

# Teaching Modern Warfare Terminology

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**Abstract.** This paper is a study for learners interested in mastering modern-day warfare terminology. The study presents and examines military terms of the 21st century to familiarize learners with the latest military terminology and to help them to communicate spoken and written military information. The paper can make the work of the military academy instructor interesting and useful by introducing terms, phrases and expressions concerning up-to-date warfare to the men and women of the armed forces and by improving their military jargon. Understanding the current military terms and developing exchange skills, helps learners to succeed in memorizing phrases like *hybrid warfare* that blend conventional conflict with cyber warfare. Combinations, such as *hybrid threats*, *hybrid adversary* and *non-traditional war*, which are found in military journals, i.e. the *Military Review*, assist learners in practising current military terms in oral activities and in written assignments. Information, referring to the practices of Al Qaeda, HAMAS and ISIS, the three organizations that use financial threat, involves terms such as *asymmetric warfare*, i.e. the war between professional forces and resistance militias, revealing that the power, strategy and tactics of belligerents can differ significantly. *Cyber warfare* expressions, concerning modern espionage and sabotage and involving the use of computers, online control systems and networks, disclose how offensive and defensive operational terms are employed, what the threat of cyber attacks involves and how protection from assault can be accomplished. Terms such as *intelligence* and *security* help cadets to learn how a government agency is responsible for the collection, analysis and exploitation of information in support of national security and foreign policy objectives as well as how the means of information gathering, both overt and covert, including interception, cooperation with other organizations and evaluation of public sources, work at a specific time and place. The future of warfare, involving *robots* and *cyborgs*, part-human part-robot beings, help learners to understand how mechanical devices can reduce the risk of army casualties so that consolidation of the ‘fresh’ warfare information can aid learners in developing not only their comprehension skills but also their oral, written and spoken skills, thus strengthening their power to successfully respond to challenges.

**Keywords:** Hybrid warfare, asymmetric threats, cyber warfare, intelligence and cyborgs.

## INTRODUCTION

The present study aims at aiding the military interested in comprehending 21st-century military terms as well as at acquiring the current military terminology in order to learn how to exchange written and/or spoken military information. The study discusses terminology concerning *hybrid warfare*, i.e. irregular warfare, as well as specialized vocabulary, like *asymmetric warfare*, as used in military texts and articles. The topics of *cyber warfare*, *intelligence and security* and the *future of warfare*, in military journals, include terms concerning modern wars and help tutors to attain their goal - that of aiding learners in understanding the latest military terminology in an attempt to control war, to reduce political risks and to maintain popular support for both the government and the army.

The study includes most of the new warfare terminology which is known as fourth-generation warfare (4GW) or as the conflict characterized by a chaotic state between war and politics, combatants and civilians. Fourth-generation warfare is militia (an unauthorized quasi-military group) which lacks hierarchy and conducts irregular warfare involving terrorism or the unlawful use of intentional violence, especially against civilians. It intends to achieve political aims with the aid of a decentralized base whose power is shifted from a central location to another less central place in order to reorganize and launch an attack on the culture of the enemy, commit acts of genocide, use political, economic, social and military pressure, employ an extended network of communication and financial support, use insurgency tactics, such as subversion, terrorism and guerrilla tactics, and employ decentralised forces.

## MAIN BODY

The most popular current military terminology concerns *hybrid warfare* or the military strategy that blends conventional warfare, irregular warfare and cyber warfare, and combines *kinetic* (active) operations and *subversive* (aggressive) efforts thus avoiding *attribution* or *retribution*. Hybrid warfare uses terms such as *hybrid threat*, *hybrid adversary*, *non-linear war*, *non-traditional war* and *special war*. While the United States military tends to speak in terms of a hybrid threat and scientists tend to use the term hybrid warfare, the Greek military employs *hybrid war*. As there is no universally accepted definition, the matter has been open to debate. Experts on the subject argue that the term is too abstract because it is used for *non-linear threats* or wars that are fought when an army employs conventional and irregular military forces in conjunction with psychological, economic, political and cyber assaults in order to create confusion, disorder and insecurity.

Regardless of the dispute, hybrid warfare involves a non-standard, changeable and difficult adversary that can be a state or non-state. For instance, in the Israel-Hezbollah War in 2006, known as the thirty-four-day conflict between Lebanon and Israel, as well as in the Syrian Civil War (2011- ), adversaries were non-state units, fighting within states. Occasionally, they acted as *proxies*, having independent goals. For instance, while Iran was a sponsor of the Lebanon-based Hezbollah, Hezbollah militants attacked an Israeli military border patrol in July 2006. Armed with high technology weaponry, i.e. precision guided missiles that were hidden in bunkers, Hezbollah shot down Israeli helicopters, damaged an Israeli patrol boat and destroyed Israeli armoured tanks. Soldiers were killed and captured on

both sides and the clash resulted in the Israel-Hezbollah war in which Iran appeared to have played no role despite the fact that it financially supported the Hezbollah organization.

Years later, in 2014, Russia was accused of generating the conflict with Ukraine and launching the Crimean War (2014- ). When the war began, it became obvious that the Russian President Vladimir Putin was a traditional *actor*, a conventional state leader, accountable for waging hybrid war, who used a local *hybrid proxy*, i.e. pro-Russian protesters, armed men whose uniforms lacked any identifying marks and masked gunmen who occupied the Crimean parliament building and raised the Russian flag. The conflict severed links between Ukraine and Russia as the local population protested that the action was an unmistakable provocation and violation of Ukrainian sovereignty. President Putin answered that the conflict was an effort to protect Russian citizens in Crimea even though a local hybrid proxy helped Russia to capture Crimea easily.

Hybrid warfare involves *hybrid adversaries*, the use of a combination of conventional and irregular tactics, like non-standard formations, terrorist acts and clandestine activities in order to avoid attribution or retribution. To achieve this aim, hybrid adversaries use flexibility and adaptation, as in the response of the Islamic State to the aerial bombing campaign of the United States in 2006 when ISIS *aggressors* attacked America by reducing mobile phones usage and dispersing jihadists among the civilian population. The use of mass communication for propaganda purposes, recruiting men and employing fake news in order to spread stories that can influence the judgement of the public, is typical in non-linear threats and attacks. So is the use of *military drones* that gather intelligence, *encrypted cell phones* that assist hybrid adversaries in communicating safely, and *thermal night-vision equipment* that helps them to watch the enemy unobserved whether on the battlefield or among the *indigenous* population, i.e. the local people.

It is information like this that aids learners in developing written or spoken skills concerning hybrid warfare; and it is terms such as *actor* and *proxy*, *attribution* and *retribution*, *aggressor* and *indigenous* that help them to successfully understand written and oral forms. Consolidation is achieved through activities that require learners to make sentences with the new terms. Consider, for instance, the following example: Bashar al-Assad, President of Syria, is a political *actor*, an individual that has obtained political power to engage in activities that have an influence on policies and outcomes associated with conflict. The story behind the Middle East conflict is a *proxy war*, as Russia fights on behalf of Syria, Israel fights on behalf of the United States and Hezbollah fights on behalf of Iran.

By supplying definitions of terms such as *attribution* - the ascribing of something to someone, like an act of terrorism in the Hezbollah-Israel war - or *retribution* - the punishment or vengeance for something ‘wrong’ - instructors can increase the strength or depth of learners. Learning aids, for instance practice exercises, like the one called “choose the best answer,” can achieve the desired result which is the students’ acquisition of knowledge as well as their development of skills gained through instruction and repetition. For instance, in this interesting illustration, “The Iraqi forces continue to exercise their legitimate right to self-defence as the Iraqi government points the finger at the.... (*aggressor/defender*)” the correct answer is aggressor.

Learning through synonyms and antonyms improves the vocabulary of learners. Synonyms and antonyms are not a part of the vocabulary, they are the vocabulary itself. “During World War II, there was an indigenous ... (synonym ... *native* and antonym ... *foreign*) uprising in Greece that was brutally suppressed.” The acquisition of *native*, the correct answer

here, and *foreign*, the antonym, enhances the students' existing vocabulary and helps them express themselves better. In the following sentence, "During the fight, the soldier overpowered ... (synonym ... *defeated* and antonym ... *yield*) the guard and captured his rifle, defeated is the right answer while *yield* is the wrong one. Acronyms, words formed by the initial letters of words in a set phrase, e.g. NATO, from the initial letters of 'North Atlantic Treaty Organization,' should be taught for electronic communication such as emails.

In *asymmetric engagement*, the conflict between belligerents whose military power, strategy and tactics differ, two belligerents fight to exploit each other's weaknesses in quantity and/or quality. To achieve their goal, they employ strategies and tactics of unconventional warfare. In *symmetric warfare*, however, two powers have comparable military power and resources and rely on tactics that are similar, differing only in details and execution. Although symmetric wars can be lengthier and thus deadlier, security in symmetric warfare is more manageable and conflict on the battlefield is easier to avoid especially when it involves two or more powerful states. To achieve consolidation, instructors need to emphasize how important it is to memorize modern terms such as *insurgency* or *counterinsurgency*, *established lines* or *guerrilla warfare*, *terrorism* and *counterterrorism* by using examples: "Insurgency is a term restricted to rebellious acts that did not reach the proportions of an organized revolution" (Britannica). Guerrilla warfare is usually applied to armed uprising against the recognized government of a state and as such it can refer to violence during peacetime or to war against non-combatants, i.e. civilians.

Weak actors tend to consider carefully their opponents before responding to threats. *Resilience* and *adaptability* strategies, which deal with the nature of the adversary rather than the *correlation of forces* (the association of forces), help them to subdue the enemy: "Army operations require military personnel to demonstrate readiness and *resiliency* in the face of difficult environments in order to maintain physical performance necessary for success" ("Journal of Science and Medicine in Sport"). *Adaptability* is useful if army leaders require their men to adjust easily to a new environment and difficult conditions ("Army Leadership and the Profession"). Usually weak actors fight strong opponents because they have secret weapons and powerful allies, e.g. the Kurds have the Americans, or for the reason that they have willingness to endure more suffering, unlike strong actors that are reluctant to escalate violence because they lack group dynamics and direction and have exaggerated their war aims.

Asymmetric conflict phrases such as *interstate* and *civil war* are part of the modern warfare terminology. In the past, asymmetric wars were won by strong actors. Since the Fifties, however, weak actors have won asymmetric engagements in interstate or civil wars. Consider the example: "*Interstate* rivalries, including North Korea–South Korea in East Asia, and India–Pakistan in South Asia, continue to spark insecurity and fuel vicious cycles of armament, both within and outside of these rivalries" ("Threats, Arms and Conflicts"). Unlike interstate wars, *civil wars* are usually less severe. However, civil wars can be more frequent, lengthier and deadlier.

Although in conventional warfare, the belligerents deploy forces of a similar type and the outcome is usually the result of the quantity and quality of the opposing forces and/or better command, in *unconventional warfare*, victory depends on whether one side has a technological advantage that outweighs the numerical advantage of the other side. Technological superiority is of no use to a large actor if a weak actor attacks *vulnerable infrastructure*, i.e. cuts power cables and contaminates water supply systems. The attacks can have a devastating effect on the morale of the citizens and the economy of the country. Weak actors, however, do not have to

face this difficulty. Training, tactics, strategy and technology play a vital role in asymmetric threats by helping a small force to overcome a large one. For several centuries the Greek hoplites' (heavy infantry) use of the phalanx formation made them superior to their enemies. At the Battle of Thermopylae, the Spartans managed to temporarily prevent the Persian army from invading Greece as a result of the good use of the terrain. A small power under attack can defend itself if it uses unconventional tactics like *raids*. The purpose of a raid is not to seize territory but to inflict damage. An immediate exit to avoid retaliation is imperative. Raids can be useful because they expose the defensive weaknesses of the opponent and erode the morale of men and women, like the tactics of the Greek Army in the Greek Resistance in World War II.

If a weak actor uses tactics prohibited by the laws of war (*jus in bello*), its success depends on the larger power's decision to refrain from using a similar course of action. The law of land warfare prohibits the use of *ambush* (trap), the use of a flag of *truce* (ceasefire) or clearly marked *medical vehicles* as cover for an attack. An asymmetric combatant using prohibited tactics to its advantage depends on the larger power's obedience to the law. What is more, laws of warfare prohibit combatants from using towns as military bases. When an inferior power uses this strategy, it depends on the superior power to respect the law that the enemy is violating and refrain from attacking civilians. If it does attack them, the propaganda advantage will outweigh the material loss because in most conflicts of the 20th and 21st centuries, the propaganda advantage has nearly always outweighed *adherence* (obedience) to international law.

Activities, in which learners are asked to complete sentences by selecting the correct military term such as *engagement*, *insurgency*, *belligerents*, *essence*, *interaction*, *deficiency*, *reluctance* and *credibility* further expand the students' vocabulary: "The general noticed the men's ... to tell him the truth." The missing word here is *reluctance* or unwillingness. Collocations such as *wage war*, *ratify a treaty*, *impose a penalty* and *pay a fine* incorporate new vocabulary into the students' personal word bank. The sentence, "Both countries were due to *ratify the treaty* by the end of the year," suggests that the two states have given formal consent to a contract or agreement, making it officially valid.

To show that an action is taking place, we use verbs. Verbs provide students with a creative way to integrate required vocabulary skills in individual and/or group settings. They help them to accomplish their goal, e.g. to comprehend the meaning of terms like *penetrate* (enter), as in "The bullet *penetrated* the soldier's brain." *Retreat* or withdraw is used in sentences that reveal troop movement: "Attacks by enemy aircraft forced the tanks to *retreat* from the city." The sentence, "The decision has been made to *deploy* extra troops" implies that it has been decided to position troops in a specific area in readiness for action. *Contaminate*, in a war, signifies the pollution of water supply of the city of the enemy. "The treaty was signed when both world leaders agreed to *refrain* from building nuclear weapons for ten years," means that the two heads of state decided to cease producing nuclear weapons. "The two members of the military patrol were *ambushed* by the enemy" relates to a trap, as the men were taken by surprise. "The belligerents *violated* the terms of the ceasefire" expresses the idea that the aggressors disregarded the agreement. So if the enemy does not *adhere* to the rules, if the opponent *disobeys* the rules, there will be trouble.

In written or oral forms, learners can use verbs such as *renege*, break a promise, *incarcerate*, imprison, *evaluate*, assess, and *warp*, distort. Tutors should teach learners verbs such as *envision* (imagine), *counter* (contradict), *inaugurate* (open), *slash* (cut) and *augment*

(increase) and ask them to search the Net for definitions and make sentences with them in order to prove that they know how to use them in reports as well as in oral communication. For instance, “The writer has *envisioned* a world where there is no war”; “The soldier *countered* his opponent’s move with a blow”; “The Ministry of Defence will *inaugurate* the new type of drone next month”; “The Prime Minister *slashed* the budget of the department last year so there are a number of projects that were abandoned”; and “The budget of the state was *augmented* by various donations”.

Learners ought to acquire the ability to identify adjectives and nouns in modern military texts that relate the future of warfare. *Malevolent*, *marginal*, *improvised*, *cognition*, *egalitarian* and *legality* are terms that aim at avoiding the possibility of using them wrongly in written communication. For instance, *malevolent* is an adjective used in sentences like “A *malevolent* program is a program designed to have harmful effects”; “Some terrorist organizations regard violence as a *marginal* rather than a central problem”; “There was the time when faulty sensors prevented the space capsule from docking with Mir, forcing the astronauts to *improvise* a way in”; “It has been suggested that some aspects of *cognition* are dependent upon the speed and efficiency of nerve impulses”; “A person who advocates the principle of equality for all people is an *egalitarian*”; and “*Documentation* testifying to the *legality* of the arms sale has been stolen”.

Certain military terms have more than one meaning. To be able to differentiate one meaning from the other and avoid mistakes, learners need to remember that depending on the text *wound* means injury sustained in warfare and coiled or twisted; *magazine* means both periodical and arsenal; *train* denotes military followers and railway carriages; *lead*, the verb, means guide but lead [pronounced ‘led’], the noun, means the heavy grey chemical element Pb; *watch* has the meaning of observe and guard; and *drill* means practice marching and bore a hole.

Tutors require students to memorize nouns like *conflagration* (large destructive fire) and *equanimity* (calmness); adverbs such as *clandestinely* (in secret) and *overtly* (openly) as well as Latin phrases like *jus belli*, the law of war, *casus belli*, an act or situation that provokes a war, *jus ad bellum*, the right to wage war and *jus in bello*, the law of armed conflict. In *jus in bello* the belligerents are responsible for their actions, especially if their soldiers attack non-combatants, pursue the enemy beyond what is reasonable or violate rules of fair conduct and commit acts of murder. In *casus belli*, a government explains its reasons for going to war while in *jus belli*, the law of war or “the law of nations as applied to a state of war defining in particular the rights and duties of the belligerent powers themselves and of neutral nations”.

Consolidation of modern military terms occurs when learners can interpret sentences such as the following: “The wars in Gaza that occurred in the early Two Thousands between the Israelis and the Palestinians, when hundreds of people died, cost the lives of more than three-quarters of civilians, according to the United Nations.” (BBC News). The wars in Gaza were asymmetric in terms of the amount of death and destruction inflicted by the Israelis on the Palestinians. The conflict between the two opponents was not symmetric because better equipped Israel *inflicted* (imposed) greater destruction on Palestine. The Israel-Palestine conflict is a serious, *protracted* (prolonged) disagreement in which the more powerful actor, Israel, destroys the weaker actor, Palestine.

The Gaza Strip has been the *discord* (strife) between Israel and Palestine for many years. Palestinians have repeatedly declared that they want to make peace with Israel as long as they have their own state on the part of Palestine left after Israel’s War of Independence in

1948. Israel, via statements and attacks, has repeatedly declared its intention to keep hold of the land that it has captured. The Israelis, supported by powerful allies like the US, appear to be responsible for the sixty-year-old war, and the ongoing war appears to be the result of the murder of Israeli border patrol soldiers or the kidnapping of Israeli civilians. ‘Criminal’ acts such as these provide Israel with the opportunity to attack Hamas and Fatah, as well as with the excuse for occupying the West Bank. The blaming of Hamas and Fatah, without providing any evidence, may imply that the *guilty party*, i.e. the murderers and the kidnappers, are actors that want to *undermine* (weaken) the unity of the two organizations for their own reasons: the unity deal of Hamas with Fatah would support Palestine President Mahmoud Abbas’ negotiations with Israel and resolve the conflict between the belligerents.

*Cyber warfare*, which is used to target computers, involves both offensive and defensive operations such as *cyber attacks*, *cyber espionage* and *cyber sabotage*. Although the three operations are not considered to be “war,” states spend a great deal of money to improve their networks and engage in cyber warfare either as an offender or as a victim. The hostile acts of a state involve another state’s network for the purpose of causing damage. It is the work of *non-state actors*, i.e. political extremist groups, hackers and transnational criminal organizations. State actors attempt to prevent cyber attacks against infrastructure in order to reduce national vulnerability and to minimize damage and recovery time.

*Cyber espionage* is the practice of obtaining government secrets without the permission of the holder of the information for political or military advantage through the methods on the Internet. With the help of *proxy servers*, *cracking techniques* and *malicious software*, involving *Trojan horses*, *worms* and *spyware*, hackers obtain information that helps them to accomplish a successful cyber attack that can cause a serious conflict between nations. Consider, for instance, the *massive spying* by the United States on many countries, a secret revealed by Edward Snowden (1983- ), the former Central Intelligence Agency (CIA) employee, who disclosed that the National Security Agency (NSA) of the US was spying on the German Chancellor Angela Merkel and recording cell phone conversations in Afghanistan, Kenya, Mexico and the Philippines.

*Cyber sabotage* can lead to the disruption of cyber equipment, the compromise of military systems such as C4ISTAR components (the acronym stands for *Command, Control, Communications, Computers, Information/Intelligence, Surveillance, Targeting Acquisition and Reconnaissance*) that are responsible for the interception of malicious viruses and their replacement. Electrical power, water, fuel, communications and transportation infrastructure, the stock market and trains are all exposed to *disruption* (open to attack). In July 2010, security experts discovered Stuxnet, a malicious software programme that had infiltrated computers and spread to plants around the world that delayed Iran’s nuclear program for the development of nuclear weaponry.

Cyber warfare is difficult to control. Both state and non-state actors may cause disastrous damage as groups of *malware developers* by inserting a special upgrade component into a legitimate application and assisting it to be updated to a new malicious version. Malware developers (hackers) can interfere in global politics because users of computers share developments on the web. *Intrusive* (unwelcome) software, developed by cybercriminals can steal data and destroy computers. The *Trojan virus* programme is designed to steal legitimate account data for online banking systems, *worms* spread copies of themselves from computer to computer without any human interaction and *spyware* gathers information about a person or organization and relays the data to criminals. These technical tools and software, which occur

every day without any regard for the consequences, are called *cyber capabilities* and are usually developed by hackers.

Exploiting the information in military periodicals, tutors can familiarize students with cyber warfare derivatives formed from nouns, i.e. *disruption* from ‘disrupt,’ *launcher* from ‘launch,’ *demonstration* from ‘demonstrate’ and *replacement* from ‘replace’. He/she can focus on synonyms, like *proliferation* from *proliferate* (increase rapidly), as well as on antonyms, e.g. *offence* # *defence*, *function* # *dysfunction*, *engage* # *repel*. The learners’ introduction to prefixes, like *trans-* in transport, *inter-* in interconnect, *dis-* in disconnect, *in-* in independent, *mis-* in misunderstand, *il* –in illegal; and suffixes like *-less* in lifeless, *-ness* in repulsiveness, and *-ful* in truthful helps them to enhance their capability of dividing unfamiliar words into segments that are easily understood. The skill aids learners in understanding and expressing their thoughts. Research studies have shown that learners need to become involved in communication before the current military terms become long-term memory. Learning is more easily acquired if learners define the terms they do not understand and use them in reports and official statements. A rich military vocabulary helps learners to choose words with precision, makes communication simpler and provides results in occupational success, as the operational pressure for uniform understanding of contemporary military terminology has developed since the 20th century on account of joint operations between the army, navy and air force services and international alliances like NATO.

*Intelligence* and *security* play an important role in the protection of national security. Their task is to acquire the decisions that policymakers make and keep their society safe and to protect democratic order. *Intelligence*, a government agency, is responsible for the collection, analysis and exploitation of information in support of law enforcement, national security, military and foreign policy objectives. Information gathering, both overt and covert, includes *espionage* (undercover activities), communication *interception* (capture), *cryptanalysis* (the study of analyzing information systems in order to study their hidden aspects), cooperation with other organizations and evaluation of public sources. The terms that are used in military operations concerning intelligence and security are *propagation* (reproduction), *enforcement* (application), *imminent* (about to happen), *exploitation* (mistreatment) and *objective* (end). The terms can be matched with their definitions, i.e. promulgation; implementation; impending; abuse; and goal, respectively, in order to engage learners in the process of gaining awareness.

The assembly and propagation of intelligence information is known as *intelligence analysis* or *intelligence assessment*, i.e. the process by which the information collected about an enemy is used to answer tactical questions about current operations or to predict future behaviour. It is provided by intelligence agencies that work on the analysis of areas relevant to national security; it warns governments of impending crises; it helps them to manage national and international crises, aiding the state in discovering the opponents’ intentions. What is more, it informs the ministry of war on defence planning and military operations and it protects national secrets and influences the outcome of events in favour of national interests or international security. It supports the agency’s intelligence programme against the intelligence service of the opponents with the help of *counter-intelligence*, it gathers information and participates in activities conducted to protect the state against espionage and engages in sabotage activities and assassinations conducted by or on behalf of foreign governments. The consolidation of the difference between *overt* and *covert operations*; *defensive* and *offensive strategies/policies*; *strategies of reprisal* (response) or *denial* (refusal); *standardized* and



*tailored strategies*; and *strategy by intent* (ambition) and *by default* (avoidance) helps learners to differentiate between the terms by meaning.

The *future of warfare* involves humanoid robots, *cyborgs*, or machines that fight in the place of soldiers. *Cyborgs* will play a prominent role in future combat as they are programmable machines that can interact within any environment like most robotic weapons systems, e.g. *cruise missiles*, a low-flying missile which is guided to its target by an on-board computer, and *air and missile defence systems*. Although robots can make fighting less destructive, they have not played an important role in warfare. Recently, however, the use of *Unmanned Aerial Vehicles* (UAV), an aircraft piloted by remote control or onboard computers, *drones*, used for intelligence, surveillance, target acquisition and reconnaissance, carrying aircraft ordnance (weapons) such as missiles, built to face the threat of unconventional warfare, has elevated the role of robots in military operations in developed countries. Although the United States has ended its counterinsurgency campaigns in the Middle East, surveillance drones have been deployed for air campaigns against powerful adversaries with modern air defence systems like China and Russia. Developed countries have focused lately on technologies that can face low-intensity conflicts, like the *War on Terror* or the military campaign led by the U.S., the U.K. and their allies against organizations considered by them to engage in terrorism.

Scientists work hard to combine robotic systems with humans. The idea is to control the cognitive abilities of soldiers and to achieve quick reaction, precision and strength. When the *cyborgization* of soldiers has been achieved, soldiers will be equipped with suitable clothing and footwear, *wearable* computers, advanced communications gear, *helmet visors* with night vision (eyeshades), *head-up-display*, HUD, a display that presents data, and robotic *exoskeletons* for improved mobility.

At the same time, there has been progress in *neuroscience* with respect to the *mapping* (the process of making a map) and *manipulation* (management) of the human brain. A technique called *transcranial direct current stimulation* (tDCS), or painless brain stimulation treatment, can enhance the mental alertness of soldiers, the clarity of their mind. *Electroencephalograms* embedded in helmets will enable soldiers to control weapons through the power of thought. Soldiers will be supplied with *nano sensors*, devices that monitor the medical status of soldiers and embedded *nano needles* that will release drugs when wounds occur. Accompanied by *nano robots*, the men will survive on the battlefield for days as they will be supported by other robotic devices such as robotic mules that will carry ammunition as well as drones that will resupply them with weapons.

## CONCLUSION

When learners have acquired the information and skills necessary to communicate it, they can participate in projects that focus on how they imagine the next twenty years from now as far as the future of the military is concerned. Their ideas can be matched to ideas in documentaries on YouTube in which they can find answers to questions such as “Should countries set asymmetric warfare as high priority?” or “What is the future of military robots?” Meanwhile, classroom discussions can explore the concepts of building autonomous military robots with artificial intelligence and the usefulness or legality of robots as well as the danger of the *cyborgization of*

soldiers, answer questions that concern NCOs and officers such as “What will changes in future military technology initiate in human society? It seems reasonable to conclude, then, that the learning of the terminology of the twenty-first century warfare fulfils practical needs of the military that range from aiding communication among servicemen to the use of timesaving acronyms, to the development of neologisms that depoliticise discussions and concepts on certain sensitive military topics. Military terminology will help them to incorporate technical language and precision, avoid revealing more information than needed and disguise meaning, as in “kinetic activity” or active warfare, a phrase for combat, in use since the beginning of the War on Terror. To summarize, contemporary warfare terminology is absolutely necessary if the armed services, whether NCOs or officers, want to successfully accomplish their military tasks.

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### C. Documentaries on Modern Warfare

“Future Military Robots.” <<https://www.youtube.com/watch?v=PVT5TfFL4Os>>.

“Pentagon Sets Asymmetric Warfare as High Priority.”  
<<https://www.youtube.com/watch?v=nmNYIaFuY0>>.

## Appendix

### Effective Sample Lecture and Comprehension Exercises War in the 21st Century

*Read the text.*

When we imagine the future of warfare, we envision a battlefield where humanoid robots and other machines fight alongside or in the place of human soldiers. From the droids of *Star Wars* to *The Terminator*'s soldiers, robots will soon play an important role in future combat. While science fiction is populated with anthropomorphic robots that appear to be human, in the real world, robots are programmable machines that can sense and interact with their environment like most advanced weapons systems including cruise missiles, drones, and air and missile systems. Is this the rise of malevolent robots related in science fiction, or can robots actually make war less destructive? If war becomes less destructive what comes next in the advancement of military robots?



So far, robots have not played a significant role in warfare. Recently, however, the use of drones to counter the Improvised Explosive Device (IED) threat in the Middle East and execute aerial bombing campaigns in Afghanistan has elevated military robots to a more prominent role in military operations. As the US brings to gradual end its counterinsurgency campaigns in Iraq and withdrawal from Afghanistan, the robotic systems will be far less in demand. The Department of Defence plans to reduce the numbers of these drones, IED hunters, Global Hawk surveillance drones and the armed Predator and Reaper drones, due to both their inability to survive in contested airspaces and general budgetary pressures. Instead, there will be a greater focus on developing robotic systems for shorter but more massive air campaigns against more sophisticated adversaries with modern air defence systems in Libya, Syria, China and Russia. The Pentagon will continue its efforts to build global precision strike capability, allowing rapid deployment of unmanned weapons that can attack anywhere in the world within an hour. In addition, there will be a focus on technologies and capabilities relevant for low-intensity conflicts like the ongoing War on Terror.

As for the development of robot soldiers, despite decades of intensive research and continuous breakthroughs in robotics, the progress in creating autonomous military robots has been slow. Several projects have resulted in humanoid robot prototypes, but they lack the portable



power source and intelligence that would allow them to act beyond very limited non-combat roles.

The most promising advancements have been the Navy's X-47 drone, which recently mastered the art of landing on aircraft carriers and humanoid robot prototypes such as Atlas, a rescue robot. Another approach to implementing robotic weapons systems is *cyborgization*, **the combination of robots with humans**, whose bodies could be augmented with robotic technology. This concept offers quick reaction times, precision and strength of robotic systems and the control and superior cognitive abilities of humans. Land Warrior and its successor Force Warrior, Future Force Warrior and Warrior Web aim to equip soldiers with wearable computers, advanced communications gear, *helmet visors* with night vision and *head-up-display*, and robotic *exoskeletons* for improved mobility. While the potential may be vast, such human enhancement has suffered the same setbacks and slow progress as the development of other robotic systems. The gear is too heavy and the exoskeleton that could enable soldiers to carry more and move faster lacks a sufficient power source.

At the same time, there has been remarkable progress in neuroscience with respect to mapping and manipulating the human brain. Though not currently employed, a number of technologies have potential military applications. A technique called *transcranial* direct current stimulation (tDCS) has been shown to enhance the concentration and alertness of human test subjects. EEGs (Electro Encephalograms) embedded in helmets might one day enable soldiers to control weapons through the power of thought. A research project has showed that a monkey with an implanted brain chip could control a robotic arm, and researchers have created the first wireless brain-computer interface.

The ultimate goal of the Pentagon is to develop *super soldiers* who could be deployed anywhere in the world within hours and remain in the field for extended periods of time. Their bodies and performance could be enhanced through *nano sensors* that monitor their medical status, embedded *nano needles* that release drugs when needed, and possibly even *nano robots* that can quickly heal wounds in the field. Those super soldiers might be supported by a range of robotic devices and weapons systems, including robotic dogs to carry their gear, drones to resupply them and robotic platforms from which to call in long-range precision strikes. The soldiers could one day assign robot helpers specific missions that they could then execute with human supervision.



The use of military robots raises both ethical and tactical concerns. Will they be able to distinguish targets and use force proportionately? Will soldiers be willing to fight alongside completely autonomous robots? Could robots one day entirely replace humans and human-operated systems on the battlefield? What role might robots play in non-traditional wars such as the War on Terror or the fight against transnational organized crime? These questions have led the United Nations and others to call for a ban on autonomous military robots.

Critics are concerned that advanced Artificial Intelligence (AI) could develop in directions not anticipated by scientists. Because of this unpredictability, the US military has indicated that it will never remove humans from the battlefield. While unmanned weapons systems will become gradually more autonomous so that they can execute specific missions

with less human direction, they may never entirely replace human soldiers on the battlefield.

The technological augmentation and modification of human soldiers raises even more troubling ethical issues than the development of autonomous robots. Since millions of dollars could go into technologically upgrading the body and mind of a single soldier, would the soldier be allowed to quit military service? What does it mean for an egalitarian and democratic society to provide certain individuals with superhuman abilities? While enhancing human soldiers may have its benefits, it opens up a web of ethical, political and legal dilemmas.

Although autonomous military robots with strong artificial intelligence could potentially be built and deployed within the next twenty years, there are great doubts about their military usefulness and legality. Fully autonomous robots could easily turn out to be uncontrollable weapons. Furthermore, the difficult budgetary climate will not change in the foreseeable future, which means that the US military has to focus its research and acquisition on the projects relevant to the most likely military needs. Instead of designing robots for war, the Pentagon may aim to enhance and even *cyborgize* soldiers while further developing human-operated robotic systems. Under the most likely scenarios, it may not be the Pentagon's robots we should be worried about but rather the changes in humans that military technology will inaugurate.

[Adapted from <[robohub.org/robots-soldiers-and-cyborgs-the-future-of-warfare/](http://robohub.org/robots-soldiers-and-cyborgs-the-future-of-warfare/)>.]

Now, answer the following questions:

1. How do you envision the future of warfare?  
.....
2. What is the role of robots in the military?  
.....
3. How are drones used in contemporary warfare?  
.....
4. Where will the US focus now?  
.....
5. What has been surprisingly low?  
.....
6. What will future warriors do?

- .....
7. What is the tDCS? What will it do?  
.....
8. What will the new nano technology achieve?  
.....
9. Elaborate on the ethical problems presented here.  
.....
10. What does the text say about the super soldier of the future?  
.....

**Exercise 1** Supply definitions for the following verbs. If in doubt, use a dictionary:

*envision, counter, inaugurate, slash, augment*

1. Envision.....
2. Counter.....
3. Inaugurate.....
4. Slash.....
5. Augment.....

**Exercise 2** Identify the words in the box and then use them to fill in the gaps.

*malevolent, marginal, improvised, cognitive, egalitarian, legality*

**Adjectives**

1. Fortunately, his ... *malevolent/marginal* plot to our subways did not happen.
2. The ship sank because the crew knew only ... *cognitive/marginal* safety measures.
3. ... *Legality/Improvised* speeches were used by the officers of the Pentagon.

**Nouns**

4. The word ... has to do with the acquisition of knowledge: relating to the process of acquiring knowledge by the use of reasoning, intuition, or perception. (*cognitive*)
5. The dictator laughed at the priest's ... ideas and refused to believe that all people were equal. (*egalitarian*)
6. We have to take care of certain ... before using the new weapon. (*legalities*)

**Exercise 3** What do the following acronyms stand for?

1. IED.....
2. EEGs.....
3. AI.....
4. HID .....

**Exercise 3** Look at the following phrasal verbs and memorize them.

1. To *leave out* means to exclude: “They must decide what to leave out.”
2. *Seek out* stands for search for witnesses or volunteers.
3. *Keep up with* is to maintain, not fall behind: “We need to keep up with technological developments.”
4. To *hold up* means to delay: “Continuing violence could hold up progress towards reform.”
5. To *take down* is to remove or destroy. E.g. “They have taken down the statue.”
6. To *stand in for* implies to replace something temporarily.
7. To *sort out* means to solve a problem: “Things will sort out in the end.”
8. To *put off* means to delay: “They have put off the attack until next week.”
9. To *shut down* means to close definitively. For instance, “To shut down a project.”
10. To *ramp up* is to intensify: “The Company hopes to boost sales by ramping up its advertising.”
11. To *root out* means to force into the open: e.g. “To root out the enemy”.
12. To *make up (for)* is to make amends. For instance, “To make up for errors.
13. To *get away with* is to escape punishment. E.g. “They’ll get away with murder”.
14. To *wind down* means to relax: “Plans began to wind down as men awaited further orders.”

**Exercises 4** Now that you have read the text on the future of warfare write a short essay on how you imagine yourself in twenty-years from now.

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### Listening Comprehension Practice

**Exercise 1** Listen to the speaker of the documentary entitled “Pentagon Sets Asymmetric Warfare as High Priority” and answer the following questions:

1. What is unconventional warfare?  
.....
2. Name the various contemporary conflicts mentioned in the video.  
.....
3. What was Desert Storm in 1991?  
.....
4. What is the US doing to face unconventional warfare?  
.....
5. How is the US Navy contributing to unconventional warfare?  
.....

6. What does a non-traditional strategy include?

.....

[Retrieved from <[https://www.youtube.com/watch?v=nmNYIa\\_FuY0](https://www.youtube.com/watch?v=nmNYIa_FuY0)>.]

**Exercise 2** Listen to the speaker of the documentary entitled “Future Military Robots”.  
Decide whether the following statements are True (T) or False (F):

1. According to the documentary, remotely controlled robots are used for surveillance and for destroying bombs.....
2. Unmanned Ground Vehicles attack enemies using lethal or non-lethal weapons.....
3. Tiny drones, the size of small birds or insects, are used for destroying grenades.....
4. A robotic, remote-controlled sentry gun can replace human guards on the North Korean side of the demilitarized zone.....
5. The Navy uses remote-controlled robots to confront drug smugglers. ....
6. The Pentagon has deployed 11,000 UAVs and 12,000 ground robots in America.....
7. Worldwide, military spending on the robotics industry is projected to reach \$ 7.5 million by 2018.....
8. The knife fish, an underwater minesweeping robot will replace the navy’s trained dolphins in 2017.....
9. Robots will perform automated surveillance, reconnaissance, assault and breaching missions.....
10. A Joint Aerial Layer Network will link all military assets in a region to provide coordination.....
11. American pilots are now flying drone missions in Syria from Arizona.....
12. This is causing these soldiers not to experience Post Traumatic Stress Disorder (PTSD).....

[Retrieved from <<https://www.youtube.com/watch?v=PVT5TfFL4Os>>.]