy for the Enemy when Perceiving the Reality Through the use of Sensors and Screens

Source: Created by author.

As the use of such technologies will continue to increase, Army soldiers using these systems should periodically be required to conduct a self-assessment to determine

the effects, if any, that these sensors and screens might be having on their empathy towards their opponents.

The Transition of a Cold War Conventional Warfare Mindset to a Targeting Process

The Influence of Desert Storm and the Iraqi Campaign in 2003

The impressive success of the Air Campaign both in 1991 and 2003 has also influenced the way the US Army prepares for major battles. When using the Military Decision Making Process (MDMP), the Army officers describe the enemy as a group of different interacting systems. To attack these systems, the enemies' center of gravity, his main critical vulnerabilities are targeted. The science of control in Mission Command Philosophy allows only a few places for humane considerations with regard to the targets.

To describe this new kind of warfare, the journalist Steve Featherstone wrote in Harper's Magazine: "Absent fear, war cannot be called war. A better name for it would be target practice."[10]

The Influence of the Targeting Process even in Current Conventional Fights

Targeting processes allocate the adequate weapon system before striking. Even old Army Cold War systems were adapted to fit targeting requirements.

Major combat systems built during the Cold War like the Infantry combat vehicles, the Anti-tank AH64 Apache helicopters or the EC665 Tiger were not designed for targeting, even if some ammunitions were precise. Their ammunitions were dedicated to saturating an area or penetrating the armor of adversaries' tanks. During the last decade, the enemies of Western countries were mainly equipped with basic truck vehicles

carrying light machine guns. These vehicles were hidden in urban areas. It required then a shift in the use of these Cold war combat systems. Thus, some ammunitions have been tested to estimate their Collateral Damage distances. Engagement of the enemy was authorized only if the Collateral Damage was reasonably avoided. The use of old French helicopters Gazelle in Libya against Gadhafi's forces was a significant example. They were able to shoot on enemies that fighters could not reach because they were too close to major civilian infrastructure (Electric power lines, mosques, water plants). During Operation Unified Protector, pilots were engaged from behind their infrared camera. In the near future, with drone helicopters already existing, political leaders will have the opportunity to conduct the same kind of war, committing Army helicopters but with pilots maintained in a safe area.

Nevertheless, this same operation emphasizes a different approach between the French and the British Army helicopter squadrons. British AH64 conducted only deliberate strikes against targets designated by other assets. French helicopters did dynamic targeting, reconnoitering the area before engaging the enemies in short range fights. This close distance allowed them to destroy Gadhafi main combat vehicles but allowing their crews to flee before destruction. Their humane consideration was as important as the strict targeting process.

A Generation Influenced by the Human Aspect in COIN Operations

The officers of CGSOC Class 14-01 were required to give their level of agreement with a statement of Colin Gray in his book *Fighting Talks*, "There is more to

war than firepower, the enemy is not just a target set." As illustrated in the following figure, an important majority of officers agree with this idea.

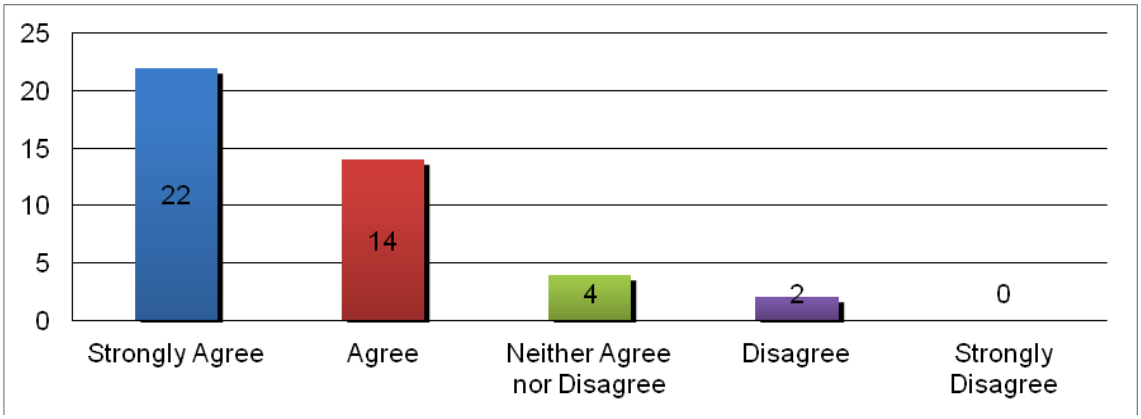

Figure 9. Level of Agreement with Colin S. Gray's Statement about Targeting

Source: Created by author.

Effect of a Remote Position in the Decision to Kill

The survey confirms the conclusions of Lieutenant Colonel (Ret) Dave Grossman on the effect of physical distance between a soldier and his enemy.

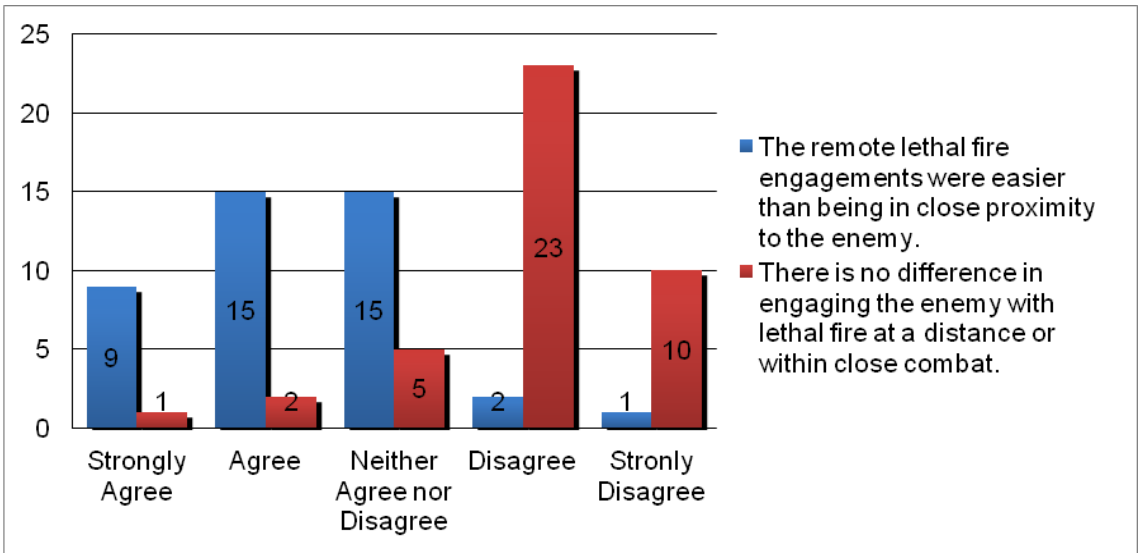

Figure 10. Level of Agreement with the use of Remote Lethal Fire against an Enemy

Source: Created by author.

The Necessity to Manage Images Broadcasted in Tactical Operations Centers

Most of the higher command posts located in Afghanistan and Iraq were equipped with televisions and screens broadcasting images from the battlefield. In particular, headquarters pay much attention to the media coverage off their area of responsibility. The officers who answered the survey felt that viewing these images accustomed them to violence. It seems also that what becomes more important is not the real perception of the enemy on the battlefield but the way they are portrayed on the battlefield by journalists. A huge amount of energy is therefore spent reacting to the media coverage instead of the real perception the military has of their enemies on the ground. However, the officer's perceptions were that journalists did not suppress emotional feelings when preparing when they were preparing their news stories.

This question emphasized the necessity of broadcasting only necessary images and videos in the unit headquarters. It should be avoided on screen walls which were sometimes nicknamed “death TV” as they broadcast mainly strike activities. It could desensitize the staff to the violent reality of the battlefield.

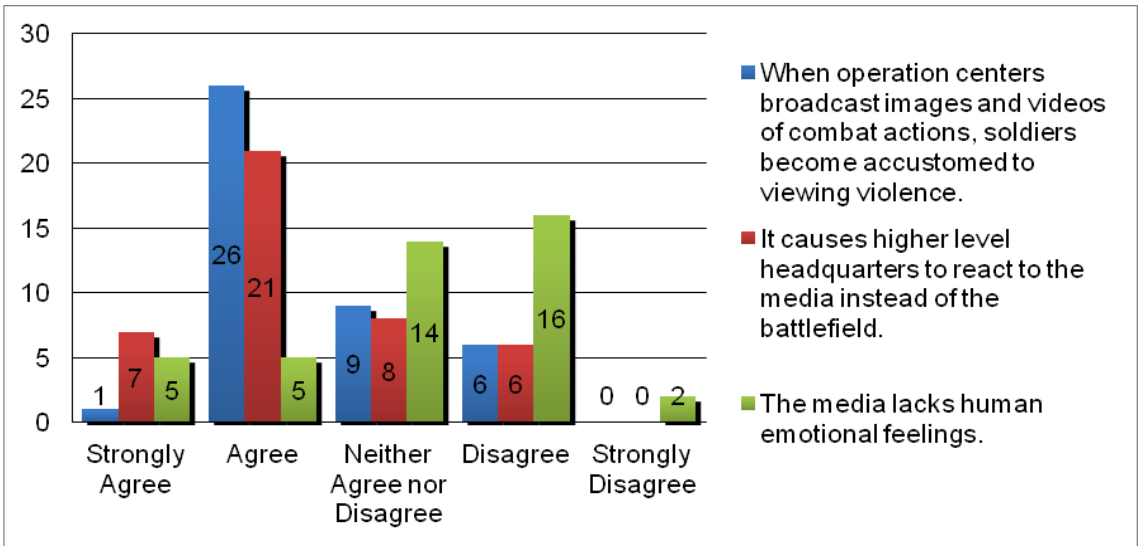

Figure 11. Level of Agreement Regarding Media Broadcast

Source: Created by author.

How do French and US Soldiers Understand their Enemies

The peer to peer conventional fight is still in the mind of many soldiers but the current focus on terrorist and-or insurgent groups takes precedence over it.

The Emotional Effect of Terrorists' Actions

After the terrorist attacks of 11 September 2011, most soldiers in the French and US Armies considered any operations as legitimate if directed against groups supporting these kind of actions and had little, if any, empathy for them. It explains in part some of the extreme violence that some American units applied in Iraq against some of their opponents. The behavior of some commanders, like Lieutenant Colonel Sassaman, nicknamed the "Warrior King," has become ethical case studies in the CGSOC curriculum, due to the high levels of violence he condoned. The distillation of the COIN doctrine within the US Army under Lieutenant General Petraeus' influence changed the focus of the land forces requiring them to increase their consideration of the population. Many insurgents were recruited from families that suffered casualties from collateral damage and the extreme violence of the Western countries operations. With COIN, soldiers changed to showing more humane considerations towards their enemies when they planned to attack.

The Soldier's own Assessment is the most Influential Way to Understand the Enemy

The survey required the US Army officers to define what they felt is the most influential factor to them in defining and understanding their enemies. It seems that the best way to understand their enemies remains by being located with them on the battlefield.

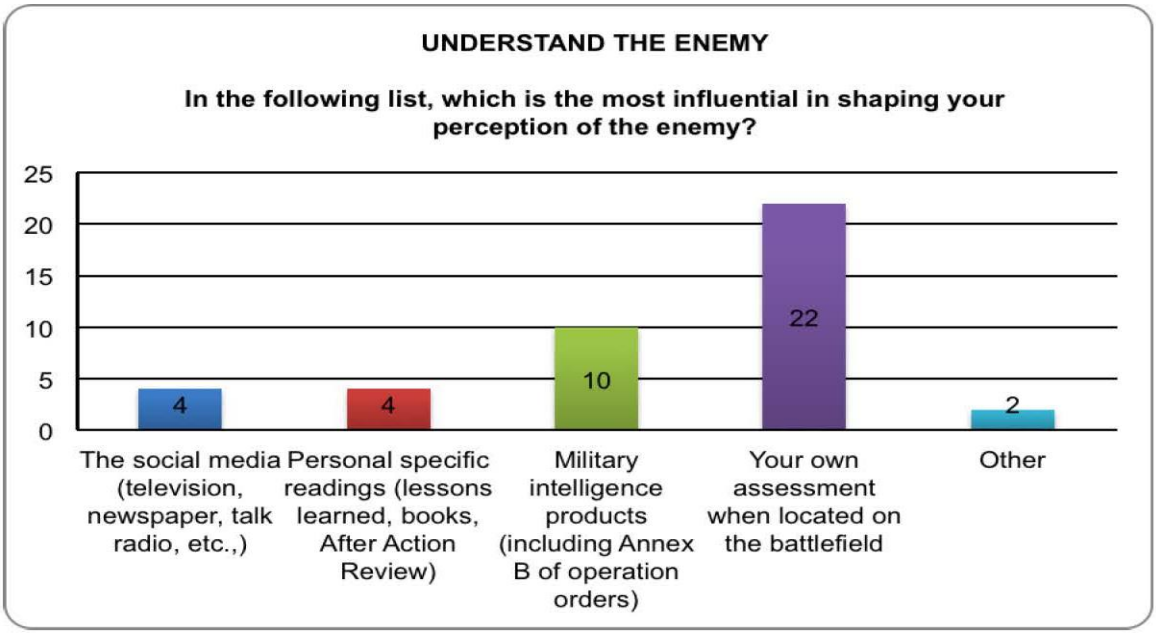

Figure 12. Most Influential Way to Understand their Enemy

Source: Created by author.

The French and the US Armies both made considerable efforts in training to educate their combat forces to what their enemies would be like well before they deployed. However, it seems that both their forces achieved a better understanding of their enemies once they were deployed and located in their area of operations.

This assessment has several implications for both armies in the future. Leaders will have to explain to civilian society what the ethical risks are in committing only Unmanned Ground Vehicles (UGVs) into a theater of operations. Maintaining some human operators on the ground close to these assets could be an acceptable solution to better evaluate the threat.

The US Army will potentially better adapt its forces to the challenge of better understanding the threat. In fact, in implementing the regional alignment of its forces, the

US Army plans to train and educate its units in line with the Geographical Combatant Command requirements on just the threats or potential adversaries (enemies) within that specific Geographic Command. It could be assumed that these forces will have a better operational situation awareness enabling these forces to respond in a better manner than what was done in the past. At least, it could be an interesting objective for these regionally aligned forces.

Officers' Response to Critics from their Enemies and Opponents to Unmanned Fighting

After the recent targeted killings by US drones in Pakistan, some journalists focused in their articles on the reactions it provoked within the population and also within the opponent groups formed in the United States. The US Army officers from CGSOC class 14-01 were asked to provide their level of agreement with arguments made by many of these critics. The results are shown in figure 13.

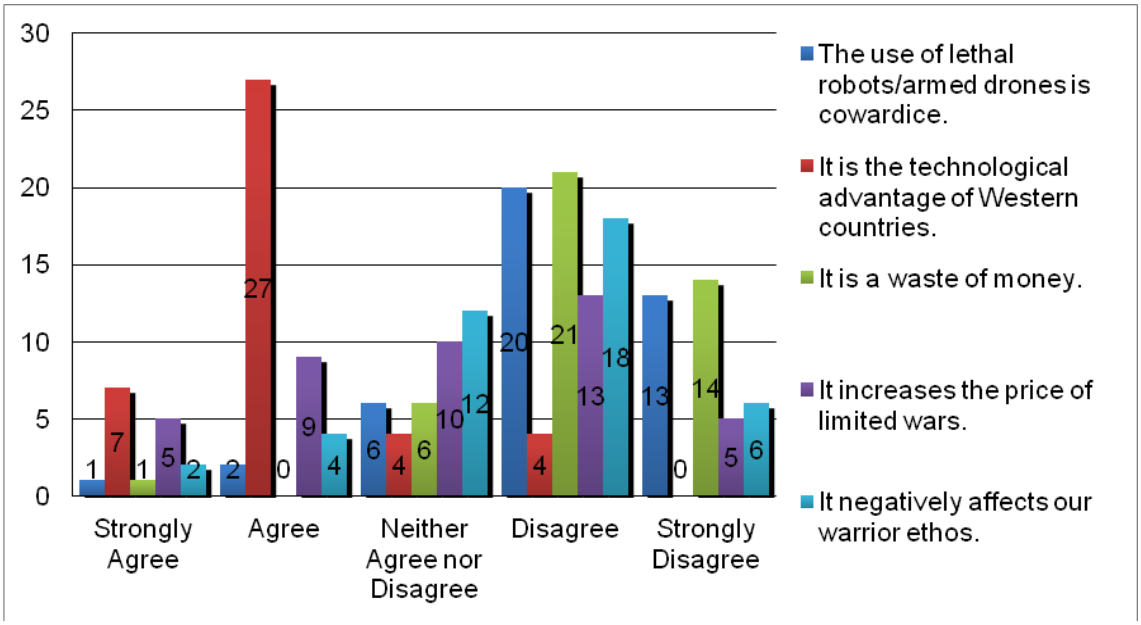

Figure 13. Level of Agreement—Disagreement Regarding the Critics of using Lethal Robots—Armed Drones

Source: Created by author.

The main conclusion for this question is that the officers consider this new technology as a technological advantage for Western warfare. Despite the critics of their costs, they do not consider it as a waste of money if it will spare friendly forces' lives. It seems also that using these assets and certainly in their mind, by not sending as many troops on the ground, the cost of current limited wars will not increase. It can be assumed that the sample US Army officers who answered this survey question support the development of these technologies despite the criticism made against the past drone' campaigns.

However, it is interesting that these officers considered that their warrior ethos won't be negatively affected by additional robots on the ground.

The US Army soldier's creed mentions specifically "I stand ready to deploy, engage, and destroy the enemies of the United States of America in close combat." The French soldier's code mentions "master of his force, he respects his adversary and pays attention to spare the civilian population."

The French and US societies have similar yet different expectations of the behavior they expect their soldiers to adopt against their enemies. The US creed is much more pugnacious but in both societies, the idea is still to get in close contact with the adversary. Armies have been built around human soldiers for at least the past 25 centuries. However, we are living through a period of rapid technological changes that are affecting everything from the cars we purchase, to the food we eat, clothes we wear, to the way we fight. So, it is really impossible to predict what the warrior ethos will be when using more unmanned ground vehicles as well as other autonomous lethal assets. Potentially, the kind of warrior ethos taught in many Western military academies today might not be relevant anymore. Lieutenant Colonel Riza mentions in his book that "It (the impunity) highlights the disconnect between our technological warfare and the warrior culture and it affects our "conversation "as moral equals."[11] He also quotes Coker who perfectly explains the new dilemma: "Without a sense of the tragic, it is difficult to maintain a humanistic understanding of war, or for that matter, for soldiers to see themselves as warriors."[12] Nevertheless, this change seems to be accepted by the officers from CGSOC class 14-01.

A Rising Misunderstanding with "Patient" and Growing Enemies

President Georges W. Bush's Administration was a strong supporter of the development of targeted killing in the Global War on Terrorism (GWOT) campaign. One of his famous quotes was: "We are talking to them in a way they can understand. Capability like this changes the game."[13] The efficiency of these campaigns can be discussed today as they have not been able to eradicate the terrorist threats. It has created anxiety within terrorist organization and amongst the various terrorist leaders, but has strengthened the Al Qaeda's franchise approach. Thus, developing more unmanned lethal ground vehicles for the US and French Armies should be studied carefully and the effects of their uses assessed cautiously to determine what their exact impact may be.

Current enemies (terrorist groups and insurgents) have the strategic patience and a constant ability to recruit new "adherents." In fact, in Afghanistan as in Iraq, the overwhelming technological advantages of Western countries as well as too many collateral damages strengthened the ranks of the insurgents. These groups quickly realized that the support of Western societies will diminish in proportion to friendly losses on the battlefield. So, anyone can understand, how additional lethal assets, protecting soldiers' lives can seduce the military leadership. Thus, the threat will continue to grow as well as the number of lethal unmanned assets. It will give credibility to insurgent leaders arguing on Western countries inhuman approach.

The New Dilemma of Extending Conflicts and Exposing Western Non-combatants to Retaliation

Riza stated that precision weapons and accurate assets, stand-off assets will allow politicians to engage in kinetic actions they would not have done earlier. "When the

prospects of human losses are low, presidents have found it easier to use force through their prerogative as commander-in-chief."[14] It will allow the governments to prevent crisis by extended use of force. However, the US and French Army officers must not forget that such decisions by civilian authorities had been advised by the military leadership. So, it means that the easiness to further develop on the ground lethal robots and unmanned assets will help the decision to use them overseas. US and French Army leaders will have to be educated enough and aware of the drawbacks of such way to conduct warfare.

The major negative effect is the extensive protection provided to friendly combatants. As a consequence, the enemies, in a Clausewitzian approach; keeping their will to fight, will target Western countries' vulnerability, which is non-combatants on their soil. As future leaders in the Army, it is our responsibility to find and maintain an acceptable human interaction with our enemies to avoid that our populations would be targeted. Our absence of humanity by using mainly machines against human opponents could justify for them the authorization of coward by inhuman attacks against non-combatants.

The definition of such a limit could be obtained through an adequate ethical teaching.

A Necessary Ethical Teaching at the Dawn of Possible Ground Lethal Robotization

"As I researched this work, the overwhelming response to my question of whether robotics manufacturers, industry organizations, governmental program offices or research agencies are concerned with the ethics of robotics was a simple 'No.'"[15]

The Western way of warfare is built on the prevalence of a technological advantage: The Army, as the other Services will continue to maintain this advantage. However, officers will have to be sure that ethical consequences for using new assets and tools from the industry are correctly internalized.

The ethical teaching should focus on the legitimacy on the use of these new technological developments, some possible considerations on the new status of Army soldiers and the new kind of violence developed.

The Debate on Legitimacy is not yet Developed in both Armies

Mainly based on the drones case, Riza mentioned that the United States should work through international organizations and legal conventions to codify limitations on armed unmanned systems.[16]

Therefore, one question was inserted in the survey in order to assess how US Army officers in CGSOC Class 14-01 perceive the legitimacy of new ground unmanned (autonomous) lethal assets. The results are presented in the following figure.

The question aims to see if any country should engage in the use of unmanned armed (aerial or ground) vehicles without clear international governing laws.

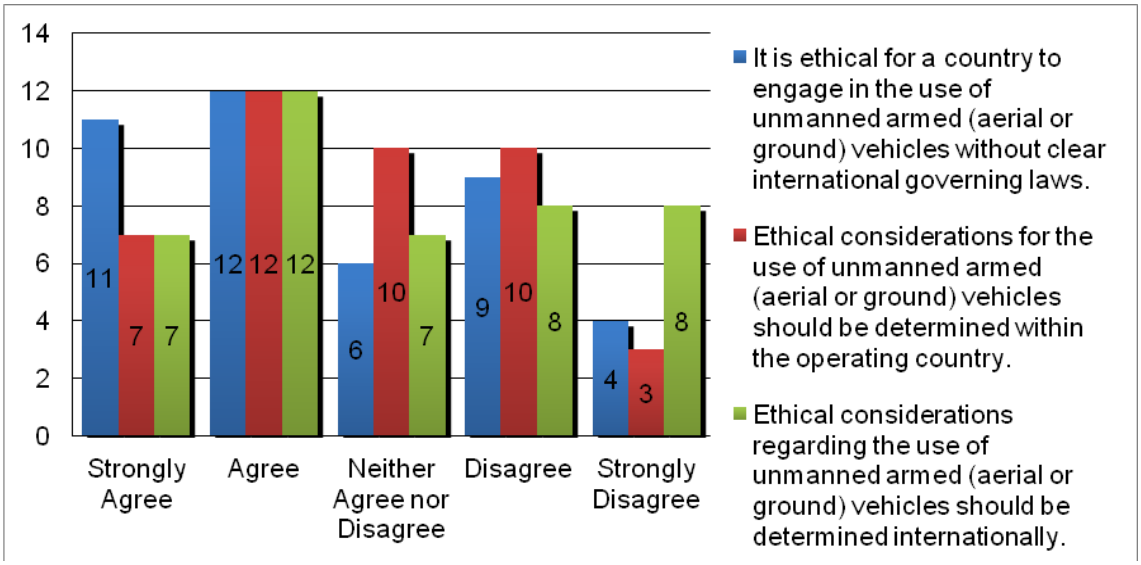

Figure 14. Level of Agreement—Disagreement with some Ethical Considerations on UGV

Source: Created by author.

There is no real consensus on the ethical considerations of engaging in unmanned armed combat. The question seems to divide the officers who answered the survey.

A slight majority seemed to justify the current use of armed drones even in the laws' vacuum for targeted killing. No majority exists on whether the ethical considerations should be determined at the international stage or within the operating country.

Thus, it could be relevant for the French and US Armies to instill this debate in the future in military education (mainly at the officer level).

What could be taught in the French Ecole de Guerre and US Army Command and General Staff College

A major point would be to develop the role of the commander on a battlefield where many unmanned assets and in the later future lethal robots are deployed.

As shown on figure 15, US Army officers did not agree on whether the technological improvements in remote engagements ease the decision to kill or not. It can be assumed that the result of these technologies are not fielded yet and such a debate is not started yet. The development of remote capabilities is not designed to ease the decision to kill. Nevertheless, discussing about this future with field grade officers could help define the adequate mechanism for a commander in taking the decision to use lethal fires.

Moreover, it seems that the commander could be more isolated from the reality of the battlefield. The education received should then emphasizes on this risk and the possibility to mitigate it.

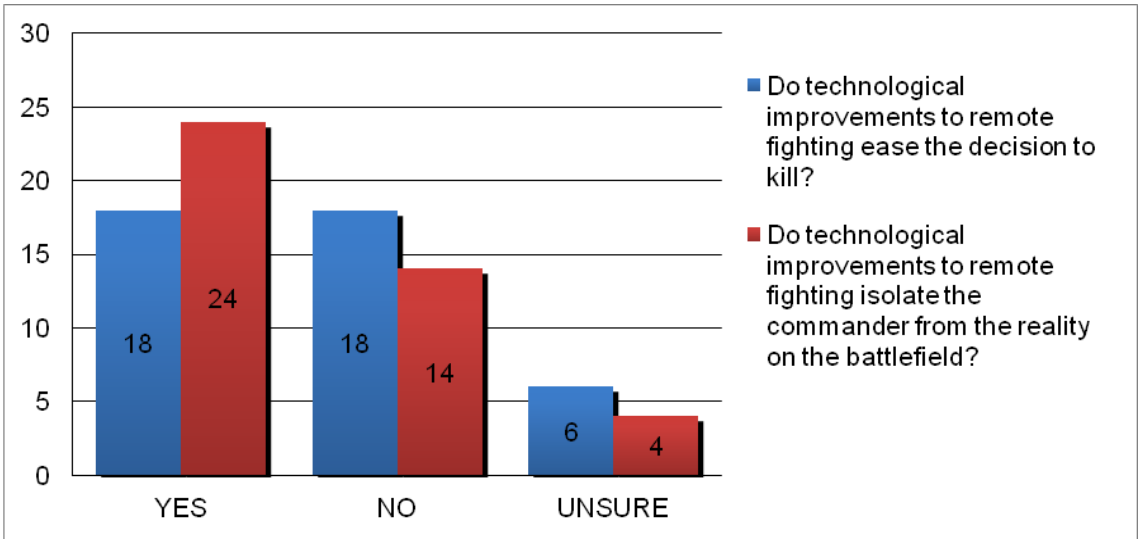

Figure 15. Effects of Technological Improvement in Remote Fighting on the act to Kill and the Commander's Isolation from the Battlefield

Source: Created by author.

After Completing CGSC, are the Officers Prepared for the
Ethical Challenges of Additional Robotization
on the Battlefield?

It is important to note that the problem of robotization was not a real part of the CGSOC curriculum. Thus, it can partially explain why most all the officers answered that they do not disagree or agree with the fact that CGSC prepared them to face the new ethical challenges of battlefield robotization.

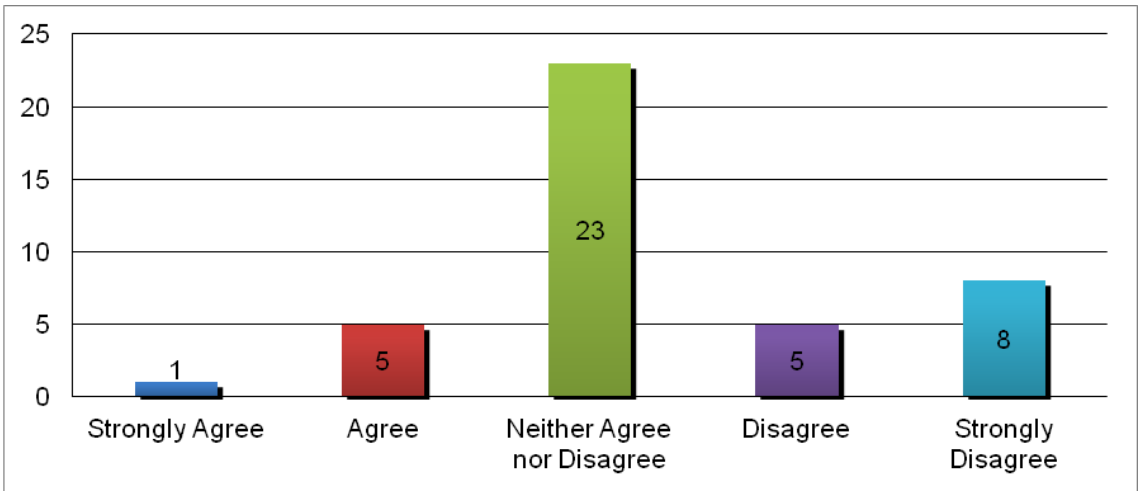

Figure 16. Level of Agreement Whether CGSC Prepares to face the new Ethical Challenges of Battlefield Robotization

Source: Created by author.

In the French War College, students had only one conference with General Royal, a specialist in Ethics, who developed the ethical issues of unmanned "targeted killings." Nevertheless, the thought did not go further with additional classes or discussions.

It clearly means that both schools have not yet made the effort to study the early stages of robotization as Armies are less concerned with ethical problems. Many officers in the survey opined that lethal Unmanned Ground Vehicles, and in a more distant future autonomous ground robots, are only tools for military commanders. It will be necessary to define their rules of engagement. However, there is a risk for not beginning an education on this dilemma. This technology could be available soon and the consequences of their use could not have been enough anticipated within the forces.

As commanders will always be responsible for the use of lethal fires, helping them to anticipate what the future could look like should be a matter of great concern.

An Interesting Case Study that could be used: the Air Force Drones

The US Air Force has operated armed unmanned vehicles for more than 10 years. This Service benefits from many lessons learned and could constitute an interesting case study to prepare the minds of future Army leaders. Such a class/lesson could enhance the development of new solutions to adequately integrate robotics in Land forces, in respect of Western countries core values.

These case studies could first strengthen the role of the military leaders to advise wisely their political leaders on the use of this lethal weapon and not lower the barriers set by the society to wage a war.

The class could then emphasize the problem of remote combat. The course could not only explain the psychological (PTSD) problems of some pilots, but could show how sensors and virtualization modifies our behavior on the battlefield.

The third aspect of such a class would be to define the interrelationships between the law, the morality and the sense of humanity. Lieutenant Colonel Riza wrote that the law can only react. It has not been successful in outlawing a technology before the technology was fielded.[17] It is precisely for this reason that US and French field officers should be prepared in the advent of these new ground technologies. As legality is not equivalent to morality, the course could go further with the development of critical thinking for these young leaders. It should prepare them to balance law, ethics and their own feelings towards the enemy.

By not conducting these kinds of thoughts, The French and US Armies could take the risk that their officers accept the new principle of impunity for their forces and unleash extreme violence of their opponents against other non-combatants.

Balance Fielding of Ground Unmanned Assets and Human Considerations for the Enemy

The French Air Force is currently not allowed to place weapons on Predator drones recently purchased from the United States. Political leaders understand the advantages these weapons could provide as close air support assets for ground troops. Nevertheless, they preferred to take time to assess all the ethical consequences of using such assets. The choice of the US government to extend their use in targeted killing is a path that France has not yet followed. This study does not seek to have any judgment on these decisions.

However, this example should develop a thinking process about how leaders could field UGV without provoking too much opposition from civilian societies and Army soldiers. A possible solution would be to use them as a defensive tool around

forward operating base. Depending on their efficiency, they would be after fielded in combat units for offensive tasks. The use would have been explained and implemented into Rules of Engagement largely endorsed by other Allies. By this way, even if War will always remain the realm of violence, the legitimate act to kill by unmanned machine and in the future autonomous robots will remain an exceptional decision from military leaders.

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[1]Shane Riza, *Killing without Heart: Limits on Robotic Warfare in an Age of Persistent Conflict* (Washington, DC: Potomac Books, 2013), 34.

[2]Amber Corinn, "Army Looks to Virtual Training, Shared Intel Amid Budget Cuts," FCW, 21 January 2014, http://fcw.com/articles/2014/01/21/army-training.aspx (accessed 4 April 2014).

[3]Damien Lewis, "Death at their fingertips: Prince Harry made killing Taliban sound like a video game. But in this heart-stopping account, a British Apache crew reveal the incredible pressures they are under," Dailymail, 31 January 2013, http://www.daily mail.co.uk/news/article-2271652/Death-fingertips-Prince-Harry-killing-Taliban-sound-like-video-game-But-heart-stopping-account-British-Apache-crew-reveal-incredible-pressures-under.html (accessed 25 April 2014).

[4]http://www.defensenews.com/article/20120619/TSJ01/306190003/NATO-Uses-Games-Promote-Civil-Military-Understanding (accessed 22 April 2014).

[5]Isabelle Guiglionda, *45e session du CHEAr- Comité 2* (IHEDN, 2009), http://www.ihedn.fr/userfiles/file/larecherche/rapports/45sn-armement/SN45_T1_2.pdf (accessed 22 April 2014), 125.

[6]SWORDS: Special Weapons Observation Reconnaissance Detection Systems. They are wired controlled combat robots in the US Army.

[7]Eric Stoner, "Attack of the Killer Robots," 28 February 2009, http://ericstoner. net/2009/02/28/attack-of-the-killer-robots/#more-68 (accessed 18 April 2014).

[8]Ibid.

[9]Riza, Killing without Heart, 93.

[10]Steve Featherstone, "The Coming Robot Army," wesjones.com, 2007, http://www.wesjones.com/robot.htm (accessed 25 April 2014).

[11]Riza, *Killing without heart,* 64.

[12]Christopher Coker, *Ethics and War in the 21st Century* (New-York: Routledge, 2008), cited in Riza, *Killing without Heart*, 88.

[13]Ron Suskind, *One Percent Doctrine: Deep Inside America's Pursuit of its enemies since 9/11* (New-York: Simon and Schuster, 2007), 182.

[14]Kenneth, B. Moss, *Undeclared War and the Future of US Foreign Policy* (Washington, DC: Woodrow Wilson Center Press, 2008), 200.

[15]Riza, *Killing without Heart*, 100.

[16]Ibid., 170.

[17]Ibid., 34.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The current generation of French and US Armies' soldiers has important combat experience from Iraq and Afghanistan. Having been taught COIN doctrine, these forces have a clear understanding of the human approach to maintain, mainly towards the population. Such an influence allows them to keep a sense of humanity toward their current enemies. It is one of the main reasons for these two Armies to find ways of keeping within the organization the knowledge of this decade of war.

However, as shown by this study, the return of these forces to their garrisons represents an important risk for the knowledge and understanding of current enemies. On that precise point, the US Army, with a Regional Alignment Policy, can expect to maintain a good understanding of the enemies' dynamics within the Geographic Combatant Commands' areas of responsibility. It could avoid the current situation with officers discovering and learning from their adversaries when physically assigned in the Theater of Operation.

This generation of soldiers seems also to conduct a slow but inexorable transition to an increasing presence of unmanned armed assets on the battlefield. This phenomenon could lead to the fielding of autonomous lethal robots in the long term. This study has shown that the officers from CGSOC class 14-01 agree that these developments represent the new technological advantages from Western countries. These improvements encompass additional sensors and interface between the operators and its enemy targets, an increasing virtualization of the battlefield and more and more remote fighting.

Along with the fact that soldiers are more used to play video games and train with simulators, some academic authors denounced a potential risk for unnecessary violence toward US and-or French adversaries. With the survey conducted among officers form CGSC, it seems that the virtual reality of this new way to combat could dehumanize our soldiers on the battlefield. The empathy to the human targets could decrease when using sensors and screens to order and engage enemies with lethal fires. It is utopic to think of banning these new technologies. But it is the role of Army commanders to notice this phenomenon and specifically educate their soldiers on respecting the Army core values.

The Air Force is at the forefront of fighting with unmanned assets. The lessons learned from ten years of conflict and the policy of targeted killing should be a subject of more interest in the French and US Armies' Staff College. It could prepare future Army leaders to apprehend the ethical challenges of these new technologies. Some mistakes could be avoided for the fielding of additional unmanned ground vehicles. Overall, the legitimacy of their use could be discussed within the military and possibly at the international level.

In fact, as many defense industries will continue to innovate in these kind of technologies, the US and French Armies will face the same challenge as current drone pilots, it is the question of impunity for military operators. Military technologies have always sought to enable the forces to act against an enemy without being threatened by him. But military operators have never been out of the Theater of Operation. This impunity for Army soldiers could create a shift in the enemies' mind. As already stated by Lieutenant Colonel Riza, they could decide to attack one of the most important vulnerabilities in Western countries' societies (i.e. their non-combatants). Thus, the

author would conclude that we should never break the sense of humanity that we consider for our enemies to avoid an extreme violence against the people who empowers our armies and that soldiers are supposed to defend. As shown in the survey, many media broadcasts from the battlefield make soldiers accustomed to violence but not against their own societies. It is obvious but future Armies should never forget to use only the adequate level of violence to solve conflicts and come back the quicker as possible to a stable situation.

Therefore, both the French and US Command and General Staff Colleges, as well as other lower ranks' education centers should begin to educate Army leaders in the advent of increasing unmanned assets and potential autonomous lethal robots in the long term. These technologies should not been fielded first in a kind of doctrinal and legal vacuum.

Currently, one or two classes could be added both in the Ethics curriculum and leadership. It would sow the seeds for further thoughts and debates within the organization. It is one solution for a correct adaptation of Armies Warrior ethos to the new way of warfare, in continuous respect of Army Core Values.

Recommendations

Necessity to Widen the Scope of the References

This study is not really complete as it has mainly based its references on French studies about robotization and technological visualization of current enemies. Even if the author was collocated with the Combined Arms Centers in Fort Leavenworth, he has not taken the opportunity to meet some American subject matter experts.

Necessity to Confirm the Results of the Survey

To deny any criticism on the conclusions drawn in this study, the same kind of survey should be submitted to officers of another CGSOC class. The questionnaire should be carried out rapidly after the beginning of the scholarship so that more officers would participate.

The potential trend of according less empathy to an enemy due to the virtualization of the battlefield should also be the subject of a survey at lower ranks. For example, requesting the participation of a new class of Command Sergeant Major would be beneficial for this study.

Lastly, it could be easy and very interesting to request the same surveys in French military schools. The comparison between the results could reveal common behavior toward the enemies but also differences in the culture and military education.

About the Ethical Education in CGSC

With current results, the author would suggest to create a kind of working group on the advent of robotization in the US Army. This could be done during the elective period with selected students. They could select readings and prepare essays and presentations which could become the backbone of some ethical and leadership classes for the entire College. These working groups would be an excellent application of critical thinking about US current Armed forces strategy and an excellent way to foster innovation in leadership for the future.

Different Cultural Approaches

This thesis did never try to study the perception of different civilization than Western countries on the current trend of remote and stand-off positions to fight enemies. With a current rebalance of US foreign policies in Asia, the results of this study could be evaluated through the cultural prism of China or Japan. It could help Army commanders to appreciate how other countries would manage the change in the Warrior ethos of their soldiers.

To not Conclude

French Général Benoît Royal, author of *l'éthique du soldat francais, la conviction d'humanité* and Colonel Marc de Fritsch, author of *des guerres et des hommes*, both accepted to answer some questions related to this thesis.

They give an interesting assessment of current and future ethical challenges with the introduction of unmanned assets and later on robots. Their translated answers are located in Appendix C and D.

For both French and US Armies, we can hope that Private Military Corporation will not field these technologies before the Armies, without a real ethical debate. Video game designers, like for the nest opus of Call of Duty explains how these "unregulated" major companies could become the reason for a new war. If the scenario doesn't seem realistic in the short term, the ability of these companies to acquire brand new technologies is pertinent.[1].

[1]Call of Duty, "Advanced Warfare," http://www.callofduty.com/advancedwarfare/media/vice-doc (accessed 14 May 2014).

APPENDIX A

SECURYMIND SOCIETY APPROVAL TO USE

THEIR STUDY AS A REFERENCE

Luc Alloin 17 mar

À Moi, Pierre Martinez

Monsieur,

Nous avons bien reçu votre mail et vous remercions pour l'intéret que vous manifestez à cette étude que nous avons pilotée. Vous pouvez en mentionner les extraits qui vous paraitront pertinent, en n' omettant pas les deux principaux auteurs que sont Frédéris Coste de la FRS et Pierre Martinez de Securymind, que vous pouvez contacter si nécessaire en cas de besoin,

Bien cordialement

Luc ALLOIN
Président Directeur Général
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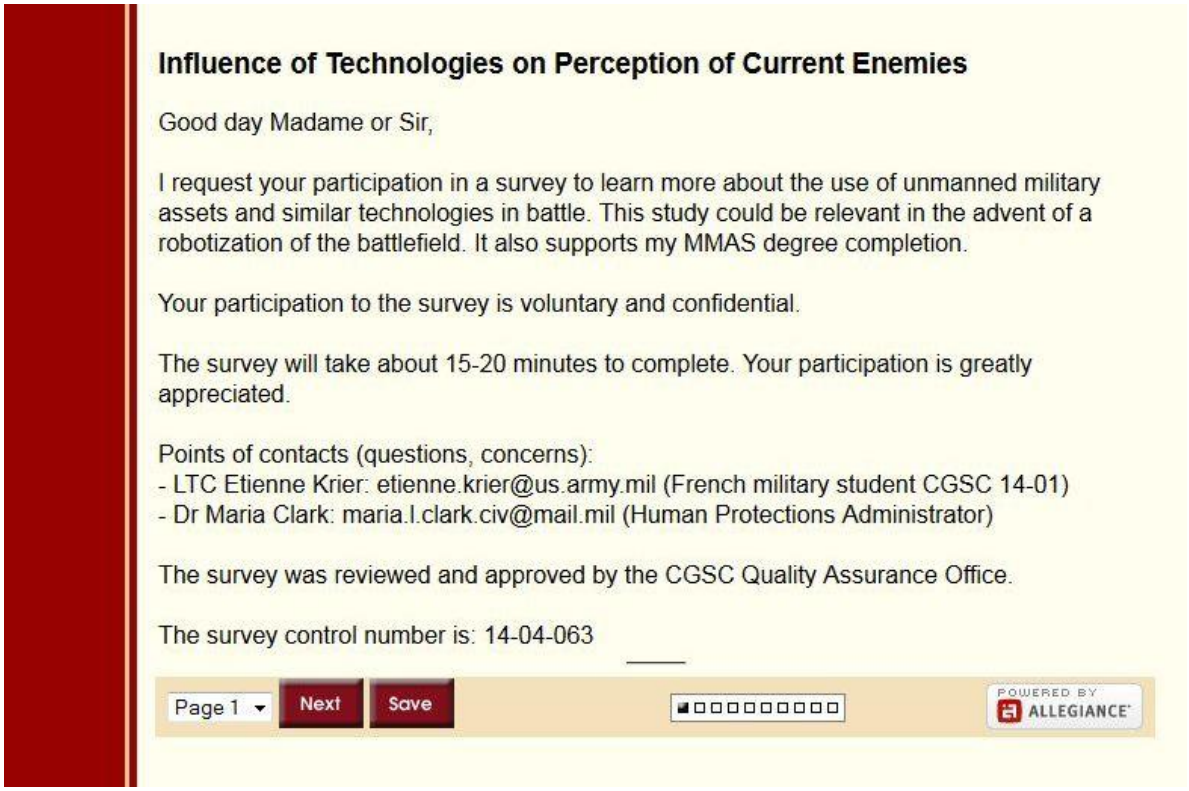
APPENDIX B

SURVEY

This appendix provides a copy of the questions developed in the Survey sent both to US Army and Air Force students attending CGSC 2014 Class.



Influence of Technologies on Perception of Current Enemies

Good day Madame or Sir,

I request your participation in a survey to learn more about the use of unmanned military assets and similar technologies in battle. This study could be relevant in the advent of a robotization of the battlefield. It also supports my MMAS degree completion.

Your participation to the survey is voluntary and confidential.

The survey will take about 15-20 minutes to complete. Your participation is greatly appreciated.

Points of contacts (questions, concerns):
- LTC Etienne Krier: etienne.krier@us.army.mil (French military student CGSC 14-01)
- Dr Maria Clark: maria.l.clark.civ@mail.mil (Human Protections Administrator)

The survey was reviewed and approved by the CGSC Quality Assurance Office.

The survey control number is: 14-04-063

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POWERED BY ALLEGIANCE

Influence of Technologies on Perception of Current Enemies

A variety of **lethal robots** are beginning to populate the battlefield in a number of different ways and are modifying our tactical view of the enemy. The most significant inovation is the **utilization of remote controlled technological assets** to locate, track, monitor and attack targets from stand-off distances. This new way of conducting warfare has **primarily affected the USAF** through the use of drones, though this is expanding to the Army. Currently, Army aviation, armored and field artillery units are conducting battles through the use of highly technical and advanced sensors and screens.

This survey seeks to learn about your combat experience in engaging with the enemy.

The questionnaire is divided into four parts:
- Understand the enemy (SOCIOLOGICAL approach)
- Visualize the enemy (TECHNOLOGICAL influence)
- Describe an action on the enemy (ETHICAL approach)
- Direct a killing action (PSYCHOLOGICAL influence)

Service:

- ○ US ARMY
- ◉ US AIR FORCE

Which specialty in the US AIR FORCE?

- ☐ Drone pilots / navigators
- ☐ Fighter pilots / navigators
- ☐ Bomber pilots / navigators
- ☐ Other pilots / navigators
- ☐ SOF
- ☐ Command and Control
- ☐ Intelligence
- ☐ Other

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Influence of Technologies on Perception of Current Enemies

Remote lethal Fires against the enemy	Yes	No
Have you directly fired on an enemy from a remote stand-off position using sensors and/or different optic screens (IR camera, Rover screens, etc.,)?	○	○
Have you used of sensors and/or different optic screens to decide on issuing an order for the use of lethal fires against an enemy?	○	○

UNDERSTAND THE ENEMY

In the following list, which is the most influential in shaping your perception of the enemy?

- ○ The social media (television, newspaper, talk radio, etc.,)
- ○ Personal specific readings (lessons learned, books, After Action Review)
- ○ Military intelligence products (including Annex B of operation orders)
- ○ Your own assessment when located on the battlefield
- ○ Other

Please select your level of agreement or disagremment with the following statement:	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Colin S. Gray wrote in his book, *Fighting Talks*: "there is more to war than firepower: the enemy is not just a target set."	○	○	○	○	○

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Influence of Technologies on Perception of Current Enemies

VISUALIZE THE ENEMY (INFLUENCE OF TECHNOLOGY)

Effect of physical distance

Please select your level of agreement or disagreement with the following statements regarding the use of remote lethal fire against an enemy.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Stronly Disagree
The remote lethal fire engagements were easier than being in close proximity to the enemy.	○	○	○	○	○
There is no difference in engaging the enemy with lethal fire at a distance or within close combat.	○	○	○	○	○

Effect of virtualization

The perception of reality when viewing targets through the use of sensors and screens modifies your empathy towards the enemy in what way?

- ○ My empathy for the enemy increases.
- ○ My empathy for the enemy does not change.
- ○ My empathy for the enemy decreases.

Effects of simulation and gaming

Select your level of agreement or disagreement with the following statements regarding the affect of simulation/gaming on soldiers.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It dehumanizes the enemy causing soldiers to lose sight of the humane aspects of combat.	○	○	○	○	○
It makes it easier for soldiers to kill enemy combatants.	○	○	○	○	○
It creates a sense of virtuality of the enemy that makes him appear more vulnerable.	○	○	○	○	○
It lowers inhibitions soldiers might have toward using lethal fires in real engagements.	○	○	○	○	○
It modifies soldiers' sense of humanity when engaging the enemy in combat.	○	○	○	○	○

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Influence of Technologies on Perception of Current Enemies

Effect of Media Broadcast
Many operations centers broadcast images and videos of combat actions.

Please select your level of agreement or disagreement with the following statements regarding media broadcasts.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
When operation centers broadcast images and videos of combat actions, soldiers become accustomed to viewing violence.					
It causes higher level headquarters to react to the media instead of the battlefield.					
The media lacks human emotional feelings.					

DESCRIBE THE ENEMY (ETHICAL ASPECT)

Should any country engage in the use of unmanned armed (aerial or ground) vehicleswithout clear international governing laws?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It is ethical for a country to engage in the use of unmanned armed (aerial or ground) vehicles without clear international governing laws.					
Ethical considerations for the use of unmanned armed (aerial or ground) vehicles should be determined within the operating country.					
Ethical considerations regarding the use of unmanned armed (aerial or ground) vehicles should be determined internationally.					

Please provide your thoughts regarding the ethics of using armed UAVs:

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Influence of Technologies on Perception of Current Enemies

Prior to CGSC, did you have enough ethical training/education for combat decisions?

- Yes
- No
- Unsure

Prior to attending CGSC, how did your ethical understandings affect the use of stand-off assets in combat?

Completing CGSC prepares you to face the new ethical challenges of battlefield robotization.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

DIRECT ACTION ON THE ENEMY (PSYCHOLOGICAL ASPECT).

Select your level of agreement or disagreement with the following statements regarding the use of lethal robots/armed drones:	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The use of lethal robots/armed drones is cowardice.					
It is the technological advantage of Western countries.					
It is a waste of money.					
It increases the price of limited wars.					
It negatively affects our warrior ethos.					

Other comments regarding the use of lethal robots/armed drones:

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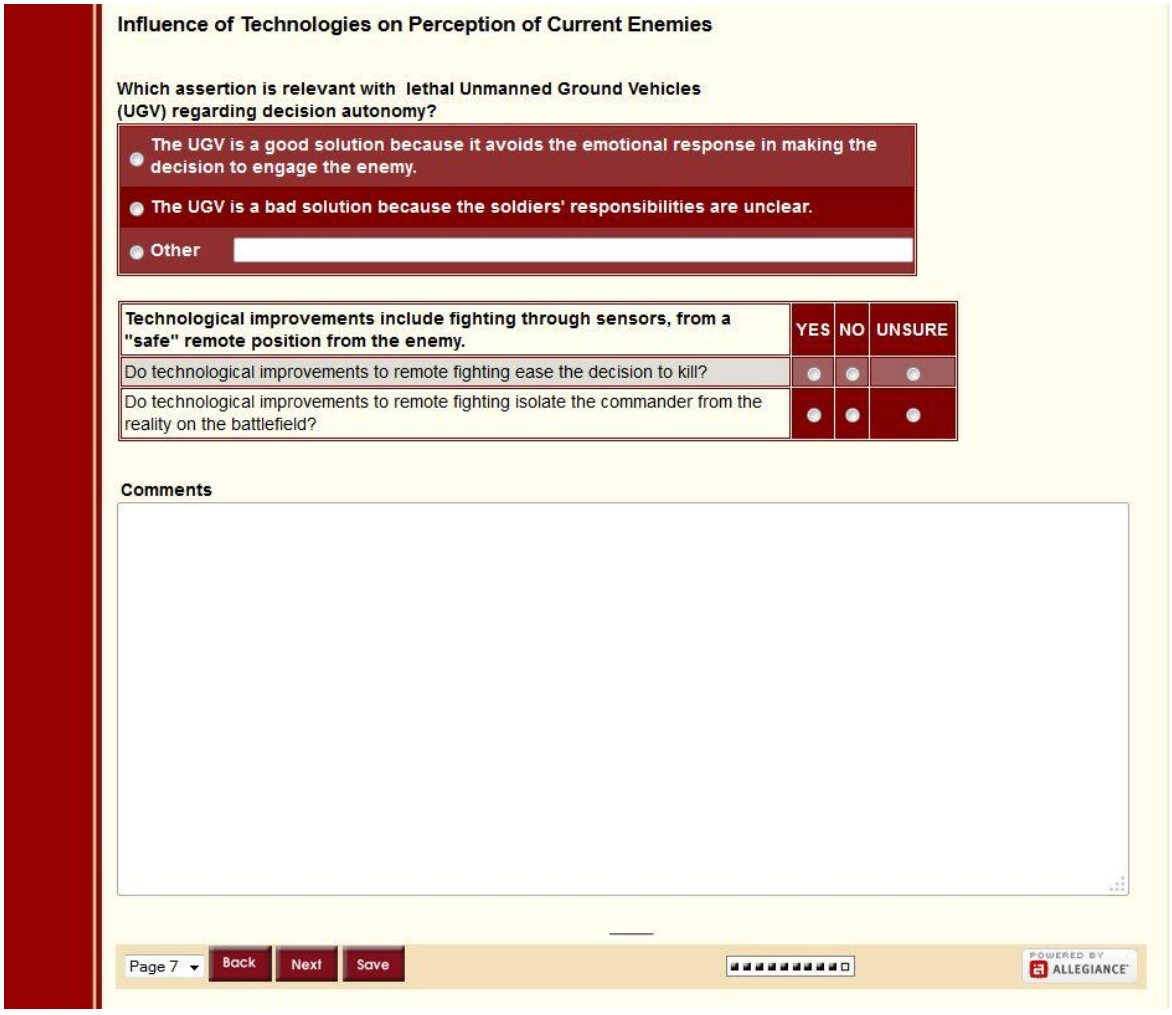
Influence of Technologies on Perception of Current Enemies
Which assertion is relevant with lethal Unmanned Ground Vehicles (UGV) regarding decision autonomy?
The UGV is a good solution because it avoids the emotional response in making the decision to engage the enemy.
The UGV is a bad solution because the soldiers' responsibilities are unclear.
Other
Technological improvements include fighting through sensors, from a "safe" remote position from the enemy.
YES
NO
UNSURE
Do technological improvements to remote fighting ease the decision to kill?
Do technological improvements to remote fighting isolate the commander from the reality on the battlefield?
Comments
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POWERED BY ALLEGIANCE


Influence of Technologies on Perception of Current Enemies
Thank you very much for your participation and support toward the completion of my MMAS.
Please hit the Finish button to submit your responses.
If you have any additional comments or issues about this survey, please contact me at the following email address:
etienne.krier@us.army.mil
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APPENDIX C

ANSWERS FROM GENERAL (FR) BENOIT ROYAL

TO QUESTIONS RELATED TO THIS THESIS

Question 1: *Your book on the ethical challenges of the soldier develops a useful framework of critical thinking for Army field grade officers. It is based on many recent case studies. Do you consider French Army correctly prepared itself for the advent of "robotization" in its organization?*

Général Royal:

Robotization will not « fall » on the French army like a meteor. It will set in place slowly, and at each state questions will be asked and we will research for the answers. As long as an ethical process stay active in every hierarchy levels, it will be under the pressure of being integrated with the robotization's evolution and introduction.

What is important is to not let go of our effort and to maintain a level of live ethical thought process and to feed the debate at the same rate as the weapons' evolution. We cannot concede to the technical mermaids and we need to stay in a state of « ethical alert ». To this aim, I believe that the French Army has well integrated this thinking process at every level. It can still better them and integrated them–in particular in the specialized training schools, however what exists now is a good foundation stone which allow us to look into the future with some serenity.

It is interesting to underline that the first document published by the DAS (Strategy Affairs Delegation) on the use of armed robots, three or four years ago, first tackled the topic with an ethical angle and stated preamble reserves in its development.

This proves one more time the French approach discernment on ethic bringing up the philosophical side of it before tackling other aspects (even if this approach can have its own limitations).

On this theme, I just finished to write a chapter for my book titled « Comparison of cultures » in which I studied American, British, French and Russian ethical approaches.

Question 2: W*hat do you think should be added to current field grade officer curriculums to integrate this potential revolution in military affairs?*

Général Royal:

I am not sure to understand the question: Are we talking about French officers or American Officers?

As far as the French officers are concerned, it is very simple. We cannot limit the responsibility of thinking of the ethics and deontology of the future of war to the specialists. This topic must be integrated in the curriculum of the « l'école d'état-major » and « l'école de guerre ». We cannot abandon this territory only to the « initiated » (which I could be part of). I find it essential to irrigate our ranks, with an appropriation phenomenon on this topic based of a common reflection, by referring to our core value founded by our Soldier's creed.

As for the American officers, I am not well placed to answer this question since I do not detain all the factors to give you a satisfying answer.

Question 3: *In the recent study dealing with the contemporary and future challenges of robots on the battlefield (Saint-Cyr Military academy), you wrote an article in which you emphasize a discrepancy between French and US integration of armed drones. From your point of view, France is still studying the ethical implications of armed drones when the United States clearly stress their effort on positively communicating on the use of UAVs. Do you think the French and American Armies will follow the same paths when integrating lethal ground robots?*

Général Royal:

This is a rather sensitive and evolutive question.

It is a fact that the current American position in the use of armed drones (targeted killing strategy) seems to re-orientate every so slightly under the internal (The NW Supreme Court ordered on April 21st that the Obama Administration to make public her memorandum justifying the drone attacks against terrorism suspects, which include American Citizens)as well as international pressure. The CIA supremacy—therefore civilians—on these subjects must be influenced for the adopted strategy choice.

We could wonder if this strategy would be questioned if it was put in place by the military. It is possible, but nothing is less than sure either. What is certain is that these chosen strategies will be confidential anymore and they will be controlled more often. However, nothing tells us that these strategies will follow international laws and if they will be reviewed as far as human rights are concerned.

In concrete terms, France is not against the use of armed drones or battle robots if they are used on a legitimate battlefield (under an official and legitimized operation by

the UN) and Rules of engagement in its planned framework, at the same level as the use of planes, artillery, helicopters, etc. . . . France is considering to purchase some in to use with this aim in mind.

However, this targeted killing strategy brings a grave problem. As for this topic, I refer you to my conference at l'école de guerre on this subject.

Question 4: *Does the current trend to use of stand-off, remote assets alter our soldiers' perception of reality through the use of sensors and screens and thus modify or change our humane considerations toward the enemy?*

Général Royal:

If you read with attention the chapter from my book on "distanciation," you will have a part of the answer of this question (109 à 121).

The answer is yes . . . even if . . .

Very clearly stated, a drone pilot operating at home and evolving in a normal peacetime arena with an ordinary daily life schedule and going back home to his private life at night has the risk to loose the reality meaning of his « acts of wars ». Men are a perception being which feels, profoundly influenced by his direct environment. So, in social psychology, it is not the factual reality that marks our mind but the perception. In an act of war, the same rules exist.

This is why, in order to be perfectly in phase with the reality of these perpetuated acts of war—even from a distance—it is imperative that these men are pervaded in that war reality. Without it, we risk to set ears in motion which could lead to terrible

extremes. How do you think nuclear weapons were used? Because we did not fully evaluate the consequences and we did not really observe them.

What will slow down the use by distance of weapons capable of more and more destruction if it is not the perception of their death capacity by the users themselves, and the capacity to assume—in good conscience—the consequences. These perceptions are not possible if the users are immerged in a theatrical operation environment.

On another hand, the more and more evolved technic and the more precise observation means are able to bring the reality of the acts of war on the scope of the shooter. On this particular topic, I will refer to page 118 (bottom) and the following in my book.

In a broader aspect, what is the most important? Destroy in large numbers and if possible all our adversaries (in 14-18, this destruction strategy was not very efficient) or destroy in a good manner in sufficient number to show our capacity and superiority within the balance of power and convince the adversary to change his attitude: negotiate, retrieve, enter in a political process, etc.?

To conduct a true strategy as far as the adversary is concerned, we need to able to « feel » it, to choose its vulnerabilities, to understand it. All this will not be done as well unless you are on the ground where the war is conducted.

The screen and machine will always be roadblocks to comprehension.

CONSENT AND USE AGREEMENT FOR WRITTEN INTERVIEW MATERI

You have the right to choose whether or not you will participate in this written interview, begin you may cease participating at any time without penalty. The anticipated risk to yo participating is negligible and no direct personal benefit has been offered for your particip you have questions about this research study, please contact the student at:_+1 (913) 775-. Robert F. Baumann, Director of Graduate Degree Programs, at (913) 684-2742.

To: Director, Graduate Degree Programs
Room 4508, Lewis & Clark Center
U.S. Army Command and General Staff College

1. I, GBR Benoît ROYAL , participated in an written interview conducted by LTC Etienr

graduate student in the Master of Military Art and Science

Degree Program, on the following date [s]: 15 APR 2014 concerning the following topic:

INFLUENCE OF TECHNOLOGIES ON THE PERCEPTION OF THE ENEMY. The pu

interview was to have his point of view on different questions directly linked with this the

2. I understand that the recording [s] and any transcript resulting from this written intervi belong to the U.S. Government to be used in any manner deemed in the best interests of th and General Staff College or the U.S. Army, in accordance with guidelines posted by the Graduate Degree Programs and the Center for Military History. I also understand that sub security classification restrictions I will be provided with a copy of the recording for my p records. In addition, prior to the publication of any complete edited transcript of this writt I will be afforded an opportunity to verify its accuracy.

3. I hereby expressly and voluntarily relinquish all rights and interests in the recording [s] following caveat:

____ (None) ____ Other: _____

I understand that my participation in this written interview is voluntary and should not tak three hours. I may stop participating at any time without explanation or penalty. I underst transcripts resulting from this written interview may be subject to the Freedom of Informa therefore, may be releasable to the public contrary to my wishes. I further understand that limits of the law, the U.S. Army will attempt to honor the restrictions I have requested to h these materials.

ROYAL — 11/06/2014.

Name of Interviewee — Signature — Date

Accepted on Behalf of the Army by — Date

APPENDIX D

ANSWERS FROM COLONEL MARC de FRITSCH

TO QUESTIONS RELATED TO THIS THESIS

Question 1: In your book on the interrelationships between war and human beings, you reflect on the common idea that war has become a giant video game. Do you think that all these military operators still have empathy for the enemy they are destroying?

Colonel de Fritsch:

This is a current and fashionable question leading to a complex answer. It brings so many notions that I would not be able to tackle in just a few lines. Moreover, is this a question that can be fully answered?

I realize that you use Anglo-Saxon derivative words which have a particular meaning in French: « Can military operators have empathy for the enemies they destroy? » Should not we instead say Soldiers have empathy for the enemies they combat ? That gives it a very different meaning. Soldiers are the ones who kill but who also can be killed. A military operator apparently is contained in the only role of killing. He does not combat, he destroys. The enemy is eliminated, wiped out as if he is trash or a bad weed. He represents the bad: It is a normal statement, as they are in most cases a jihadist or in the best case scenario a drug trafficker.

So we are sketching, in a kind of caricature that symmetrical classic wars use. Soldiers whereas asymmetrical wars use military operators and terrorists. The drone pilot, video game symbol, has a target on his screen. He acknowledges the task at hand and shoots: His target does not know he is targeted. He might not even consider himself on

the front line of a war or even in a war at all. But what is the difference between an artilleryman and a bomber pilot?

Since the archery invention, mankind has researched ways to shoot from afar, in order to not be targeted back by the adversary. Is there a fundamental difference between a cruise missile shot from a submarine stationed 1000km away from the target and the missile shot from a drone a few kilometers from the target, but piloted from thousands of kilometers away? Why do we question the drone pilot instead of the submarine commander?

Very simply because the drone pilot see the target. But it is certainly the best method to have the least possible collateral damage. The operator in this case might not have empathy for his adversary, but he has the obligation to be measured, since the operation is controlled. Who controls the bomber pilot who launches a carpet bombing? « the Miracle of war » is that it is enough to raise your hands over your head so it stops. The man whom was supposed to kill you, a few seconds later accepts to not kills you because you said « stop ». Where does the possible, but not certain, empathy from your assailant come from? It is from the fact he endures as much as you do, that he sees you and that he can touch you.

When you suppress the physical closeness environment and there are only death technicians.

Question 2: *Your book concludes in an interview of General Vincent Desportes, the former French War College commander, and geostrategic specialist, Gerard Chaliand, in which you try to foresee the future of war. If possible, could you tell us how you foresee, in the next 30 years, the future of the French and American Armies (equipment, employment . . .)?*

Colonel de Fritsch:

Predict the future, in 30 years! We are in 1980, I am not yet in the Army. The Warsaw Pact is at the top of its glory. No Soldier knows how to use a GPS device. But what is a GPS? The military affairs revolution has not happened yet, but everything is set in place. Nonetheless Internet and Stealth bombers are already present. In the wars we lead today, what did fundamentally changed? Nothing, but the speed in which information is available. In fact it has shaken things to the core. When everything used deferred from a few minutes to a few days now everything is live with a never since before precision.

What about in 30 years? Drones and robots will be everywhere. But Ernst Jünger in Glass bees *Abeilles de verre* in 1957 had already predicted:

> Where are they, all these boys, still trained to master sabers and jolts, mounted on their Arab steed, from the Trakehnen ranch, and the step horses, so graceful and yet untiresome under their riders? Now these admirable animals are about to be extinct. . . . They are replaced everywhere by automats. And as a corollary, mankind changed: They became more mechanical, easily put in an equation.

This opens up infinite perspectives. The robots will replace Soldiers in a number of tasks, but they will also replace humans in many things. Intimacy, the fact to not be traceable will be luxury.

I think that energy will be a great stake. When it is readily available at a reasonable cost for soldiers, I believe, we will see a revolution at least comparable to one of the internet. I can't wait for Robocop!

CONSENT AND USE AGREEMENT FOR WRITTEN INTERVIEW MATERIALS

You have the right to choose whether or not you will participate in this written interview, and once you begin you may cease participating at any time without penalty. The anticipated risk to you in participating is negligible and no direct personal benefit has been offered for your participation. If you have questions about this research study, please contact the student at: +1 (913) 775-2161 or Dr. Robert F. Baumann, Director of Graduate Degree Programs, at (913) 684-2742.

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INFLUENCE OF TECHNOLOGIES ON THE PERCEPTION OF THE ENEMY. The purpose of the interview is to have his point of view on different questions directly linked with this thesis.

2. I understand that the recording [s] and any transcript resulting from this written interview will belong to the U.S. Government to be used in any manner deemed in the best interests of the Command and General Staff College or the U.S. Army, in accordance with guidelines posted by the Director, Graduate Degree Programs and the Center for Military History. I also understand that subject to security classification restrictions I will be provided with a copy of the recording for my professional records. In addition, prior to the publication of any complete edited transcript of this written interview, I will be afforded an opportunity to verify its accuracy.

3. I hereby expressly and voluntarily relinquish all rights and interests in the recording [s] with the following caveat:

_____ None _____ Other: _____

_____

I understand that my participation in this written interview is voluntary and should not take more than 3 hours. I may stop participating at any time without explanation or penalty. I understand that the transcripts resulting from this written interview may be subject to the Freedom of Information Act, and therefore, may be releasable to the public contrary to my wishes. I further understand that, within the limits of the law, the U.S. Army will attempt to honor the restrictions I have requested to be placed on these materials.

Colonel Marc DE FRITSCH
Adjoint au conseiller pour le secrétariat des officiers de défense et de sécurité nationale

Name of Interviewee — Signature — Date 20/5/2014

Accepted on Behalf of the Army by — Date

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