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ISOMA Special Edition: Preparing Military Leaders to Effectively Resolve 21st Century Security Challenges

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Introduction to the Extended Reality-based LVCG Military Training System for Small Units at Korea Military Academy

Kyuyong Shin, Hochan Lee, and Junhyuk Oh

Abstract: Recently, the development and application of military training systems using extended reality (XR) technologies began expanding, thus forming a live, virtual, constructive, and game (LVCG) environment using virtual reality (VR), augmented reality (AR), and mixed reality (MR) concurrently. XR enables new experiences through the fusion of real and virtual worlds. Therefore, if this technology is applied to military training, the new training system will lower the safety risks arising from the field training, reduce training costs dramatically, and allow trainees to experience various combat situations while overcoming physical constraints. Since XR enables low-cost and high-efficiency military training, the development and use of XR-based military training simulators are expected to continue to develop. With this trend, Korea Military Academy (KMA) recently formed a consortium that is funded by the Korea Ministry of Science and Information, Communication, Technology (MSIT) and developed three small-unit LVCG military training simulators: MR-based Medium-range Assault Rifles-shooting Simulator (MARS 300), VR-based Tactical Assault-shooting Drill-simulator (TAD), and AR-based Command and Control (C2) Simulator (Horus Eye). KMA plans to build an XR-based small-unit LVCG military training site composed of MARS, TAD, and Horus Eye by the end of 2021. This system will allow one platoon to form three teams of ten to train on precision shooting, small-unit combat skills, and C2 exercises, respectively at the same time. The small-unit LVCG training site is expected to make a remarkable contribution to improve the mastery of small-unit combat skills for KMA cadets and Republic of Korea (ROK) Army soldiers in the future.

Keywords: LVCG, Extended Reality (XR); Military Training Simulator; Medium-range Assault Rifles-shooting Simulator (MARS); Tactical Assault-shooting Drill-simulator (TAD); Command and Control (C2) Simulator (Horus Eye); Small-Unit Combat Skills.

Introduction

XR (Extended Reality) is a terminology involving all real and virtual environments where reality and virtuality interact. It refers to an overarching set of hyper-realistic technologies and services to include virtual reality (VR), augmented reality (AR), and mixed reality (MR).[1] In the past, XR technology was mainly applied to entertainment—Pokémon GO as an example—but recently it has been widely used in various fields such as manufacturing, education, medical, operations, and national defense.[2]

Trending along the field of national defense, XR-based combat training platform development and usage are particularly noticeable. XR-based combat training platform has advantages: It enhances training outcomes through the use of realistic virtual space; and it also significantly reduces costs and risks associated with training.[3] Especially, the XR-based platform is gaining status as a certain replacement to the conventional means for military

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and/or counter-terror training that have high costs and risks.[4] The XR-based combat training platform, which includes VR-based precision shooting range, AR-based command and control (C2) system, AR-based maintenance training system, and AR-based counter-terror training system, has been consistently expanding its application[5]. In particular, VBS and DSTS, are the most famous XR-based LVCG simulators which train marksmanship and situation response for small units.[6]

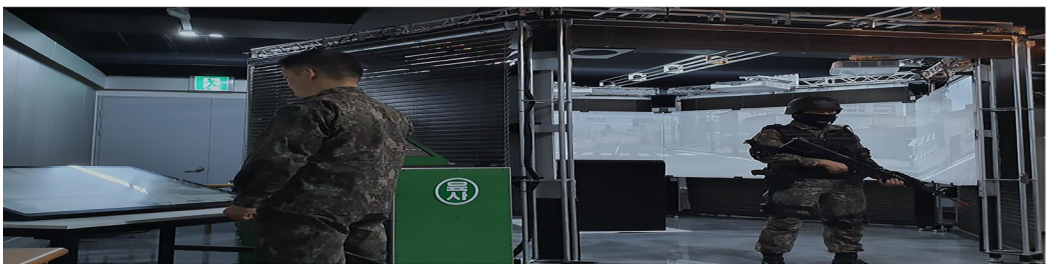
Following this trend, KMA recently formed a consortium with firms that held XR-related technologies since 2017 with aid from MSIT and developed MR precision shooting training system (MARS 300), VR combat skill training system (TAD), and AR Command and Control (C2) platform (Horus Eye). First, MR-based MARS 300 applies various technologies to allow users to experience precision shooting and engagement in an MR environment. Next, Head Mounted Display (HMD)-based TAD incorporates new technologies which allows individual combatants to train for various small-unit combat skills in virtual reality spaces. Finally, but not least importantly, AR-based Horus Eye employs technologies to enable effective training of AR-based command post exercise (CPX) and support efficient and successful mission accomplishment based on accurate situation awareness.

KMA is building a small-unit training site equipped with MARS 300, TAD, and Horus Eye. Once the training site is built, a platoon can train in teams of ten for precision shooting, small-unit combat skills, and CPX-incorporated C2 exercises. Small-unit training system is expected to contribute to improve combat skills of all KMA personnel including cadets.

MR-Based Precision Shooting System: MARS 300

The first of the KMA LVCG training systems is MR-based MARS 300 (Figure 1). MARS 300 is composed of projection screens to allow precise shooting training through realistic sight alignment for the users. For such experience, the system is supported by (1) synchronization of real and virtual spaces; (2) real-time sight and bore alignment; (3) application of various ballistics; and (4) haptic-based real-time hit sensing suit, which are all discussed in detail hereafter.

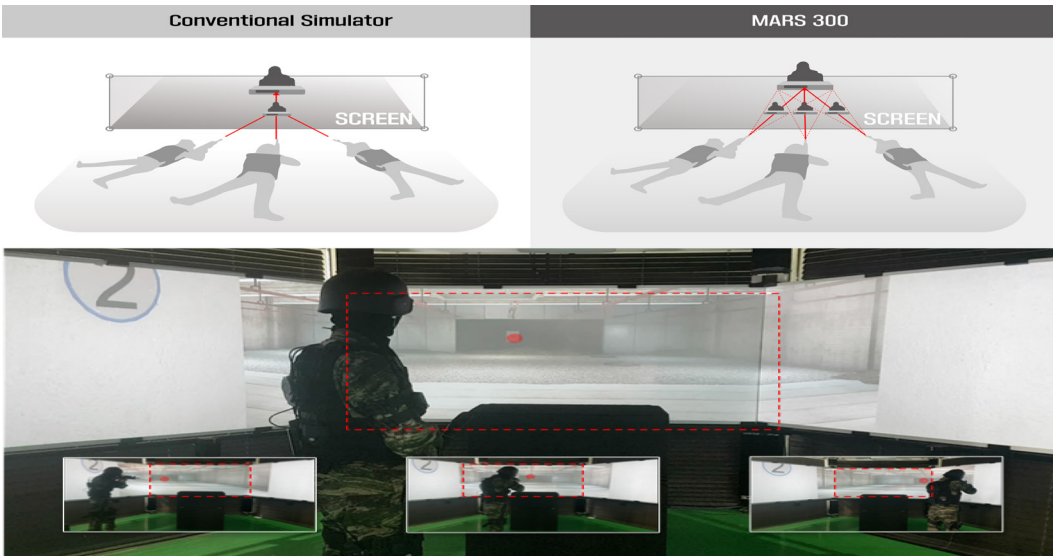
Figure 1. Prototype of MARS 300.



Synchronization of real and virtual spaces. MARS 300 is made as a screen-based simulator for precision shooting. Accordingly, it requires the virtual space on the screen and reality space to be precisely synchronized to translate the trainee's position/ actions and shooting experience in a more realistic fashion. However, conventional screen-based shooting simulators mostly did not synchronize reality and virtual spaces. If the training system fails to synchronize spaces,

just as we know from simulation shooting game arcades, it leads users to aim at the same spot (upper-left in Figure 2) regardless of the position of the shooters.

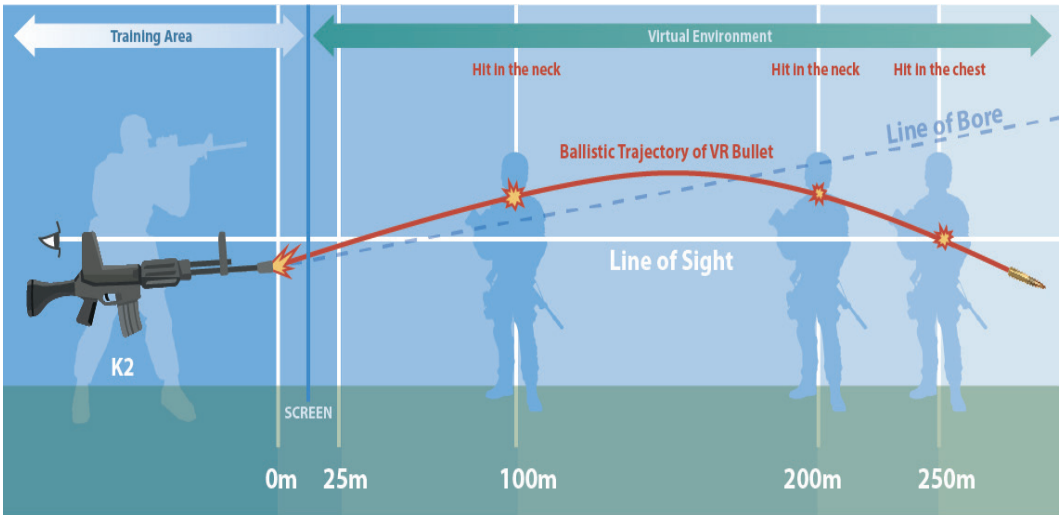
Figure 2. Synchronization of Spaces as User's Positions Change.



But if the system is synchronized it makes users aim at different points on the screen as users change their positions (upper-right in Figure 2). MARS 300 uses information from the sensor device on the helmet to recognize the exact location of the trainee and synchronize reality and virtual space so that it changes the trainee's perspective on the screen as the trainee changes positions. Additionally, depending on each trainee's position, the virtual space distance between the trainee and the target varies and also ballistics change. Therefore, the trainee needs to adjust aiming to accommodate the associated change on the target for varied positions and distance in MARS 300.

Tracking of sight and bore alignment. Sight alignment and picturing is achieved through shooter's alignment of front, rear sight and his/her eyesight plus placing such alignment on the target. Presuming that the round flies on a straight line, the line of bore is the same as the flight path of the round and thus making it important to align sights. As for MARS 300, specially designed sensors are attached to the firearm (M16A1 or K2) and are able to measure the direction of aim in the 3D space and, thanks to the space synchronization technology, they can accurately recognize the shooter's position. Therefore, once the shooter aligns the sight and correctly pictures the target, the bore is accurately directed toward the target. That is, the mentioned space synchronization technology accurately recognizes the shooter's position, and based on the information from the sensors on the firearm, the system precisely acquires the firearm's location and direction thus realistically enabling the user to train on real-life sight aligning and picturing. Through this process, near-real training environment is simulated in MARS 300.

Figure 3. Line of Sight vs Line of Bore.



Application of various ballistics. Generally when the line of bore is parallel to the ground, the bullet departing from the muzzle drops as the Earth's gravity pulls it down. That is, when there is no air influence, the bullet does not move horizontally but does vertically downward, thus making a horizontal projectile motion as in Figure 3. Accordingly, when aligning the line of sight with the line of bore, the farther the distance between the target and the muzzle, the lower the bullet on the target. Therefore, the line of bore is designed to be intersecting upward with the line of sight. From this intersection, the departed bullet travels upward from the muzzle and forms a trajectory that intersects with the line of sight twice as seen in the Figure 3.

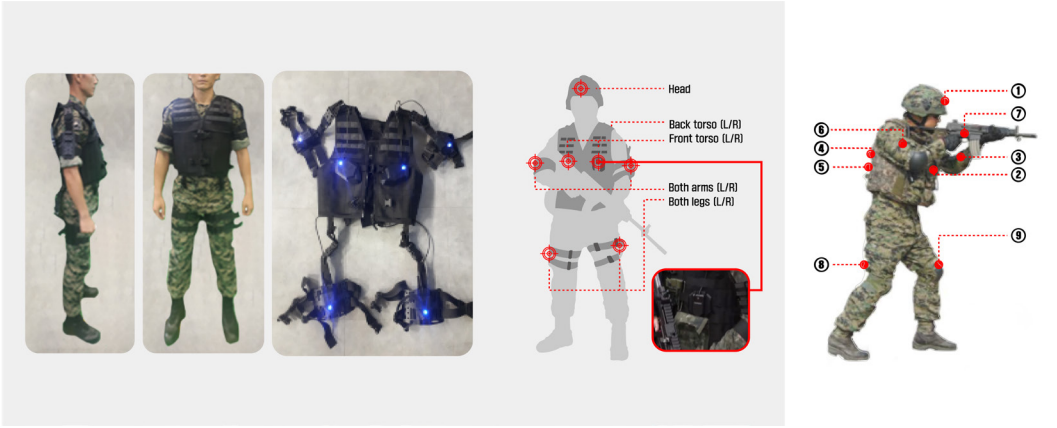
Because MARS 300 applies precision ballistics curve, calculated from fluid mechanics equations, of K100 and K193 rounds used for M16A1 and K2 rifles, it can calculate accurate shot placements on targets and these results are certified by PRODAS database (http://www.prodas.com/xq/asp/p.400/qx/webpagexml4.htm). So far only the ballistics of M16A1 and K2 rounds are applied to MARS 300 but by this year's end, the system will expand to include various platoon-level weapon systems through additional research.

Haptic-based real-time hit sensing suit. Just like shooting arcades, the enemy in the MARS 300 screen also shoots back at the trainee and simulates the damage on the trainee. But MARS 300 distinguishes itself from those gaming arcades in that for one, the enemy's bullet incorporates realistic ballistics, and for the other, if there is another object on the ballistic curve between the shooter and the target, the bullet does not travel through it, failing to incur damage on the target.* Therefore, if trainees do not fully cover themselves, they can be hit. To make the training realistic, the bullet fired from the enemy in the virtual space must be recognized or experienced by the trainee. To do this, MARS 300 trainees equip haptic-based real-time hit sensing suit to experience the hit caused by the enemy. (*It will be explained later in the following section but the enemy on the screen exists to simulate the other user on the network.

All users look at the screen in his own perspective just like in the real combat, facing the other opponent user as the enemy on the screen.)

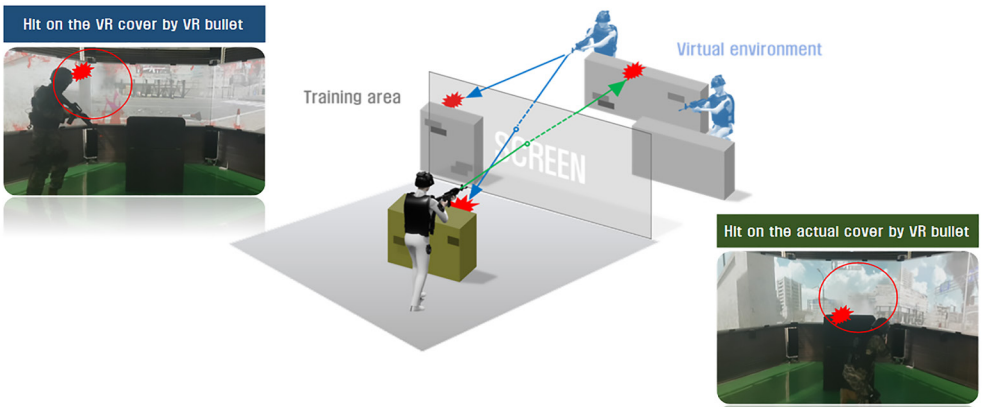
The haptic-based real-time hit sensing suit is composed of nine RF sensors as seen in the Figure 4. These nine RF sensors notify the trainee which part of the body is hit by vibrations and LED lights, depending on whether the sensor in question is on the ballistic curve of the virtual enemy's bullet. Also, the damage on the hit body part is transmitted to the evaluation system and updated real-time, disabling the user's shooting in case the damage is critical.

Figure 4. Haptic-based Real-time Hit Sensing Suit.



Network-based cooperation and mutual engagement. While an individual simulator that accommodates a single user in one unit to enable space synchronization, MARS 300 can be expanded to simulate simultaneous cooperation with multiple users as well. As seen in Figure 5, a single trainee enters a training booth that creates a virtual space with virtual enemies for engagement. If multiple training booths are connected through the network and thus share the virtual space among other trainees, a coordinated training with multiple users is possible. In that case, other users in the virtual space are described as enemies or friendly avatars on the screen.

Figure 5. Haptic Engagement in Place with Enemies.

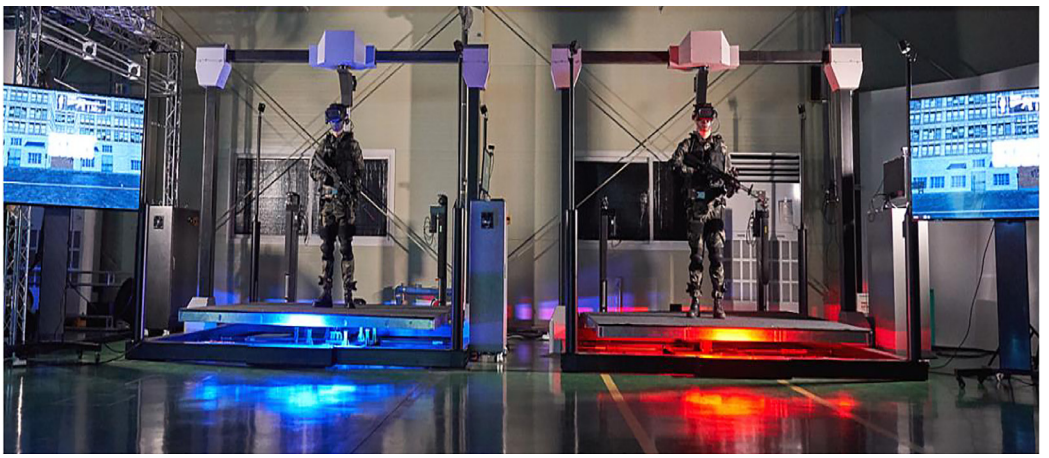


300 has various firearms developed for use, each able to emulate recoil using gas-operated mechanism for realistic shooting experience. Also, because it uses space synchronization and precision ballistics, it has the potential to be used for various training purposes to include sniper and artillery fire observer training. Currently MARS 300 is being used for various training such as Basic Rifle Marksmanship (BRM), Advanced Rifle Marksmanship (ARM), and Close Quarters Battle (CQB).

VR-Based Small-unit Combat Skill Training System: TAD

MARS 300 is a precision shooting simulator and, therefore, it is a screen-based platform to allow naked eye sight alignment. However, most close quarter combats require combatants to conduct pointed shooting instead of aimed shooting. Therefore, when precise shooting is not required, using a VR-based simulator is effective. TAD accomplishes these requirements. TAD uses (1) a hyper-realistic immersive training environment; (2) motion detection-based behavior synchronization; (3) specially designed safety bar for the freedom of movement; and (4) a terrain recognizing motion platform. With these technologies the system enables trainees to master small-unit combat skills. Figure 6 illustrates its prototype.

Figure 6. Prototype of TAD.

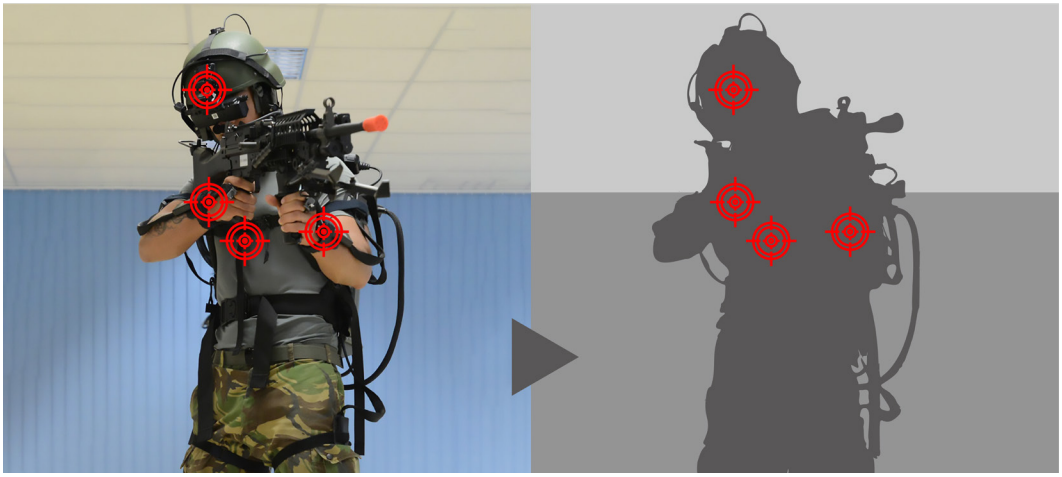


Hyper-realistic immersive training environment. Because TAD training contents are simulated on the HMD device, it provides much more immersive experience than MARS 300. This is because the VR technology offers much higher level of immersion through the HMD device than the screen-based MR technology in MARS 300. Accordingly, trainees who use TAD for training may situate themselves in a near-actual operational environment. TAD simulators are composed of basic training scenarios for infantry combatants at the small-unit level including reconnaissance in General Out Post (GOP), coastline defense and reconnaissance, CQB in urban terrain, and room clearing. Currently the training site in construction is expected to provide trainees with more scenarios for their realistic training experience.

Motion detection-based action synchronization. Figure 7 shows six sensors attached to a trainee that detect his motions in reality and translate them to motions in the virtual space. When initiating the TAD simulator training, after synchronizing sensors, the avatar in the

virtual space reacts to the user's actions and emulates the same actions in the virtual space. Motion information collected from six motion sensors is reflected in the avatar's motions in the virtual space in real-time. Such action synchronization allows trainees to express all the tactical actions such as marching, double-timing, kneeling, and prone positions just like actual battlefield.

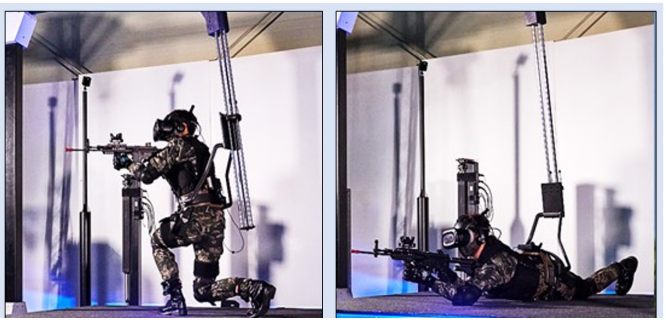
Figure 7. Behavior Synchronization of Trainee and Avatar.



Specially-designed safety bar for freedom of movement. Figure 8 shows a conventional treadmill-based VR simulator where trainees are locked up by the waist to limit their movement for safety reasons when they are fully immersed through the HMD device. This is a necessary measure for preventing safety hazards because while wearing the HMD device, trainees cannot perceive the real space. However, although such a physical restrictive measure may prevent injuries, because it limits their movement significantly, trainees are also limited from taking various tactical actions. As seen in Figure 9, the TAD simulator guarantees the safety of trainees while allowing them the best possible freedom of movement by the specially-designed safety bar. The safety bar for TAD allows trainees to take various tactical actions with such freedom that was not possible in the conventional waist-fixing platform, enabling trainees to train their combat skill in a much more realistic manner.

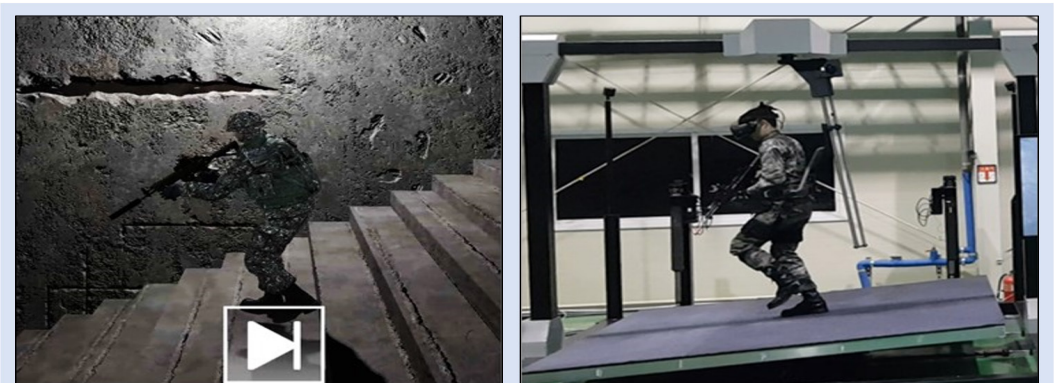
Figure 8. Waist Fixation.

Figure 9. TAD Safety Bar.



Terrain recognizing motion platform. The terrain recognizing platform in TAD synchronizes with the virtual space terrain simulated on the HMD and allows trainees to experience the physical gradient changes as the terrain in the virtual space changes. That is, TAD terrain recognition motion platform emulates the virtual downhill slope in reality and vice versa as seen in the Figure 10.

Figure 10. Terrain Recognizing Motion Platform.

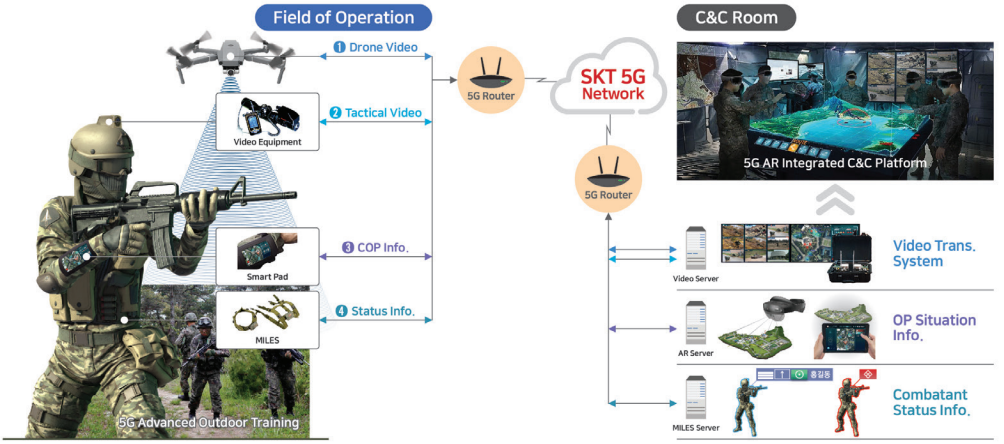


The terrain recognizing motion platform not only offers gradient experience but also shaking in battlefield. When shell rounds are landed in the virtual space, the platform shakes the surface with sound effects so that those trainees around the shell may experience a similar feeling as being on the battlefield. In sum, the terrain recognizing motion platform offers various battlefield effects including gradient change as well as sensory effects through the HMD device so that trainees are able to experience more realistic training.

AR-Based Command and Control System: Horus Eye

The 5G-based AR integrated command and control (C2) platform, named Horus Eye, uses a commercial 5G network to conduct a real-time aggregation of various information in the battlefield including the terrain and weather of the area of operation (AO) and the intelligence on the friendly and enemy forces at the C2 center. C2 room supports soldiers by producing 2D and 3D Common Operational Pictures (COPs) based on the information from the AO through the AR technology and sharing them with individual combatants in the AO so that everyone may execute operations efficiently and effectively under common and accurate situational awareness (SA). Horus Eye is composed of the field of operation, C2 room, and the commercial 5G network as shown in the Figure 11.

Figure 11. Horus Eye Concepts.



Field of Operations. Combatants in the field of operations are equipped with the following four devices: 1) Multiple Integrated Laser Engagement System (MILES) device for describing individual damage from engagements during training, 2) a camera that obtains visual information of the AO from individual perspective, 3) a smart pad that reports the situation back to the C2 room or displays COP transmitted from the C2 room, and 4) a 5G router that transmits the information from the above three devices. In addition, in the air of the AO, drones are employed to acquire visual information across the entire AO to transmit it to the C2 room. All visual information and data are transmitted in real-time through the commercial 5G network after encrypted from a cryptographic module certified by the Korea Cryptographic Module Validation Program (KCMVP) of the National Intelligence Service (NIS) of Republic of Korea.

Command and Control Room. Commanders (or leaders) orient themselves in the Horus Eye C2 room based on drone visual intelligence, individual combatants' visual intelligence, engagement damage assessment received from MILES devices, and reports from individual soldiers, and make command actions immediately. Accordingly, the C2 room requires display devices such as 1) 9-segment on-site video display monitor which shows the positions of drones and individual combatants, 2) 2D COP monitor which shows friendly and enemy forces, and 3) AR-based 3D COP that expresses 3D terrain and friendly and enemy forces dispositions with the help of Microsoft HoloLens 2, which shows transmitted information from the AO in real-time.

High-quality videos filmed by the combatants and drones in the AO are transmitted through 5G network to be displayed on the C2 room's 9-segment monitor in real-time as shown in the Figure 12. Through this visual intelligence relayed from the AO in real-time, commanders at the C2 room can check the intelligence of the battlefield as if he is at the scene. Also, the MILES

information from individual soldiers returns their real-time status and positions to the 2D COP monitor in the C2 room as shown in the Figure 13.

Figure 12. 9-segment On-site Video Display Monitor.

Figure 13. The 2D Common Operational Picture.

Additionally, the C2 room transmits back the 2D COP shown in the Figure 13 through the 5G network after aggregating all the intelligence from the AO regarding additional information on the enemy and friendly, such as enemy position and size. The 2D COP transmitted in this way is also going to be shown on the combatants' smart pad in the AO thus allowing their common SA for executing their operation.

Figure 14. The Microsoft HoloLens 2-based 3D Operational Picture.

The most notable characteristic of Horus Eye is the Microsoft HoloLens 2-based AR 3D COP developed by the KMA-led consortium research team[7], which is shown in the Figure 14. Horus Eye's AR COP creates a 3D topographic map of the desired AO based on the digital terrain information and visualizes a detailed 3D COP for multiple commanders' visual aid integrated with additional intelligence on the terrain. Furthermore, using tablet PC-based interface Horus Eye can easily input and output various information such as the disposition of friendly and enemy forces, unit movement routes, effective range for firearms, contour lines and grid lines, etc. Because the AR 3D COP can describe the AO in a more detailed and realistic ways than the 2D COP, it helps commanders (or leaders) at the C2 room to make effective decisions through quicker and accurate orientation of the operational environment. Horus Eye's AR 3D COP may be used for mission briefing, operation order (OPORD) briefing, and war gaming in the operation planning phase, and it can be used as an effective tool for the successful C2 through real-time intelligence updates during the operation execution phase.

5G Networks. To ensure the workable operating environment of Horus Eye, the real-time transmission of large-scale data between the AO and C2 room is guaranteed without delay. To do this, a network platform between the AO and C2 room that allows high-speed, low-latency, large-scale data transmission is essential. In April 2019, KMA collaborated with SKT, one of the preeminent telecom firms, to build a commercial 5G network running throughout KMA and developed Horus Eye on top of the network. When transmitting training related information on the commercial network platform, cryptographic modules certified by KCMVP were used on the 5G router to reinforce security measures. That is, all the data sent to the C2 room from the AO was encrypted with the KCMPV-certified cryptographic modules before the transmission and they are decrypted with the module to be used. The same is applied to the data send from the C2 room to the AO as well.

Small-Unit LVCG System Pilot Program

MARS 300, TAD, Horus Eye are all systems developed by a KMA-led consortium funded by the MSIT. As of April 2021, KMA is building a small-unit LVCG training system mainly consisting of MARS 300, TAD, and Horus Eye with a funding of 7.5 billion won (6.7 million US dollars) by the Ministry of Defense. Therefore, this LVCG training system will offer training experience in precision shooting, small-unit combat skills, and CPX-enhanced C2 for a platoon-sized unit simultaneously. In this section, additional research and development, training site construction plan, and future use and application for the LVCG training site will be discussed.

Additional Research and Development. As mentioned, the KMA-led and MSIT-funded consortium developed MARS 300, TAD, and Horus Eye. These took two years to develop into simulators tailored to small-units and have shown significant technological achievement but a few limitations exist in directly fielding these simulators for operational forces.

First, because the time used for developing these simulators was relatively short, only Republic of Korea's most-used rounds, 5.56mm caliber M193 and K100, for M16A1 and K2 rifles, are simulated. But since Korea's military uses various small-unit weapon systems (such as K1 rifle, K3 machine gun, K201 grenade launcher, K5 pistol, and K12 multi-purpose machine gun), MARS 300 and TAD will incorporate other platoon-level weapons to effectively simulate squad/team-level force-on-force or precise shooting training. Currently research and development is underway to add selections of five weapon systems and their ballistic curves in the system, in addition to M16A1 and K2 rifles.

Second, MARS 300, TAD, and Horus Eye have limited training contents due to the short duration for the training system development. Therefore, for this pilot small-unit LVCG training initiative, various standardized training contents are being developed that are suited for diverse combat situations to include warfare in mountain, urban terrain, and coastal terrain. These standardized training contents are planned to be developed to simulate training under various weather and operational environments of the Korean peninsula where three sides are surrounded by water. Specifically, those contents will coordinate environmental variables to be reflective of Korea's definite four seasons, weather and climate conditions, and daytime/nighttime operational environment, as well as building virtual training site that can simulate realistic terrain of Korea.

Third, there is not an evaluation system on the training by MARS 300, TAD, and Horus Eye. In the small-unit LVCG training, feedback through standardized training assessments is as important as the training itself. Therefore, training analysis and assessment system development are still underway to allow a series of processes from building a real-time database of trainees' performance and the status during training to using it for after-action review to analyze and discuss matters related to shooting accuracy, battle damage, and tactical action choices and so on. The purpose of the pilot program is to evaluate the efficiency of MARS 300, TAD, and Horus Eye simulators and make additional adjustments based on the collected and assessed results for the future expanded use in the field.

Training Site Construction Plan. The LVCG training site on KMA being under construction is a two-story building in the size of 950.40m^2(~10,230ft2), with one set of Horus Eye and 10 sets of TAD on the first floor and one set of Horus Eye* and 10 sets of MARS 300 on the second floor. *One set of Horus Eye is composed of 10 Microsoft HoloLense 2 and, therefore, 10 personnel can simultaneously conduct order briefing, war gaming, and C2 training.

Figure 15. TAD Simulator Layout.

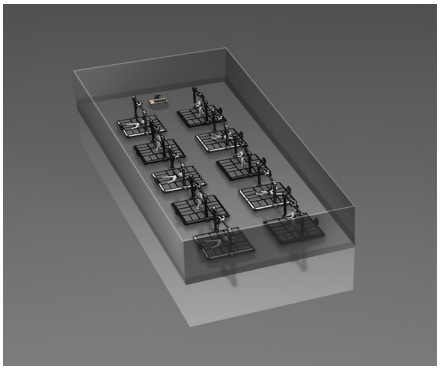


Figure 16. MARS 300 Simulator Layout.

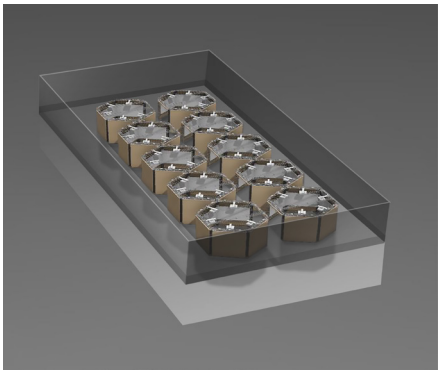


Figure 15 shows the first floor of the training site layout with one set of Horus Eye and 10 sets of TAD. TAD will simulate various training environments to include mountains, urban terrain, coastlines, and room clearing missions. Squad leaders, before they execute operations, may conduct mission briefing, issue orders, and run war-games; once they begin execution C2 personnel may begin C2 training using Horus Eye.

Figure 16 illustrates the second floor layout consisting of 10 sets of MARS 300 and one set of Horus Eye. 10 sets of MARS 300 are synchronized with network for ten squad members to be in the shared virtual space to conduct a coordinated training by sharing virtual training contents. Offered training contents are zeroing, reduced target shooting range, shooting at known distance, and CQB. In particular, CQB is synchronized with Horus Eye and just as TAD is used with Horus Eye, the same activities may be performed before and during the execution of operation through Horus Eye. Specifically, briefing on the mission, issuing orders, conducting war-game before the execution and C2 activities by concerned personnel once the squad is executing operation.

Training Site Utilization and Application to Field Troops. The small-unit LVCG training site under construction will be used during basic training before matriculation, five-week summer military training, and concurrent supplemental training in academic semester days for low-performers and volunteers. Also the facility will be used for soldiers in Service Support Group and other units as a part of training for their basic warrior skills. KMA plans to complete the construction and run pilot programs to analyze training achievement and make necessary adjustments. The ROK Army plans to budget about 40 billion won (35.8 million U.S. dollars) to field the training system in the Army.

Conclusion and Future Plans

This paper introduces the XR-based small-unit LVCG training system that KMA is building on post. This is a government-funded XR-based mock combat system, which is composed of MARS 300, TAD, and Horus Eye. The systems were built by a KMA faculty consortium research team in collaboration with emerging tech firms with related technologies. This system is developed to simulate training at the small-unit (team and squad) level and to achieve training purposes in precision shooting, small-unit combat skills, and CPX-enhanced C2.

The ROK Army highly appreciates this system's superior value and is running a pilot program in KMA to build, operate, and assess a platoon-level training site so that it will have a standard small-unit LVCG training model for the Army. In the near future, KMA will use this training system for cadets and soldiers on post and develop a standardized assessment system to analyze and assess training results and further improve the training system. Through this effort, KMA will set up and operate high performing small-unit LVCG training systems throughout the Army and contribute to the generation of its combat power.

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Educating 21st Century Thinkers: A Case for Renewed Emphasis on Liberal Arts and Humanities in Officer Education

Jamie McGrath

Abstract: As we move deeper into the twenty-first century, the pace of technological advancement continues to accelerate. This is especially true in the military, where an ever-increasing push for artificial intelligence, autonomous systems, and cyber capabilities dominates the thinking of military planners. With this emphasis on technological advantage comes an unhealthy bias toward the Science, Technology, Engineering, and Math (STEM) fields in officer education at the expense of liberal arts and the humanities. While widespread STEM education appears advantageous for working with the increasingly technical aspects of warfare, it is shortsighted and potentially detrimental to the nation's ability to outthink our opponents. Military leaders at all levels must understand the technology that enables their warfighting systems. But an officer corps made up entirely of technicians limits the military's ability to adapt and apply those technologies in creative ways to overcome our adversaries.

Educating future military officers requires balancing the need for officers with technical literacy with those who have a firm grounding in the humanities even as warfare seems to become more technical. If the services' goal is to have STEM-cognizant officers, the services should provide the specific STEM-related training they seek after commissioning. Allowing prospective officers to pursue degrees in any accredited undergraduate major and requiring minimum STEM and liberal arts prerequisites would result in an intellectually diverse officer corps that can then specialize based on the technical or critical thinking requirements of their chosen career path.

Keywords: Officer Education; STEM-Cognizant; Liberal Arts Education; Intellectual Diversity; Humanity and War; War and Society

Introduction

[T]he successful officer is more than a technician. To be sure, the Naval officer must have a thorough understanding of the operation of the ships and machines for which he is responsible… [T]he technical and military aspects of the Navy, however, constitute only a part of the general requirements of the effectively trained Naval officer.[1]

Fleet Admiral Chester W. Nimitz, 1947

As the world moves deeper into the twenty-first century, the pace of technological advancement continues to accelerate. This is especially true in the military, where an ever-increasing push for artificial intelligence, autonomous systems, and cyber capabilities dominates military planners' thinking. This emphasis on technological advantage has produced an unhealthy bias toward the Science, Technology, Engineering, and Math (STEM) fields in officer education at the expense of liberal arts and the humanities. While widespread STEM education appears advantageous for working with the increasingly technical aspects of warfare, a narrow focus on STEM is shortsighted and potentially

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detrimental to the nation's ability to outthink our opponents. Military leaders at all levels must understand the technology that enables their warfighting systems. But an officer corps made up entirely of technicians limits the military's ability to adapt and apply those technologies in creative ways to overcome our adversaries.

Since the inception of the American officer corps, successful commanders have advocated for officers to be grounded in liberal education, as demonstrated by the FADM Nimitz quotation in the epigram above. Despite such advocacy, each new technological advance brings renewed calls from technologists for the need to focus on technical education. In the 1880s, it took an act of Congress to force the Navy to choose a generalist officer corps over one specialized in engineering or seamanship.[2] The advent of nuclear power in the twenty-first century brought calls that those generalists all be technically educated. With a shrinking officer corps, the end of the Cold War again saw pressure to focus officer education on STEM degrees with arguments that precious education dollars must go toward technical training.

Often the argument is that the military must choose between liberal arts or STEM education. Instead, the focus should be on liberal arts and STEM. Technology is changing fast, and the military must remain at the forefront of technological advances, but it is also essential that the officer corps successfully apply them. Rather than focusing on STEM undergraduate degrees with a modest sprinkling of liberal arts courses, the services should focus on accessing the most intelligent officers, regardless of their field of study. The services need critical thinkers above all else.

This paper explores the need to include a broad range of liberal arts and humanities in the education of the officer corps to better prepare them for leadership in the twenty-first century. It suggests that the interface between technology and humans requires more than just a robust technological background. That interface requires equally robust mastery of creative and critical thinking and an ability to communicate those ideas to others. It requires an understanding and appreciation of the past. And it requires a grounding in morality and ethics beyond the question of "what can we do" to also ask "what should we do?" The critical and creative thinking needed to address today's security and warfare challenges include skills not developed by STEM education. Put another way, STEM is inadequate on its own in developing the intellectual abilities needed by military professionals.

STEM and the Services

Science, technology, engineering, and mathematics are the broad categories that comprise the STEM education so coveted by the services, especially the more technology-based naval and air services. A classic liberal arts curriculum does not ignore STEM. Instead, it tempers the myopic focus on technology with the study of the humanities—languages, literature, philosophy, history, archaeology, anthropology, human geography, law, politics, religion, and art.[3] In the twenty-first century American collegiate system,

degree specialization, with its deep and narrow focus on specific areas of study, has replaced the classic liberal arts curriculum. To gain the same broad knowledge base within the officer corps, services should encourage officers to study a similarly broad range of subjects, thus gaining diversity of thought at the macro level.

Each of the American military services places a different emphasis on undergraduate STEM degrees for their respective officer corps. The ground-focused services, the Army and the Marine Corps, allow prospective second lieutenants to major in any certified degree program.[4] The maritime services take different approaches. The Coast Guard Academy offers primarily STEM majors, but its Officer Candidate Program admits candidates from any major.[5] The Naval Academy offers STEM degrees primarily but also requires a liberal arts core curriculum. The Navy prioritizes STEM in its other commissioning sources, including Reserve Officer Training Corps (ROTC) and Officer Candidate School (OCS). The Air Force takes pride in its reputation as the most technical of the services.[6] Like the Naval and Coast Guard academies, the Air Force Academy offers STEM degrees primarily with a liberal arts core curriculum. The Air Force ROTC encourages cadets to study STEM-related subjects.[7] The Space Force has yet to establish specific pre-commissioning requirements but is likely to be similar to its parent service, the Air Force. Since the air and maritime services put particular emphasis on STEM over other degree programs, the majority of this paper will address those services.

War is a Human Endeavor

War is fundamentally a human endeavor. Technology may provide the means of war, but it remains the responsibility of people to employ those means. Failing to sufficiently value the liberal arts and humanities as viable paths to commissioning inhibits the creative and critical thinking necessary within the officer corps to react to the uncertainty that is war.

Former prisoner-of-war Vice Admiral James B. Stockdale, USN, famously credited his survival in the prisons around Hanoi to his study of philosophy.[8] It helped sustain Stockdale when everything else was stripped away. In today's highly technological world, there is a tendency to believe that technology will solve all problems. Stockdale's imprisonment is an extreme example countering that belief and demonstrates that the officer corps must prepare for more than just understanding technology. It also must understand how to act when that technology fails. With or without war-winning technology, military leaders need to understand the human condition.

It is the human aspect of warfare that remains immutable, regardless of the means employed. In other words, humanity is the constant, technology is the variable. For every technological military advance, humans have developed tactics to employ and defeat it. Tactics are the human element that translates technological combat potential into combat power, the violent employment of force. Or as Carl von Clausewitz states, "Tactics teaches the use of armed forces in the engagement" of forces with each other—

in other words, combat.[9] Despite regular predictions that advances in technology would bring about fundamental changes in the nature of war, it has not. The introduction of new technology in warfare begets counter-technologies, evolving into a cycle of technological advances. Still, the goal of war remains the same, to impose one's will on another through means of violence and force.[10] Thus it is the human element that matters: The side that develops methods, tactics, techniques, and procedures to best employ or defeat the wielded technology gains the upper hand.

The ability to think critically—to see the capabilities, intended or unintended, of technology, and to apply them—indeed provides an advantage in warfare. As one recent commenter has concluded, "An obsession with military technology and science in isolation can distort the general picture of war whose character in any given case is the product of many factors—political, social, economic as well as technological."[11] And it is that conglomeration of factors that demands the officer corps include officers trained in the constants, the humanities that prepare their minds, the ultimate weapon of war. Officers trained in technology, the variable and often evolving element of war, remain essential, but without those who study humanity, technology is likely to be applied without consideration for the constant, human, element of war.

Those That Fail to Learn from History Are Doomed to Repeat It

The aphorism "those that fail to learn from history are doomed to repeat it"[12] is so often repeated that it deserves some notice and consideration from military professionals. History is replete with warfare. Failure to study past warfare to critically analyze historical conflicts' successes and failures makes for an uninformed military doomed to repeat past mistakes. The study of history is more than just knowing such and such a battle took place or knowing who won this or that war. It is the study of the causes and effects of war, the causes and effects of combat, the causes and effects of the entire military and national apparatus that prepared leaders for war. It can and should include an analysis of the technology employed—both its development and how it was employed relative to its intended purpose. The burgeoning field of war in society demonstrates the ever-present need to understand warfare and its impact on humans, not only military technology.

Similar arguments exist for the range of humanities. Stockdale's story demonstrated the value of philosophy to military officers. As artificial intelligence gains strength, the ethics of using such technology requires significant thought and discussion. Officers with in-depth knowledge of human geography, law, politics, and religion inform the entire officer corps of the environment, allowing the military to best employ the technology of the day.

These applications of the humanities appear to focus on the operational level of war, the level fought by senior officers. As a result, many argue that junior officers, who operate at the tactical level of war, should be trained in STEM, reserving the study of humanities for

the transition between the two levels of war. But this is a false corollary. A better approach is to focus on recruiting officers from a wide range of academic backgrounds and then training them for the career paths they fall into. Few junior officers "use" their degree in the initial tours, so their field of study matters little to the job they are asked to perform. Preference toward STEM undergraduates stifles the intellectual diversity within the officer corps from which senior officers are drawn.

Technology Alone Is Not Enough

Technology alone is not enough to guarantee victory. Radar was introduced broadly aboard U.S. Navy warships in 1940.[13] Radar's ability to "see" at night and through weather conditions impossible for the human eye gave a great theoretical advantage in naval combat. Unfortunately, Navy commanders possessed an incomplete understanding of the technology and, therefore, misemployed available radar-equipped ships, especially in the bloody naval surface actions in the waters surrounding Guadalcanal from August to November 1942.[14] While this fact seems to argue for better technical training of naval officers, it also points out technology's limitations without human application in combat.

The Navy installed early shipboard radar sets where space was available, often in locations far away from the decision-makers who could benefit from the information radar provided. Then-Lieutenant Commander J.C. Wylie, Executive Officer in USS *Fletcher* (DD 445), fighting in those battles around Guadalcanal, recognized these limitations. To overcome them, he stationed himself where he could interpret the radar readings into information useful to decisions in fighting his ship and pass them along to the captain. As one historian put it, "Thus, Wylie was himself the Navy's first Combat Information Center, or CIC, a concept and term that had yet to be invented."[15]

Wylie went on to spearhead a team of Pacific Fleet naval officers who developed the CIC concept, which resulted in the redesign of U.S. Navy warships to consolidate the technology needed for decision making—radar, sonar, communications, fire control computers—into a single location, and perhaps more importantly, a doctrine for employment and coordination of these technologies to more effectively fight the ship.[16] Thus, it was not technology alone, but officers with the vision and creative thinking skills to see how the technology could be best employed in combat that fully realized its benefits.[17]

Diversity of Thinking

One emphasis in developing successful teams is diversity—bringing together people of different backgrounds and experiences. This sort of diversity broadens viewpoints and provides unique angles to problem-solving. More than just different races, genders, or ethnicities, diversity includes variety in education and training. Lack of diversity on a team leads to outcomes biased toward the majority members of the team.[18] When the team is preferentially formed of technicians, regardless of their racial, ethnic, or gender diversity,

the team's bias is toward technical answers to whatever problem is presented. Therefore, when a service preferentially offers scholarships for STEM degrees—such as the Air Force and Navy officer accession programs—that bias in choice for technical expertise permeates the entire officer corps and dilutes diversity.

This fight over the emphasis on STEM degrees for naval officers dates to the introduction of steam for ship propulsion. The Navy's technological transformation of the late 1800s culminated in a reorientation of the United States Naval Academy curriculum toward technical subjects, so much so that today all Naval Academy graduates, regardless of major, are awarded a bachelor of science degree. The counter to this emphasis on the profession's technical aspects was the founding, during the same period, of the U.S. Naval War College, where students went to study the art of naval warfare.[19] The debate has ebbed and flowed over the intervening century.

When the United States rapidly expanded its officer corps for World War II, the services set education criteria for officer candidates centered around post-secondary education. Speaking at a symposium entitled "Liberal Education in the Military Forces," no less than General of the Army Dwight D. Eisenhower, Marine Corps General Alexander A. Vandegrift, and Nimitz spoke on the value of liberal arts education for officer candidates. Nimitz stated unequivocally,

"[T]he exigencies of war forced us to reduce the number of liberal subjects in the training curriculum to what we considered an absolute minimum. But the Navy has learned over a period of years that the successful officer is more than a technician. To be sure, the naval officer must have a thorough understanding of the operation of the ships and machines for which he is responsible, and he must be well trained in the ways of the sea and in the rudiments of military procedure. Knowledge of the technical and military aspects of the Navy, however, constitute only a part of the general requirements of the effectively trained naval officer."[20]

Expanding further on the need for naval officers to possess not only technical prowess but also a broad range of capabilities provided by traditional liberal education, Nimitz continued, "The youngest ensign becomes at once a military leader and a minor diplomat in the service of our nation. For this reason, alone, a liberal education becomes a necessity in the training of our officers… In brief, the Navy demands that its officers be well-rounded individuals, capable of meeting the diverse problems of their profession."2[1]

Nimitz concluded, "With the view in mind of increasing the diversities of its officers, the Navy will in the future allow its NROTC trainees the prerogative of taking any legitimate bachelor's degree."[22] These remarks, presented at the dawn of the Cold War, guided the initial post-WWII education of naval officers. But the advent of nuclear power in the 1950s again challenged the idea of liberal education in the U.S. Navy's officers.

The Rickover Effect

Often referred to as "the Rickover Effect," the bias toward technical degrees among naval officers in the 1950s and 1960s was tied to the growth of the nuclear-powered fleet. At one point, the Navy aimed to field an all-nuclear fleet with nuclear-powered aircraft carriers, escort ships, and submarines. To operate and command that fleet, nuclear proponents argued, the Navy needed technically trained officers, so much so that by 1975, the Naval Academy required 85 percent of all midshipmen to enroll in STEM degree programs. Although the dream of an all- nuclear fleet had waned by the late 1980s, the search for ways to defeat massed Soviet air attacks brought with it renewed calls for technically trained officers to operate the new Aegis weapons system. Regardless, the technical aspects of the Navy appeared to dictate that all officers be technicians.[23]

Ironically, Admiral Hyman G. Rickover, the Father of the Nuclear Navy, was not the strident proponent of technical education that people might think. An outspoken critic of the American education system, Rickover recognized the need for a balanced program grounded in classic liberal education. Rickover argued vigorously that foundational learning in reading, writing, and arithmetic should form the basis of all education before any specialty training took place. He understood that these foundational topics ensured students were able "to read, to write clearly, to calculate, to think critically and logically, and to acquire knowledge of the world through history, literature, science, and art." Testifying before the Senate Subcommittee on Education in 1963, Rickover stated unequivocally,

"I believe that every student, whoever is possible of absorbing it, should be given a good liberal arts education. I would much prefer, even in a scientific endeavor, to hire a graduate of a liberal arts school than anybody else. I want to make that point, because I think I'm being misquoted frequently."[24]

When he created the Navy Nuclear Power Program and commissioned the first nuclear-powered ship, Rickover, who was a specialized Engineering Duty Officer, selected a line officer, an officer with experience in command of ships at sea—and not a professional engineer—to be the first commander of USS Nautilus (SSN 571) in 1954.[25] While the initial nuclear-trained officers were also experienced engineers, demand for officers grew in the 1980s as the Navy expanded toward 600 ships and began accepting officers into the nuclear power program from all degree fields. One of those accepted in that expansion was this author, who held a bachelor of arts in history yet served over 20 years in the Naval Nuclear Power Program, including two years as an instructor at the Naval Nuclear Power School teaching chemistry, materials science, and radiological fundamentals. In fact, by the late 1980s, the Navy had recognized that no one area of undergraduate study proved more effective than another in developing line officers to lead its sailors and had removed all academic major restrictions on NROTC scholarships, just as Nimitz had done in 1946.[26]

The debate over the proper ratio of "bull" (humanities and social sciences) to STEM continues. The Navy currently reserves 85 percent of its NROTC scholarships for midshipmen seeking STEM degrees[27] and, as recently as 2016, considered curtailing scholarship offers to non-technical majors as a cost-cutting measure. The plan aimed to fully fund only engineering degrees with scholarships and to use the Air Force ROTC model of partially funding liberal arts and language degrees. Then-Secretary of the Navy Ray Mabus tabled that plan against the recommendation of then-Chief of Naval Operations Admiral Jonathan W. Greenert. In an interview following Mabus' decision, Admiral James Stavridis, a former Supreme Allied Commander, Europe, and a member of the ROTC Scholarship Review Board, said, "In all honesty, I found the situations I encountered in the course of my career, I was more benefited by what I had studied about the world international relations and history and all of the other aspects of those disciplines than my electrical engineering background."[28] Stavridis did admit that it is unlikely the ratio needs to be fifty-fifty, but his comments highlight that the training gained in a technical undergraduate degree program does not necessarily translate to the real-world requirements for officers.

In 2019, then-Acting Secretary of the Navy Thomas B. Modly issued the sweeping "Education for Seapower Strategy, 2020" which looked to overhaul how the Navy considered education across the entire force—officer and enlisted.[29] Proponents of liberal education lauded its quest for diversity in education, its emphasis on aligning education to career milestones, and the acknowledgement that an "intellectual overmatch" was required for the U.S. Navy to maintain its military advantage.[30] The elation was short-lived however when a new Secretary of the Navy put the new document "under review" six-months after its release, and the envisioned increases in education funding within the service failed to materialize.[31]

The Role of Humanities in a Technological Service

In the Air Force, the emphasis on technical education began at the service's inception. The Air Force prides itself on being the most technical of the services, and therefore preferentially chooses officers with, or who are seeking, STEM degrees.[32] While the current Air Force ROTC scholarship program does not include an outright quota of STEM degrees, its "scholarships are merit-based, therefore students pursuing a technical major may receive priority in the selection process."[33] A 2010 study commissioned by the U.S. Air Force and the National Research Council concluded, among other STEM-related elements, that,

"Only five Air Force officer career fields currently require a STEM degree…. All other officer career fields, such as pilot, navigator, air battle manager, maintenance, space and missiles, and program management, have no stated requirements for STEM education, but a significant percentage of officers in these career fields do hold STEM degrees. For example, 45 percent of pilots have science or engineering degrees. While the committee found no direct data showing cause and effect, current and former Air Force officials who interacted with or were members of the committee believe the high degree of technical expertise among its pilots contributes significantly to the U.S. Air Force's operational and tactical excellence [emphasis added]."[34]

Such a non-scientific conclusion seems ironic in an argument for increased STEM education but represents the bias those holding STEM degrees exert over the system. A closer look at the conclusion above shows that more than half of the Air Force's pilots at the time did not have STEM degrees. The term "ducks pick ducks" is oft-repeated. Such thinking fails to recognize the validity of diverse backgrounds, especially in the officer corps' undergraduate education. The argument, "I am a STEM major, and I was successful; therefore, all officers should be STEM majors to be successful," is a logical fallacy.[35] Instead, the services should assess the best and brightest officers and then train them for specific jobs based on demonstrated performance, not arbitrary quotas coming out of high school or college.

Even the STEM community recognizes the requirement for more than just STEM. The growth of artificial intelligence (AI) highlights the need to include humanities in the development of technology. As Dr. Sylvester Johnson, Director of the Virginia Tech Center for Humanities, told the author, "Technology is inherently comprehensive and transdisciplinary, with the hardest problems existing at the human frontier—policy, ethics, regulation, societal impact, etc."[36] The transdisciplinary nature of future technology is reflected in the recent revision of technology studies at leading universities such as the Massachusetts Institute of Technology, Stanford, and Oxford. The Stanford Institute for Human-Centered Artificial Intelligence website leads with the idea that "the creators and designers of AI must be broadly representative of humanity. This requires a true diversity of thought—across gender, ethnicity, nationality, culture, and age, as well as across disciplines."[37] Realizing that the future of technology is inexorably connected with humanity, a transdisciplinary officer corps would best position the military at the forefront of the AI revolution. Including a broad range of humanities-trained officers among STEM-trained officers sets the military up to not only take advantage of technology but also to spearhead the ethical and moral application of that technology.[38]

Education Required to be a Junior Officer

One of the challenges of determining appropriate officer undergraduate degrees is the lack of correlation between civilian university degrees and military officer career fields. Few undergraduate degrees prepare officers directly for their roles in any of the military services. Some military specialties align with technical civilian degree programs, such as meteorology, naval architecture, or civil engineering, but only for officers going directly into those specialties. Most officers will enter their service in generalist billets, albeit within their chosen branch of each service. The skills necessary to perform as a junior officer have little to do with a STEM degree's technical aspects and more to do with human interaction and leadership.

While the U.S. Army has no explicit quota for STEM or liberal arts majors, there remains debate over the right balance of technical and liberal education. Colonel Greg Kaufmann, U.S. Army (Ret.), wrote in 2015 that the Army should embrace liberal arts

education since it aligns with the Army's leader development narrative. The complex environment in which the Army expects its officers to operate requires an understanding of "human, cultural, and political continuities."[39] "[S]uch a leader possesses a high tolerance for ambiguity and is comfortable in such situations. Accepting that a new lieutenant receives the necessary technical and tactical training prior to the first platoon leader assignment, then the cognitive preparation of that lieutenant can best be fulfilled through a pre-commissioning liberal arts education."[40] So, while technological knowledge is necessary for the development of weapons systems and such, the development of leaders requires knowledge of the brain housing group. The same need for leadership holds in the other services as well.

A 2020 study by the Center for Education and the Workplace at Georgetown University determined that the top five workplace skills most in demand among professional workers, a group in which military officers claim membership, were communication, teamwork, sales and customer service, leadership, and problem-solving and complex thinking. STEM skills, in this report, were on average two to three times less important than these five attributes. Admittedly, humanities were near the bottom of the list, but even STEM-related fields valued communication and problem solving/complex thinking over the more STEM-associated skills like mathematics, physics, and engineering.[41] The emphasis here is that the skills most in-demand in the workplace are not STEM, but instead, people skills that are developed effectively through the study of liberal arts and humanities and correlate with Admiral Rickover's testimony of 60 years ago.

As Fareed Zakaria writes in In *Defense of a Liberal Education,* liberal arts degrees are not so much about learning to think but learning to write; as learning to write forces you to think and communicate with your team, subordinates, and superiors.[42] This aligns with the number one workplace skill listed above. The ability to articulate thoughts and express them in a manner most easily understood by their intended audience is a core tenant of liberal education. Anecdotal experience with the officer candidates this author frequently encounters bears this out. The STEM majors, even those with high grade point averages (GPA), often struggle with their ability to communicate clearly, while the cadets majoring in history, political science, national security affairs, foreign languages, and psychology move to the head of the pack in getting others to understand the why behind their ideas. What good is an officer with vast technical knowledge who cannot communicate their thoughts and ideas to the people they lead and serve?

Recommendation

Educating future military officers requires balancing the need for officers with technical literacy with those who have a firm grounding in the humanities even as warfare seems to become more technical. The National Resource Council study on the U.S. Air Force's STEM workforce needs presented the terms "STEM-trained" and "STEM-cognizant" to describe the officer corps the Air Force requires. The study defined STEM-cognizant as "such individuals [who] have a

foundation in the use of the scientific method in decision making."[43] Expanding on that definition, STEM-cognizant individuals are "(l)acking a specific degree in science, technology, engineering, or mathematics, but having a minimum of 30 hours of undergraduate course work in these subjects or equivalent training or experience and being conversant in these subjects."

STEM-cognizant should be the goal of the armed forces officer corps, not STEM-trained. Except for some narrow specialties, the officer corps is not called upon to design technology but instead to employ it. An example of this is, again, the Naval Nuclear Power Program. The program takes officers of all majors and provides a year of intensive training in the theory and practice of operating a nuclear propulsion plant. Graduation from Nuclear Power School does not qualify an officer to design new reactor plants, but it does produce a STEM-cognizant officer who is fully capable of supervising, operating, and maintaining naval nuclear propulsion plants. And that STEM-cognizance expands beyond nuclear power to technical literacy across a range of missions. Flight school provides a similar technical education to officers from the entire range of undergraduate degrees, arguably achieving STEM-cognizance. If the services' goal is to have STEM-cognizant officers, then the services should provide the specific STEM-related training they seek as they do in these examples. Allowing prospective officers to pursue degrees in any accredited undergraduate major and requiring minimum STEM and liberal arts prerequisites would result in an intellectually diverse officer corps that can then specialize based on the technical or critical thinking requirements of their chosen career path.

Perhaps the concern is to ensure prospective officers complete degrees with sufficient academic rigor. In that case, the services can set higher standards for GPA or demand specific courses in addition to the chosen major. Again, looking at the 1980s Navy ROTC example, midshipmen were allowed to enroll in any academic major. However, to ensure minimum technical knowledge all were required to take calculus and calculus-based physics, which remains a requirement today. Additionally, all midshipmen are required to take one of several national security-related history or political science courses. These requirements are separate from whatever university-required core courses are required for graduation. While the Naval Nuclear Power Program accepts officers of all majors, those with non-STEM degrees had a higher GPA threshold to enter the program. Suppose sufficient academic rigor is a criterion for military officer candidates. In that case, such a sliding GPA scale by degree program could be applied to all commissioning efforts, provided it is transparent and clearly stated at the beginning of a candidate's academic career.

Although military services employ highly technical capabilities, those systems are still run by people. As Rear Admiral Grace Hopper quipped, "A human must turn information into intelligence or knowledge. We've tended to forget that no computer will ever ask a new question."[44] In the age of machine learning and AI, this may no longer be wholly true, but keeping the human in the loop will continue to require a human(ity).

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An Approach for a Character Development Strategy for the Center for University Studies

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Abstract: To improve the conditions for developing leaders' character and to provide a better link between its strategic leadership objectives and its curriculum, the Center for University Studies (CUS) is designing its Character Development Strategy (CDS). The CUS commanding staff consider that such as strategy will help CUS personnel at all levels unify the efforts and consolidate the approaches of educating character. Preexisting studies pertinent to the field of character development, the CUS experience and legacy, experiences at other military and defense academies, and the data collected through focus groups will be the main building blocks of the CUS strategy. An unconstrained and holistic approach is intended, trying to consider all relevant variables that affect or are part of the CUS programs. Through this article, we intend to share important findings regarding our efforts to come up with the methodology we will adapt for designing the CUS CDS; however, no findings or outcomes of the actual document are discussed here, as that phase of the project has not occurred yet. The complexity of the project, the intangible nature of the topic, the required comprehensive approach, the number of stakeholders involved, the methodological limitations, and CUS's peculiar system of education are some of the acknowledged challenges in designing an effective strategy.

Keywords: Character; Center for University Studies; Leadership; Kosovo; Strategy; Education.

Introduction

The Center for University Studies (CUS) is an institution that educates young officers for the Kosovo Security Force (KSF) and, lately, for the Armed Forces of the Republic of Albania. The CUS maintains a four-year curriculum that contains four programs: Academic, Professional, Physical Training, and Leadership. It was founded in 2005 by two graduates of The Citadel and has adopted many elements from the education provided at that institution, including many of its traditions, rules, and uniforms. A key element that the CUS has adopted from The Citadel is its Fourth-Class System. The Fourth-Class System is a rigorous and high-stress approach to leader development that intends to instill values of Honor, Duty, and Respect in the cadets. In the case of the CUS, this approach has produced disciplined and physically and mentally tough officers.

Nonetheless, in recent years, the CUS has established several mechanisms to receive structured feedback from stakeholders, including cadets, instructors, and commanding staff of the CUS, as well as the respective chain of command of the CUS graduates. While the feedback has been largely positive, it has drawn attention to several shortcomings. Some of the most worrisome findings are related to shortcomings in interpersonal skills and ethics, as well as creative and critical thinking. After discussing and analyzing the findings, it has become evident that the CUS needs to undertake a thorough review of its approach to character development.

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We believe that, while the programs that the CUS provides all contain elements of the desired character traits for our cadets, there is a lack of cohesion among the programs. We have concluded that such a discrepancy is due to not having a written strategy that would encompass the four programs of study and address character development in a deliberate way. Additionally, over the years, we have observed the CUS commanding staff, instructors, and cadets lack the synergy of efforts regarding the desirable outcomes of the CUS education. As such, we are inclined to believe that our approach to character development is not sufficiently comprehensive.

Through their competency and esteemed leadership, the graduates of the CUS have played a preeminent role in most of the developments inside the KSF. This profound impact of the CUS can be attributed to the return of its qualitative education, whose desired end state has been to graduate competent leaders of character. However, the CUS lacks a strategy that would tackle this desired end state in a more deliberate and strategic way. In its endeavors to improve the conditions for success, the CUS is designing the Character Development Strategy (CDS), hoping to unify and consolidate the approaches and efforts of educating character.

The CUS pursues character education because it considers that the characters of leaders play an essential role in military success, an idea that has been proven by both "a millennia of practical experience, and more recently, on psychological research."[1] Murray et al. argue that the need to educate character can be explained both empirically and conceptually.[2] On a conceptual level, as they conclude, because of the interdependency of the individuals, societies cannot sustain themselves if they do not educate character. On an empirical level, a notable body of research shows the impact of character education on character development as well as on other fundamental outcomes such as academic performance and organizational success. Different studies support the idea that developing character helps the person's key components thrive, such as competence, connection, confidence, and caring, and enables the person to make a positive contribution to his/her own lives, families, and communities.[3]

Moreover, ethical considerations are the common theme of the strategies pertinent to human performance optimization, especially in highly competitive, high-stress, and high-stakes-operating organizations.[4] Although success heavily relies on competency, it is essential that soldiers possess positive character traits in order to function effectively in combat and everyday life, maintain the morale and cohesion of the unit, and achieve strategic success.[5] Even though the character traits of every soldier matter, the military gives special attention to the character education of its leaders because of their role in security and lethality matters, but most importantly, because of their power to influence the organization.[6]

This article intends to share important findings regarding our efforts for designing the CDS for the CUS. After reviewing the literature on the topic, we came up with the

methodology that we need to apply in order to produce this strategy. No findings or outcomes of the actual CDS are discussed in this article, as we have not reached that phase of the project yet. In defining the scope of this strategy, we limit it to being compatible with the existing four programs of study at the CUS, and to being in harmony with the relevant overarching legislation and ethical norms. Otherwise, we intend to pursue an unconstrained and comprehensive approach trying to take into consideration all relevant variables that affect or are part of the CUS programs.

What is a Leader of Character?

For the CUS, it is of utmost importance to develop leaders of character. Based on the principles of transformational leadership laid out by Bernard Bass and Ronald Riggio[7], we believe that these leaders will be able to influence their subordinates and have a positive impact on the whole KSF. Nevertheless, due to our concerns regarding the comprehensiveness of our approach toward character development, as mentioned above, we believe that it is necessary to define and explain some key terms.

In order to properly formulate the problem addressed in this paper, it is important to first define what we mean by the term "character." Character is defined by the Merriam-Webster dictionary as "the complex of mental and ethical traits marking and often individualizing a person, group, or nation."[8] Those traits or characteristics are numerous and can include compassion, honesty, grit, fortitude, tolerance, integrity, and so on. Different individuals exhibit different levels of these traits.

However, according to Davis, character is not only the sum of all traits; but it is also important how these traits are organized.[9] Based on these claims, we can argue that every individual has a character, and considering the high number of traits and their interplay, we can argue that every person has a unique character. Thus, especially to individuals that are not familiar with the context, it may not necessarily be self-evident what is specifically implied by the use of the term Leader of Character, used by the CUS and many other military academies.

A common way of perceiving what is meant by character in the notion Leader of Character is "the relatively settled general disposition of a person to do what is morally good."[10] In a more general context, character can also be viewed as "the set of psychological characteristics that motivate and enable one to function as a moral agent, to perform optimally, to effectively pursue knowledge and intellectual flourishing, and to be an effective member of society"[11] or "the set of positive attributes, or virtues, that are necessary for promoting positive individual—context relations, and particularly, positive individual to individual relations within a specific context."[12] Military academies, including the CUS, tend to view it similarly, albeit in these cases, character is aligned with the values of the institution. For example, the United States Air Force Academy's (USAFA) Leader of Character Framework defines a leader of character as "someone who:

- Lives honorably by consistently practicing the virtues embodied in the Core Values;
- Lifts others to their best possible selves; and,
- Elevates performance toward a common and noble purpose."[13]

How to Educate Leaders of Character?

Analyzing the programs of study at various military academies, it becomes evident that these institutions are interested in developing the character of their cadets by integrating or ensuring that preset values are embedded in their character. This is also true for the CUS. Attempts to shape someone's character in an organized manner are typically referred to as character education or character development. Different institutions have varying degrees of emphasis on character development—and the approaches used to achieve it also differ significantly.

However, there are opponents of this idea who argue that character education is pointless since the determinants of particular situations override character.[14] Nonetheless, the CUS and virtually all military academies engage in character development in one way or another and, therefore, do not share those views. On the contrary, character development, as mentioned above, is one of the main lines of effort in the CUS and, arguably, in many other military academies. In the CUS, we attempt to integrate character development in every program of our curriculum.

Davis organizes the approaches toward character development into three main categories.[15] The first one is referred to as Simple Moral Education, which can be understood as providing information to students about morals in a classroom.[16] The second type, referred to as Just Community Education, emphasizes the students' right to choose and to make democratic decisions within and outside the classroom.[17] This approach goes beyond classroom lectures of morals but does not involve every part of the institution providing the education.[18] The third type, referred to as Simple Character Education, is an approach that extends beyond the classroom and intends to shape students' characters gradually by emphasizing good behavior and integrating character education in every facet of the institution's education system[19]. This last type is widespread among military academies, including the CUS. While there are advantages and disadvantages to each approach, Simple Character Education seems to have the most impact on the character, although more long-term studies are still required.[20]

Due to the importance of character development for the CUS, we intend to continue relying on Simple Character Education for our character development efforts. However, we are interested in utilizing a systematic, comprehensive, and evidence-based approach for this purpose. One such approach is the Relational Developmental Systems (RDS) theory to character development. According to the RDS theory, "character development occurs through adaptive developmental regulations between individuals."[21] Instead of looking at individual cadets, this approach shifts the focus to the staff and overall corps of cadets

and emphasizes the relationships and impact on each other. This approach to character development derives from the process-relational paradigm and has a focus on:

- Process: The developmental system undergoing changes in a systematic manner;
- Holism: Events and entities are not isolated from their context; instead, their meaning is derived by it;
- Relational analysis: Assessing the influential bidirectional relations between entities; and
- Use of multiple perspectives: The use of ideas from various models of change.[22] Considering these features of RDS, which we believe to be appropriate for character development, and the fact that there is a growing body of research to support this approach, we intend to rely heavily on the principles of the RDS theory for our character development efforts.

To effectively develop leaders of character through our new approach, we foresee a considerable number of changes that need to be carried out within the CUS. In order to implement such changes, we believe that it is necessary to design a deliberate strategy. Referring to Mintzberg's work for strategic approaches, we believe that the Ideological Strategy would fit best to the CUS context.[23] According to Mintzberg, this type of strategy is appropriate in cases where the vision and values of an organization are shared by its members and pursued as an ideology.[24] The author claims that this is a highly deliberate type of strategy and that the intentions of such strategies are typically accepted well by the members of the organization.[25] We believe that, due to the importance of character development for the CUS and the complexity of the issue, it is of great importance for the staff members to share a common set of values and beliefs and to pursue the vision of the CUS.

We believe that this type of strategy is better suited for the CUS needs as opposed to, for example, the planned strategy.[26] We believe that the planned strategy would not be suitable to our context for two main reasons. First, this type of strategy is more appropriate for larger organizations operating in a controllable or predictable environment, which is not the case with the CUS [27]. Second, this type of strategy requires detailed planning, scheduling and budgeting, which leaves no room for adjustments that may be necessary due to the subjectivity of the issue and the ever-changing context.

Additionally, an entrepreneurial strategy would not be suitable, primarily, since the vision in this type of strategy only belongs to one individual or small group of individuals.[28] This is not appropriate in our case, primarily because at CUS the command structure changes fairly often and, if the vision is not shared by everyone, there is a serious likelihood of failure since its biggest sponsors, and those who understand it best, will leave. Overall, the other types of strategies proposed by Mintzberg are not suitable primarily because of the peculiar nature of character development, which requires a shared vision that is not imposed from the outside and does not combine with or compromise other strategies.[29] Another reason why other types of strategies are not suitable is because this will be the main strategy of the CUS.

Our strategy will have a strong focus on goals and a weaker focus on the process of achieving those goals. Based on Hindenburg's work, this would make our strategy development process a Guided Learning Process.[30] We believe this is suitable because we want the CUS to be a learning organization and to adapt to its context in order to achieve its mission.[31] However, we also foresee difficulties in implementation, mainly due to the nature and type of strategy, the strategy development process as well as the often-reported difficulties in strategy development.[32] Nonetheless, we plan to take measures to mitigate implementation difficulties. These measures and the overall methodology are explained in the following section.

How Will the CUS Come Up With Its CDS?

Coming up with a strategy for character development in itself consists of undergoing some sort of qualitative research. Therefore, we intend to utilize qualitative methods to get to the information needed for issuing this strategy. However, we will not rigorously follow any research method, theoretical approach, or preexisting data-analyzing tool. The data will be gathered from primary and secondary sources. Our primary source material will be the information we intend to gather through focus groups. Secondary sources are the publicly available academic materials on the topic, which include mainly academic journal articles and various publications related to character development from military academies and other institutions in other countries.

Preexisting studies conducted on the field of character and its development provide a valuable basis on how to approach the issue. These studies are particularly important for the strategy designers because they help understand the complex nature of character development and expand their perspectives. Nevertheless, the research conducted on this field is relatively sparse and there are gaps where extensive research is needed. Even though some have considered the last two decades to be a renaissance of character studies and its institutional and social context, the intangible nature of the issue makes it difficult to reach practical and adoptable conclusions.[33]

However, learning how others deal with such an issue is as much practically helpful as it is problematic. While some of the world's elite military or defense academies enjoy a legacy of up to three centuries, no legacy of a systematic and empirically applied model that has been theoretically predicted can be easily observed among them. Strategies of the renowned leader development institutions cannot be blindly copied because of the idiographic and relational nature of character development.[34] Moreover, assessment of the performance and effectiveness of character education programs rests in very turbid waters. The question that arises is that how do we know whether their programs yield leaders of character? While some of them have addressed this matter deliberately, can other educational institutions, due to cultural context, for example, yield better leaders? A limitation on this regard is the language barrier that predominantly forces us to shift our focus toward "western culture." Nonetheless, there is a priceless opportunity to learn from

institutions such as the USAFA or the United States Military Academy (USMA) that have been the subject of several studies on the field of character development. Despite contextual differences, we can learn numerous lessons from them and where possible even pursue a "copy policy" approach.

As for the primary data, there will be two different focus groups for two different themes. The first focus group will work on "revising the CUS vision and mission" and its participants will consist of KSF key leadership figures, the CUS Commander, CUS Quality Insurance Officer, and a moderator. This will be a small focus group with an approximate size of n=6. The second focus group will have a discussion on "the SWOT (Strengths, Weaknesses, Opportunities, and Threats) questions." Its participants will consist of KSF officers who graduated from the CUS, CUS cadets, KSF officers who graduated from foreign military academies, a moderator, and a psychologist as an observer. The CUS graduates and cadets will be randomly selected one per class. The group will have an approximate size of n=25. Because of the large size, the group will be divided into two with the same representation mix, where the same discussion will take place for both groups.

Considering the context-specific nature of the issue, we believe the participants selected to be the experts in the field and that the focus group method serves best the purpose. As for the first focus group, by KSF key leadership figures, we mean persons of the CUS higher chain of command who indeed share the responsibility for the CUS mission and vision. As for the second focus group, KSF officers who have graduated from the CUS possess a working experience in KSF and know the values and leadership competencies that are required from them by their employers. They are also familiar with the CUS system from which they graduated. Secondly, current CUS cadets provide an inside perspective of the ongoing situation within the CUS. Thirdly, KSF officers who have graduated from foreign military academies provide insights into the character development programs of their respective academies. Like other KSF officers, they also are aware of the values and leadership competencies that their work requires. Whereas, the commander of the CUS will moderate the first focus group while the deputy commander will moderate the second.

It is important to note that the CUS CDS should be compatible with the existing four programs of study of the CUS. Moreover, it should be in harmony with the Constitution of the Republic of Kosovo, KSF's legislation and Code of Ethics, the CUS Code of Honor, and the Universal Declaration of Human Rights, respectful to all people indiscriminate of their background (ethnicity, religion, gender, race, sexual orientation, and/or innate disabilities). Otherwise, we intend to pursue an unconstrained, comprehensive, and holistic approach, trying to take into consideration all relevant variables that affect or are part of the CUS programs. Apart from the KSF's Code of Ethics, this project is relatively unbounded in legal terms by any other top-down KSF document pertinent to norms relating to character or the philosophy of leadership. In effect, the CUS effort to create this strategy can be described as a bottom-up approach, since it will orient its graduates with the moral values as defined by its CDS who will share the same philosophy and impact wherever they serve.

Even though the document's structure and contents highly depend on the outcomes from the primary and secondary sources, at this stage, we consider that the strategy should comprise the following themes: 1) Vision, 2) Mission, 3) Values, 4) Means, including mechanisms for responsibilities, accountability, assessment, mentoring, and effectiveness, and 5) Long-term Performance Indicators. While designing the CDS, the contributors will adhere to the principles of effective character education of the PRIMED model,[35] which we consider helpful in yielding a comprehensive but focused approach:

1) Prioritization: Institutional prioritization of the character development program;
2) Relationships: The deliberate and strategic targeting of the stakeholder's development of healthy relationships;
3) Internalization: The means should lead to the growth of intrinsic motivation to possess the targeted values;
4) Modeling: Leaders should be exemplars of the character values;
5) Empowerment: The deliberate and strategic targeting of how to respect the empowerment need; and
6) Developmental Pedagogy: How to make character development a long-term perspective.

Anticipating Potential Barriers

Designing a CDS for the CUS carries in itself numerous difficulties and limitations. Even though we expect a more thorough understanding of the potential barriers after the SWOT analysis, those that we have already identified include:

1) The problem of character development requires a comprehensive approach and understanding. Yet, among the designers of the CUS CDS, there is certainly a degree of judgmental bias, an inability to "think outside of the box," to think critically and foresee a shift in the system. This could be mitigated through effective focus group discussions, consulting with experts of relevant fields and by asking them to review the draft strategy.
2) While the strategy will be applicable to the CUS commanding staff and instructors, inconsistent and incompatible changes in the CUS organizational structure and personnel shifts may negatively affect the strategy's mechanisms in place.
3) Pitfalls in the focus group method can include the dominance effect, halo effect, or groupthink effect. To mitigate these, the moderator should be trained on how to avoid these phenomena during the discussions.

Conclusion

In its attempt to provide a better link between the strategic leadership objectives and its programs, as well as to improve the conditions for developing leaders' character, the CUS is designing its CDS. The CUS commanding staff considers that such a strategy will

help CUS personnel at all levels to unify their efforts and consolidate the approaches of developing character. To design the strategy, the CUS is reviewing the existing literature on the topic; learning from the experiences of other military and defense academies; and analyzing data which will be collected through focus groups. It is for the designers of this strategy to acknowledge the complexity of the project due to the intangible nature of the topic, the comprehensive approach required, the number of stakeholders involved, the methodological limitations, and CUS's own unique system. Therefore, even minor miscarriages would lead to fruitless efforts, wasted resources, and an overall ineffective strategy. Nevertheless, we believe that the approach presented here will enable us to design a CDS that appropriately addresses our requirements for developing leaders of character.

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Leadership Undefined: The Paradoxes of Future Military Leadership

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Abstract: This article is about a paradox approach to leadership. Our purpose is to contribute to raising awareness that paradoxes are inextricably linked to military leadership. We expect paradoxes to play an even more prominent role in military practice. Military academies will therefore have to prepare officer candidates as well as possible for those paradoxes. A paradox approach to leadership can assist to ensure that leaders are as responsive as possible to what the context requires and maximize both their own leadership potential and that of their teams. Implementing this approach is no easy task. A first step is to make context the central focus and abandon the notion that leadership can be defined and understood in simple terms. On the basis of theoretical insights, we provide direction to facilitate the development of a paradox mindset among officer candidates. This article's key added value is the introduction of a usable tool for training programs, namely the adaptive paradox framework. Our aim is to make the complex world of paradoxes more manageable for officer candidates and their immediate environments and to build a bridge between theory and practice. The question is whether we are willing and able to recognize paradoxes, and how we deal with them.

Keywords: Paradox Framework; Military Leadershi;: Meta-paradoxes: Adaptive Leadership; Leadership Paradoxes.

Introduction

The Netherlands armed forces intend to be both a robust and agile organization.[1] Defence Vision 2035 states that the defense organization wishes to be better equipped in terms of countering hybrid threats and conducting operations in the information environment. This means that the Netherlands armed forces will have to incorporate other ways of fighting. The armed forces must be able to respond on time in different domains, with different military and civilian partners. It is not only about technological innovation, but also about social innovation.[2] At the same time, it must remain possible to respond rapidly and effectively to physical hostile activities and to fall back on tried and tested combat drills. These requirements evoke an image of contradictions. We believe that the ability to deal with paradoxes is essential for officers and the teams with which they work.

We first outline how context occupies a prominent place in modern views about leadership. We then explain why various contexts require a paradox approach. This is followed by a consideration of how paradoxes play a role in leadership and how that role relates to current and future military practice. In this connection, we introduce two adaptive meta-paradoxes and our paradox framework. We explain how this framework can be used to prepare officer candidates for diverse contexts and subsequently set forth a number of recommendations for learning how to deal with leadership paradoxes. We conclude with a number of implications.

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Leadership Undefined

Over the years, leadership theory has evolved from a traditional paradigm, which assumed stability and predictability, to a paradigm in which the focus was on change and on how to engage people in that change. A contextual paradigm that assumes complexity as its point of departure is now gaining ground. Unpredictability and disruption are major factors in this paradigm. Leadership in this regard can also be shaped as something that those involved arrange together rather than being purely a function of an individual.[3] An increasing number of theories view leadership as an interpersonal phenomenon that occurs in a certain context[4] in which people are collectively pursuing a shared goal.[5] For a long time, the emphasis in both the literature and practical research was on the position of the person in charge. Insufficient attention was paid to the social interaction with other people involved and the effect of the context on the leadership process.[6,7] The traditional leadership approach assumes that only bosses or managers can lead, and employees can only follow.[8,9]

In a dynamic and complex world, leaders cannot know and oversee everything. It is therefore necessary to develop and use the leadership potential within teams and organizations to the greatest extent possible.[10] Moreover, formal leadership is not always in place in interactions between a diversity of partners. In such situations, the parties involved must collectively find a way to shape leadership. This requires a more dynamic perspective that makes it possible for employees to both lead and follow in different situations.[11,12] In the literature on leadership, these developments can be seen in the emergence of new leadership theories, such as "distributed leadership," "shared leadership," "emergent leadership," and "network leadership."[13] In recent literature on teams that operate in extreme conditions, leadership is likewise viewed as something that is distributed within teams. This literature also focuses on the enactment of leadership functions within and by teams[14] and on the switching between leading and following within teams.[15] Of course, activities in which stability and unequivocalness are paramount[16] and critical situations that require decisive leaders who provide an immediate answer[17] remain ever present. Nevertheless, the extent to which military organizations operate in isolation is likely to decrease further in the near future. Increasing adaptiveness in leadership is therefore required. In the past year, for example, starting officers in the Netherlands armed forces had to set up COVID-19 testing facilities in cooperation with employees of health organizations, employment agencies, and volunteers.

This article was written from the perspective that context must constitute the starting point rather than the prevailing military ideas about leadership. The title is meant as an appeal to resist the tendency to define leadership in a too simple and clear-cut way, thereby providing scope for the awareness that leadership is inseparable from the context. Indeed, it is the context in which the officer must operate that forms the starting point in the new version of the profile of the Netherlands armed forces officer which was published in 2021. In an operational context with traditional hierarchical command and control procedures,

it makes sense to look to leaders for answers and solutions. While this leader-centric approach can save lives in certain contexts, it can be a hindrance in the case of complex problems for which the leader does not have immediate solutions. Participative leadership, on the other hand, can be essential to the resolution of complex issues or to innovation, but can seriously hinder progress when decisions have to be made under time pressure. We therefore argue that service members should first consider what they have to achieve together in a certain context and then adapt the leadership process accordingly.[18] Officers have always had to operate in different contexts. They will most probably have to do so more frequently in the future. Moreover, the levels of complexity associated with these contexts are likely to increase. We must therefore prepare officers in a different way.

A Paradox Approach

The ambition of the Netherlands armed forces is to be both robust and agile. At first glance, this ambition contains two irreconcilable perspectives. However, organization theory shows that a dynamic context requires organizations to work on structure and efficiency as well as on the ability to change.[19] In practice, both elements of this field of tension play a role. The term "paradox" is used for such "contradictory yet interrelated elements that exist simultaneously and persist over time."[20]

While preparing for tomorrow requires flexibility and creativity, profits for today require control and stability.[21] This is the familiar tension between exploration and exploitation.[22] To remain viable in the long term, organizations must continuously work on innovation while managing today's business.[23] This is no easy task. When organizations are under pressure, people are more likely to emphasize contradictions and make one-sided choices. An area of tension is then experienced as a problem that can be solved by logical reasoning and opting on that basis for option A or option B.[24] A paradoxical approach examines how both A and B can be effective at the same time.[25] Using the advantages of both sides unlocks the potential for synergy.[26]

At first glance, the paradox of exploitation and exploration seems to be a matter only for senior management. This field of tension also occurs at the micro level, however. On the one hand, employees must meet their job requirements, work in accordance with standard procedures, and perform their daily work as well as possible (exploit). On the other, they are expected to come up with better and new ways of performing their work and solving problems (explore).[27] An example from military practice is the participation of Dutch service members in NATO's enhanced Forward Presence (eFP) in Lithuania. This mission requires conducting exercises focusing on standard operating procedures and robust military action in order to be prepared for what are referred to as steel-on-steel combat scenarios. The actual threat, however, is hybrid in nature. It requires all military personnel, right down to the lowest level, to think about how they can adapt their way of working and their behavior to this hybrid threat. They are therefore discovering new ways of working. To be able to deal with these tensions, more is required than a prototypical

"shut up and follow me" form of leadership. If we take context as the starting point for the kind of leadership needed, it does not seem possible to avoid a paradox approach to leadership.

The Paradox Framework

Modern leaders have to deal with a broad range of organizational and leadership paradoxes.[28,29] Many of these paradoxes seem to overlap and to be variants of an overarching higher-level construct. Craig L. Pearce and his co-authors introduced the concept of meta-paradoxes.[30] By focusing on overarching paradoxes, leaders can work on several underlying paradoxes simultaneously. This can prevent them from getting caught up in a single paradox of a lower order and overlooking other important paradoxes as a result.[31] We build on this concept of meta-paradoxes to lay a foundation for modern military leadership.

The literature on military leadership clearly shows the tension between, on the one hand, formal or hierarchical leadership and, on the other, leadership as a collective process.[32] This is the first paradox that we wish to single out. As intertwined as hierarchical leadership and the traditional military organization may be, a complex context means that military leaders must be able to obtain the knowledge and experience required both from within and outside their own teams, even outside their own organizations. Increasingly, there will be integrated multidomain cooperation or network cooperation with both civilian and military partners. In that context, hierarchical leadership alone is not enough to achieve collective solutions and exercise influence effectively. No single individual has the answers to all of the questions or has all of the relevant information required. Military leadership can therefore also be seen as a collective process rather than as the exclusive province of commanders.[33] In crises and combat situations, military leaders tend to think in terms of hierarchical control, the chain of command, and the formal delegation of authority. Nevertheless, formal control in the chain of command can also be deviated from in combat conditions if the situation so requires. An example in this regard is a fighter pilot who temporarily takes over command from the flight leader to deal with an unexpected threat or danger.[34] Another example is the way in which some Dutch platoon commanders operated in Afghanistan. They joined one of their squads and the squad commander concerned directed them as squad members during combat actions. This enabled the platoon commander to focus more on leading the platoon as a whole.[35] Wherever possible, military leaders should be aware of how they can simultaneously work with both sides of this paradox.

A second paradox concerns the tension between, on the one hand, maintaining control on the basis of standard operating procedures and structure and, on the other, leaving scope for flexibility and creativity.[36] In a military organization it is necessary to operate in accordance with strict rules and established procedures within a framework of hierarchy. This can lead to risk aversion and micromanagement, as a result of which junior commanders protect themselves by strictly adhering to the rules and no opportunity is

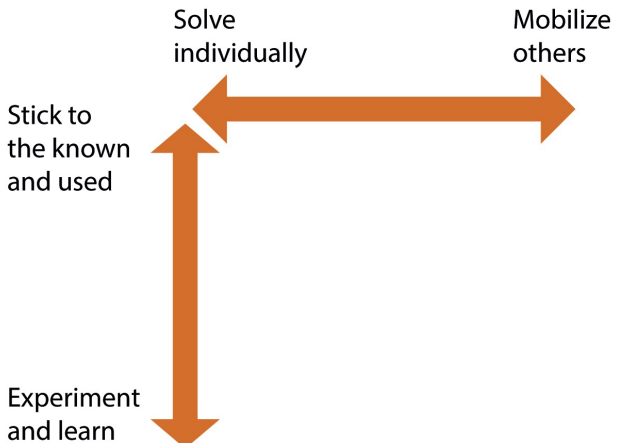
given to experiment and learn from mistakes.[37] However, the rapidly and continuously evolving nature of conflicts and threats means that military personnel must be able to respond simultaneously to both sides of this paradox.[38] Young Dutch officers reported on this field of tension during NATO's International Security Assistance Force (ISAF) mission in Afghanistan. While they described a sense of responsibility and an inclination to personally maintain control, they also recognized that they had to give others a degree of freedom to make mistakes and learn from those mistakes. The choice as to whether to intervene or to provide scope for making mistakes was a challenging dilemma.[39]

Our intention is to better prepare officer candidates for current and expected future challenges. We are therefore introducing a future-proof and adaptive version of meta-paradoxes. To that end, we build on the two paradoxes in military leadership referred to above because we find both opposing poles of those two paradoxes in the ideas of Ron Heifetz regarding adaptive leadership.[40] Heifetz outlines how in the case of everyday issues it can be effective for a leader to individually provide solutions and work with standard procedures and with what is already known. He also argues, however, that in the case of complex challenges, the leader must mobilize others and provide the opportunity to experiment and learn when discovering a solution or an approach that works.[41] When developing a workshop on adaptive leadership in 2018, we placed these elements in a framework with two dimensions in which "mobilize others" versus "solve individually" meets "experiment and learn" versus "stick to the known and used" (see Figure 1). What is suitable and how it can be achieved can be considered for both the horizontal and vertical dimensions for each situation. This results in a starting position within the framework, which can be adapted if the situation changes. This is a contingency approach, or an "if… then…" approach. By contrast, in a paradox approach, both poles of a field of tension are addressed simultaneously and to the greatest extent possible. By intertwining the concept of meta-paradoxes with adaptive leadership, we arrive at two adaptive meta-paradoxes that we can link in a framework. This enables us to take a further step that is not possible with a contingency approach.

Tools can help to make paradoxes more visible.[42] In this article, we introduce our adaptive paradox framework, which can be used to train officer candidates to deal with paradoxes. By combining the two adaptive meta-paradoxes and visualizing them in the form of double-sided arrows, we arrived at a framework that constitutes a "playing field" for both a contingency approach of adaptive leadership and a paradox approach to modern military leadership (see Figure 1). The double-sided arrows in our framework symbolize the continuous consideration required when a leader must adjust in horizontal or vertical direction. This characteristic goes with the contingency approach of adaptive leadership. The double-sided arrows also symbolize a leader keeping both ends of the meta-paradoxes in mind and trying to the greatest extent possible to address both poles. This is essential to achieving a paradox approach. The first adaptive meta-paradox requires that leaders not only focus on involving relevant cooperation partners but also continuously assess what they as leaders must or can handle themselves.[43] The second adaptive meta-paradox

requires experimenting and learning as well as making use of what is known and used. Our expectation is that using this paradox framework will facilitate the greatest possible progress in adaptive leadership and in the development of a paradox mindset during the training program. On the basis of activities, scenarios and assignments, officer candidates can learn how to use the entire "playing field" and deal with adaptive meta-paradoxes. The adaptive paradox framework makes a step-by-step approach possible; that is, a progression from crawling to walking, and from walking to running.

Figure 1. Adaptive paradox framework



"Crawling" can be learned on the basis of the contingency approach (if… then…) outlined above. The framework can help in making choices with respect to the horizontal and vertical dimension on the basis of what the context requires. In a crisis situation that requires an immediate response or answer, it is usually effective to use standard operating procedures and tried and tested concepts within a framework of formal hierarchy. To solve complex problems, a leader can "mobilize others" and "experiment and learn." The "mobilize others" and "stick to the known and used" directions of the playing field bring to mind the way in which disaster and crisis management are organized in many countries. They involve multidisciplinary cooperation between organizations on the basis of legal frameworks, plans, and procedures. Regarding the "solve individually" and "experiment and learn" combination, individual efforts or team activities can be undertaken, with a team being internally oriented or working in isolation in experimenting and learning. In the first part of their training program, officer candidates can learn how to navigate the different "parts" of the playing field and become acquainted with the framework's four basic elements.

The subsequent step to "walking" concerns becoming accustomed to and practicing with a paradox approach. To this end, scenarios or activities that make clear that a one-sided choice (either… or…) or a contingency approach (if… then…) is suboptimal could

be included in a training program. These scenarios or activities could be followed by an explanation about paradoxes and a paradox approach to leadership. Officer candidates could subsequently practice with the individual meta-paradoxes during assignments and activities. We argue that paradoxes of a lower order should also be included in this phase and handled in the training program. Examples include treating people equally versus responding to individual situations, the tension between striving for group cohesion and openness to different insights and opinions, and the paradox of self-interest versus common interest.[44,45]

The ultimate goal is to enable officer candidates to "run" on the basis of the paradox framework. They must learn to simultaneously address, to the greatest extent possible, both poles of the two fields of tension. With the two meta-paradoxes and our paradox framework, we get to the heart of adaptiveness; that is, how we ensure that we mobilize others to experiment and learn together while the leader, also on the basis of a formal role, can continue to contribute and continues to ascertain which tried and tested concepts and procedures can be used. In our view, this phase should also include efforts to make officer candidates familiar with recognizing and dealing with other relevant paradoxes in different contexts. This is because future leaders will have to face the challenge of continuously handling a broad range of conflicting demands that are intertwined.[46] Military academies must prepare officer candidates for that challenge.

Learning to Deal With Paradoxes

During their initial training, officer candidates must learn to look at leadership and shape leadership in different ways.[47] The profile of the Netherlands armed forces officer, for example, states that the modern-day leadership perspective is no longer limited to the individual or the commander, emphasizes the collective responsibility to shape leadership, and highlights the necessity to strike a balance between leading and following, depending on the context. When leadership is viewed as something that is changeable over time, it is likely that officer candidates will be more capable of dealing with the challenges that they face.[48] To ultimately be able to deal with the meta-paradox of "solve individually" versus "mobilize others," during their initial training, officer candidates must also learn what the role of a formal leader is in the case of leadership as a collective process.[49] In the past, officers were generally not required to exhibit leadership behavior that differed from that which was considered effective at the units until reaching policy or senior management level. Today, officer candidates in their first postings may already have to deal with a variety of situations that require a different form of leadership. The case of a second lieutenant posted to the Royal Netherlands Army Airmobile Brigade can serve as an illustration. During his first posting as a platoon commander, the battalion had a large number of vacancies. The decision was therefore made to recruit regionally rather than through the national recruitment organization. The second lieutenant's task was to coordinate these regional activities and liaise with various stakeholders within and outside the defense organization. Clearly, the kind of leadership required for this task differed from the kind exercised when working with airmobile standard operating procedures.

Regarding the "stick to the known and used" versus "experiment and learn" meta-paradox, it is important to incorporate sufficient scope for the development of both sides into the training program. In terms of "stick to the known and used," we can give officer candidates the opportunity to become acquainted and gain experience with the most important tried and tested standard operating procedures, instruction cards, and drills in the area of military leadership. To be able to experience a field of tension, we believe that it is essential for officer candidates to become aware of the downside of routine and habits[50] and gain experience with respect to "experiment and learn." This requires scope to try things, make mistakes, and learn from each other.[51]

Furthermore, for a paradox-oriented leadership approach, it is essential that officer candidates be exposed to a diversity of contexts. The starting question is always: What form of leadership is appropriate to the context and the shared goal? On the basis of this question, the training program can include a "both… and…" approach as a valuable addition to the "if… then…" contingency approach. Regarding the "stick to the known and used" and "solve individually" combination, the aim is to provide situations in which the leader focuses on the most essential tasks and tries to manage potential risks. This requires situational awareness and convergent thinking so that complexity can be exchanged for simplicity and decisiveness.[52,53] Mobilizing others to experiment and learn together requires something else, which makes it necessary to zoom out, diverge, and adopt the viewpoint that people look at things in different ways. We link the term "contextual awareness" to this process. By alternately learning to converge and diverge, officer candidates can develop both forms of awareness. With a view to contextual awareness, we argue for "being a don't knower"[54] as an addition to the situational "knowing what's going on."

It seems logical to assume that a paradox mindset precedes a paradox approach to leadership.[55] A paradox mindset is "a tendency to value, accept and feel comfortable with tensions".[56] A paradox approach to leadership starts with the acceptance that both sides of a paradox can apply simultaneously. To that end, it helps to think in terms of "looking for options" rather than "solving problems."[57] One must be open to the unique added value of each side of a paradox and study both sides more closely. Both sides must then be integrated so that the tension becomes productive rather than unsolvable.[58] People differ in the degree to which they feel comfortable with and feed off dealing with tensions.[59] Research shows that a paradox mindset has a neurological foundation and that intelligence and personality play a role.[60] The ability to value, accept, and feel comfortable with contradictions seems to have a positive effect on people's job performance and innovation. For those who find it more difficult to do so, however, contradictions can cause anxiety and trigger defense mechanisms.[61] It is therefore not equally easy for everyone to foster a paradox mindset. Attention must also be paid to the affective or emotional response that people might experience.[62] Officer candidates must learn how to deal with the fact that they do not feel comfortable and how they can effectively deal with the tensions experienced.[63]

Research suggests that people are willing and able to develop a paradox mindset after experiencing and learning how they can deal with paradoxes differently and discovering the benefits of doing so.[64] This process requires the development of certain skills. Reflection and critical thinking are key to extracting the potential for synergy from fields of tension. In this connection, people must be able to reflect on simplified "either…or…" assumptions and look for alternatives.[65] Furthermore, rather than becoming anxious and responding defensively, they must be able to deal with uncertainty and ambiguity.[66] Style flexibility is an important foundation for being effective in interactions with others in the "playing field" of the two meta-paradoxes. For instance, it may at times be necessary to unilaterally opt for directive or forceful behavior, whereas innovation, for example, requires both participative or facilitative leadership behavior and leadership behavior that seeks to inspire or influence.[67] We believe that the interpersonal circumplex can serve as tool for officer candidates to develop style flexibility and become more aware of the "costs and benefits" of their behavior.[68] Officer candidates must also learn how they contribute to psychological safety in teams; in other words, how they contribute to an atmosphere in which team members express ideas, ask questions, admit mistakes, and learn together.[69]

Instructors and trainers have a responsibility to guide officer candidates in dealing with fields of tension and to prevent these from being routinely suppressed or ignored. They can assist officer candidates in recognizing paradoxes, for example. It is also important to enable discussion about how officer candidates experience paradoxes that they face together. By giving meaning to and thinking about paradoxes together, officer candidates also learn how to deal with the tensions that paradoxes entail as a team. To familiarize officer candidates with the importance of both stability and flexibility, instructors could for instance have them draw up rules themselves and come up with exceptions to those rules at the same time.[70] There are still instructors who think that good leadership consists primarily of standing in front of the troops in a directive manner and telling others what to do. They do not fit in a training setting in which officer candidates are learning to develop adaptive leadership skills and a paradox mindset. This year, we started improving the guidance system within the Netherlands Defence Academy as part of a task force program. Special guidance officers will support instructors and trainers in providing guidance for officer candidates regarding their attitude and conduct. As a subsequent step, we will look at how we can incorporate a paradox approach.

Implications

In this section of the article, we consider the implications that we see in relation to the ambition of familiarizing officer candidates with paradoxes in leadership and thereby better preparing them to deal effectively with twenty-first century military challenges. First, we must accept that not everyone can learn everything. The extremes of the "playing field" are possibly the domain of specialists. Nevertheless, our position is that officer candidates should be given a solid foundation by being taught to make the greatest possible progress in the framework. We believe that a training environment is very suitable for building such a foundation for further development.

The second implication concerns, on the one hand, the available training time and, on the other, what is needed to enable officer candidates to become accustomed to dealing with complexity and the associated paradoxes. The question is: How much time is a military academy able to allocate to preparing future leaders for the unruly and complex reality in which they will be doing their jobs? Will there only be time for a few lectures and role-playing sessions, or will investment in modern leadership be a major theme throughout the entire training program?

The third implication concerns the required guidance and the organization of the training environment. It is not only about the content of the training program. This aspect would also ask a lot of the instructors, trainers, and leaders in the training environment. Military academies that are striving to invest in future-proof leaders cannot avoid the question as to which people are suitable in terms of guiding officer candidates and what they need in terms of education and training. First and foremost, these people need to have the ability to view both sides of a paradox simultaneously to the greatest extent possible and to recognize the unique characteristics of each side of a paradox. Drawing on paradox theory, we further argue that they would need to be able to foster and develop trust, openness, and cultural sensitivity in the training environment. [71]

The fourth implication relates to the role of followers. A paradox approach to leadership and dealing with the two adaptive meta-paradoxes require a great deal from leaders and followers alike. A paradox approach requires critical, active, and constructive followers who contribute and take responsibility for the form of leadership that is appropriate to what they have to achieve together in a certain context.[72] Officer candidates must learn how they can effectively shape the follower role.[73]

The fifth implication concerns the change that is required in a broad sense if we wish to teach officer candidates and starting officers how to deal with paradoxes to an optimum level. Within military organizations, there is usually an ideal image of action-oriented, decisive leaders who take the lead and show their subordinates the way. In junior leadership roles, this behavior has traditionally been expected, encouraged, and rewarded.[74] Leadership behaviors that are not in keeping with this image can be perceived as being of less value.[75] Military organizations as a whole will therefore have to embrace a broader view of leadership both as a formal position and as a collective process in which, in complex situations, the leader plays a more facilitating role. It must also be possible for a leader to step back at the right times in order to allow someone else to lead, during which time the leader follows.[76] What is unhelpful in this regard is that career prospects in military organizations seem to depend on how visible an individual is.[77] A broader view of leadership can be transferred to command and control (C2). Although the concept of mission command addresses aspects of the paradox framework, it seems still largely embedded in internally focused C2 doctrines and procedures geared towards combat operations. We argue that many armed forces face the challenge of giving shape to more agile C2 in order to provide a basis for other ways of fighting, dealing with complexity and integrating activities

during network cooperation with a diversity of both military and civilian partners. The shaping of both C2 and leadership, as we see it, should serve what people have to achieve within a certain context. This change in awareness also requires an effort from senior colleagues, who can lead by example and facilitate a paradox approach but who must also ensure that they do not unintentionally hinder the development of a paradox mindset in others. Indeed, it is even possible that senior colleagues could learn from starting officers who have developed a paradox approach.

As a final implication, we would like to point to the opportunity to build further upon the proposed adaptive paradox framework. At first glance, it may seem to relate to a confined and specific part of the leadership domain. The framework, however, does not only apply to a paradox mindset and dealing with paradoxes but also entails a modern perspective on the broad "playing field" of leadership. Therefore, we think it can provide a basis for developing a comprehensive skill set for leadership. As a starting point, one could explore and research which knowledge, skills and abilities are essential for effectiveness in each part of the "leadership playing field." The next step could be to extend the findings to the domains of selection, education, and training.

Conclusion

Our goal in writing this article was to make the dynamics and complexity of the world around us more manageable for future military leaders. The foundation is that they learn to put the context first and do not get bogged down in set definitions and established views on leadership. Leadership and command and control will always need to be shaped appropriately in relation to new ways of fighting and in dynamic, complex, and networked contexts. A contingency approach (if… then…) is inadequate in this regard. Paradoxes are simply part of the 21st century and leadership is a phenomenon that entails a multiplicity of tensions. In our view, a paradox approach to leadership (both… and…) can better prepare officer candidates for those paradoxes and tensions, both now and in the near future. We must in any case prevent our junior leaders from being surprised, or even freezing, when they encounter paradoxes. A more positive approach is that it is beneficial to teach officer candidates how to use the added value of both sides of a paradox.

It is not our intention to disregard the importance of hierarchy and formal authority. On the contrary, we believe that they remain an effective foundation for military operations in many cases. Nevertheless, we consider it important for officer candidates to learn about and experience the limitations of hierarchy and formal authority. They must learn to consciously choose when to take the lead and when to deliberately mobilize others to contribute to leadership as a collective process. Such mobilization is essential in the case of complex issues that can only be resolved by experimenting and learning together. We believe that the added value of this article is rooted primarily in the paradox framework presented and the ensuing suggestions for leadership development at military academies. In our view, an ability on the part of officer candidates to handle paradoxes constructively and use them consciously touches on the core of future military leadership, namely dealing with dynamic and complex environments.

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Catalysts and Accelerants: Untangling the Linkages between Climate Change and Mass Atrocities

John Riley and Will Atkins

Abstract: This paper examines whether the latest round of climate change is creating the structural conditions that support the occurrence of mass atrocities. The argument here is that climate change interacts with the level of a state's fragility and increases the likelihood of a mass atrocity—however, it is not doing so in the way that is commonly expected. Mass atrocities are more likely to be caused by climate change in relatively stable states than in fragile states. Fragile states are already likely to endure mass atrocities, and the effects of climate change have little additional impact. On the other hand, when relatively stable countries are exposed to climate change and lack the adaptive capacity to respond, their decision-makers or military leadership may conclude that committing a mass atrocity to solve a political or national security problem to be a valid strategic option.

Keywords: Mass Atrocities; Genocide; Climate Change; State Fragility; Adaptive Capacity

Introduction

A hotter planet does not necessarily mean a more violent one. In fact, as at least one finding suggests, climate change may ultimately lead to greater levels of peace via industrialization and democratization.[1] What is certain, however, is that climate change can lead to destabilizing political outcomes. From the "exceptional climate stability" characterizing the centuries during the Roman Empire's rise[2] to the unprecedented desertification that may have helped upend the Akkadian Empire,[3] the world's climate has been continuously changing and thereby challenging those poorly prepared, while favoring those with the right political, economic, and social mix.

Research, however, suggests that we are witnessing something new and catastrophic. Human activities have caused an imbalance to the climate system, causing global temperatures to rise 2.1 degrees since 1980.[4] For both developing as well as fully developed states, the national security concerns are as alarming as they are varied.[5] From rising oceans to more virulent and frequent natural disasters, the territorial integrity of many countries will be challenged, and the ability of most governments to provide for the safety and security of their citizens will be tested.[6] One potential extreme outcome would be a proliferation of mass atrocities.

This paper examines whether this latest round of climate change is creating the structural conditions that support the occurrence of mass atrocities; the "large-scale, systematic (extensive, organized, widespread, sustained) violence against civilian populations and other noncombatants"[7] resulting in a thousand or more civilian deaths in a calendar year. The argument here is that climate change interacts with the level of a state's fragility and increases the likelihood of a mass atrocity. However, this effect is not

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occurring in the way that is commonly expected, as mass atrocities are more likely to be caused by climate change in relatively stable states than in fragile states. This may seem counter-intuitive at first glance, but as we will show, fragile states are already likely to endure mass atrocities, and the effects of climate change have little additional impact. On the other hand, when relatively stable countries are exposed to climate change and lack the adaptive capacity to respond, their decision-makers or military leadership may conclude that committing a mass atrocity to solve a political or national security problem to be a valid strategic option.

This paper unfolds according to the following. The next section reviews the causes of mass atrocities, and it examines how climate change may produce accelerant, catalytic, or resource scarcity effects leading to more frequent or more intense mass atrocities. In doing so, it attempts to offer a degree of causal clarity allowing for hypotheses to be specified and tested. We then describe the methods used to test these hypotheses, as well as the findings, concluding with a discussion of the implications these findings suggest.

Review of the Literature

Why do regimes commit mass atrocities? Despite extensive quantitative and case study analysis, there is no agreed upon model.[8] However, some general patterns have emerged.[9] Most notably, the conditions of war, [10] or civil war,[11] enable the creation of mass atrocities. Not surprisingly, since the Holocaust, the role of ideology[12] and modernity[13] have both been central to many analyses, and regime types,[14] economic and political discrimination,[15] new state status,[16] and the threat posed by rebels against the state,[17] have all played critical roles in creating the conditions for mass atrocities to occur.

Despite lacking a unifying theory on mass atrocities, virtually all modern analyses reject the idea that the atrocities are spontaneous, irrational, or an inevitable byproduct of war. Rather, as Benjamin Valentino put it, there is a strategic logic to mass killing, and they "occur when powerful groups come to believe it is the best available means to accomplish certain radical goals, counter specific types of threats, or solve difficult military problems."[18] That is, a mass atrocity can be understood as a product of a means-ends analysis, or a strategy that advances the interests of certain decision-makers. As such, the decision to commit a mass atrocity may become as much a resource and logistical question as much as it may be a political one. That is, "The same logistical constraints that apply to warfare extend to violence against civilians…[and] As logistical challenges mount, a combatant loses the capacity to repress, kill, and destroy on a massive level."[19] Consequently, like any other government function, how successful a mass atrocity will be is in part a function of the effectiveness of the actor.[20] Finally, mass atrocities often are committed at critical points when the government's legitimacy is threatened or perceived to be under siege. For example, "militaries might decide to launch genocidal campaigns during periods of rapid political change when they perceive a serious threat of their political and economic interests or the institution's longstanding status as the 'guardian of the nation'"[21] As such,

mass atrocities might be the final product of a reactionary effort[22] to preserve a regime's perceived legitimate right to rule.

In sum, the literature suggests that neither war nor the degree or state fragility (countries governed by varying degrees of illegitimate and ineffective regimes) cause mass atrocities; however, these conditions do create the situational factors that may lead policy-makers to view a mass atrocity as a viable policy option. From this perspective, how could climate change facilitate the political conditions that would lead decision-makers to conduct a mass atrocity to solve a military or political challenge?

The study of the possible relationship between climate change and mass atrocities is still under development,[23] and it is situated in the much larger, albeit inconclusive, research on climate change and conflict.[24] Mass atrocities include some genocides ("an intent to destroy, in whole or in part, a national, ethnical, racial or religious group"[25]) as well as other types of systematic violence against civilians (such as democide or ethnocide).[26]

Thus far, two schools of thought have theorized how climate change might lead to mass atrocities. First, the Stimson Center theorizes that climate change may produce mass atrocities by acting as an "accelerant." From this perspective, climate change exacerbates existing "ethnic, religious, and other tensions" that can create a vortex of political instability leading to a mass atrocity.[27] There is a certain appeal to the analogy of an accelerant igniting existing tensions,[28] and it may be what UN Secretary General Ban Ki-moon meant when he drew a thread from man-made greenhouse emissions to the drought in Darfur to the conflict engulfing the region.[29] However, as many critics have suggested, the apparent timing of droughts in Sudan and Syria are not enough to conclude that the effects of climate change played a causal role in creating those mass atrocities.[30] At a minimum, the term ought to be used with greater precision.

Greater clarity is gained by sorting out climate change's potential role as either a catalyst or an accelerant in causing or exacerbating mass atrocities. As a catalyst, climate change may be initiating, or interacting with other factors to initiate, a mass atrocity. If climate change requires an interaction with other factors, such a line of reasoning would suggest that climate change is a necessary but not a sufficient cause of mass atrocities. As an accelerant, the claim is that climate change could make mass atrocities more intense, resulting in increased death counts. If correct, then climate change is not necessarily a critical factor in initiating mass atrocities, but its effects make the atrocities more horrific. Once untangled, these more precise concepts can then be tested in a series of hypotheses.

Hypotheses 1a: As exposure to climate change increases, the likelihood of a mass atrocity occurring increases.

Hypotheses 1b: As exposure to climate change increases, the intensity (number of deaths) of a mass atrocity increases.

However, the impact of the exposure to climate change may be mitigated by the state's adaptive capacity: "the latent ability of a system to respond proactively and positively to stressors or opportunities."[31] That is, the expectation is that some states are better prepared than others to manage their exposure to climate change.

Hypotheses 2a: As a state's adaptive capacity decreases, the likelihood of a mass atrocity occurring increases.

Hypotheses 2b: As a state's adaptive capacity decreases, the intensity of a mass atrocity increases.

Returning to the mass atrocity literature reviewed above, climate change effects may interact with the factors associated with producing the atrocities. Of particular interest is a state's effectiveness and legitimacy and thereby its overall level of fragility.

As droughts and violent weather patterns increase and sea levels rise, traditional living patterns often change. A government's effectiveness (the ability to provide core government services) comes under pressure. This lack of effectiveness could cause a mass atrocity in a number of ways, especially if the areas most impacted by climate change had a history of conflict or follow ethnic, racial, or religious patterns of divisions. The government may come to view a mass atrocity as a strategic opportunity. For example, this may have been what happened in 2008 in Burma when the ruling military junta initially refused to accept aid or allow relief workers into the Irrawaddy Delta region after Cyclone Nargis devastated the region. At least 84,500 died and an additional 53,800 went missing,[32] and the cyclone provided a useful opportunity to deny vital aid to the "non-Burmese people,"[33] press forward with a national referendum, and undercut support for the Karen National Union.

Legitimacy, the citizens' perception of who has the right to rule, may play a critical role as well. If a government is unable to provide core services to their citizens, increasingly parts of the populous will no longer see the government as legitimate. Citizens will turn to alternative governance solutions (such as non-sanctioned political institutions, police, and military) to provide for their needs. For example, escaping the violent and unpredictable weather patterns in eastern Nigeria, cattle herders have migrated into Nigeria's Western belt.[34] This has led to violent conflict between the Hausa-Fulani and the local farmers, and local governments standing up paramilitary "police forces."[35] Indeed, such migration has long been considered a significant factor as both a result of climate change, and as a catalyst of state fragility.[36]

Taken together, effectiveness and legitimacy comprise the fragility of the state (or in positive terms, the stability of a state). The expectation is that as states become more fragile the likelihood and the intensity of a mass atrocity increases.

Hypothesis 3a: As a state's fragility increases, the likelihood of a mass atrocity increases.

Hypothesis 3b: As a state's fragility increases, the intensity of a mass atrocity will increase.

A second approach theorizes that climate change may lead to resource scarcity, and the subsequent competition for diminishing resources would result in mass atrocities. At the interstate level, concern over food supplies could lead to panic, and cause the more powerful states to see a "human group as the source of the ecological problem."[37] As Zimmerer argues, even the perceived threat of resource scarcity might lead governments to see people perceived as superfluous who "would have to disappear, leave the region, or be killed."[38] Along the same lines of reasoning, a competition of nonrenewable resources, such as "extreme energy competition" might lead to an ecocide.[39] Hendrix also argues that demographic-environmental stress is more likely to produce a mass atrocity in societies with a high degree of groupness operating in a political system that places little restraint on its government.[40]

Additionally, the intensity of these conflicts may increase for at least two reasons. On the one hand, resource scarcity can increase the motivation "to acquire or defend resources by the use of violence, individually or collectively"[41] because both the aggressor and defender inherently view violence as an acceptable means. On the other hand, countries facing these pressures may fragment, and become more vulnerable to future violence.[42] This school of thought therefore provides the final set of hypotheses:

Hypothesis 4a: As food and water scarcity increases the likelihood of a mass atrocity increases.

Hypothesis 4b: As food and water scarcity increases the intensity of a mass atrocity increases.

Data and Methods

To test these hypotheses, a novel dataset was constructed by merging several existing datasets together. To determine the catalysts of mass atrocity, the Political Instability Task Force (PITF) datasets for ethnic wars, revolutionary wars, and genocide/politicide were utilized, coding those that exceeded 1,000 deaths per year with a dummy variable indicating the occurrence of a mass atrocity.[43] The remaining states were coded as lacking such an atrocity. These datasets were specifically chosen, as PITF describes the deliberate killing of non-combatant civilians in the context of wider political conflicts.

To analyze the accelerants of mass atrocity, the same PITF dataset was utilized, which also provides a best estimate for the number of deaths caused by each instance of a mass atrocity. To these data, climate change information from the University of Notre Dame's Global Adaptation Index (GAIN) was appended.[44] These GAIN data provide measures of a country's exposure to climate change, as well as levels of food and water scarcity. Measures of state fragility were also included, provided by the Center for Systemic Peace's State Fragility Index.[45]

All variables were scaled and transformed such that increases in any particular variable illustrated a more negative outcome (i.e., up is bad). The resulting dataset contained 3,780 case-years covering all nations from 1995 to 2018, with periodic gaps in coverage.

To test the (a) versions of each hypothesis—that of independent variables as catalysts—a binary logistic regression was conducted across all countries and years available, using the presence of an atrocity as the dependent variable. That is, each of the independent variables were analyzed according to their ability to increase the likelihood of an atrocity occurring. Independent variables that were included are: exposure to climate change (Hypothesis 1a), adaptive capacity (Hypothesis 2a), state fragility (Hypothesis 3a), and food and water scarcity (Hypothesis 4a).

To test the (b) versions of each hypothesis—that of independent variables as accelerants—an ordered logit regression was conducted across the same countries and years available, using the categorized magnitude of fatalities as the dependent variable. The same independent variables were analyzed to determine their ability to increase the severity of a mass atrocity, once one has begun. The same independent variables were included: exposure to climate change (Hypothesis 1b), adaptive capacity (Hypothesis 2b), state fragility (Hypothesis 3b), and food and water scarcity (Hypothesis 4b).

Results

The calculation of catalytic effects was conducted using a logistic regression, with the occurrence of a mass atrocity as the binary dependent variable.

Table 1. Models 1 and Model 2 (Non-Interactive Effects)

	Model 1 (Catalysts) Binary Logit DV: Occurrence of Atrocity			Model 2 (Accelerants) Ordered Logit DV: Number of Deaths		
IVs	**Odds Ratio**	**% Change in Odds**		**Odds Ratio**	**% Change in Odds**	
Exposure to Climate Change	1.094	*+9.4%*	**	0.976	*-2.4%*	
Adaptive Incapacity	1.084	*+8.4%*	**	1.015	*+1.5%*	
Food Scarcity	0.950	*-5.0%*	**	0.970	*-3.0%*	
Water Scarcity	1.041	*+4.1%*	**	1.029	*+2.9%*	**
State Fragility	1.557	*+55.7%*	**	1.122	*+12.2%*	**
Constant	0.000		**			
Number of Cases		**3,780**			**268**	
$\chi 2$		**666.41**			**16.02**	
Probability <		**0.0001**			**0.0001**	
Pseudo R^2		**0.3444**			**0.0290**	

Notes: Cell entries are odds ratios, based on unstandardized binary logistic (Model 1) and ordered logistic (Model 2) regression coefficients and standard errors. These odds ratios have been tranformed into the percentage change in odds of an atrocity occuring (Model 1), or that a higher threshold of deaths will be reached. Constant indicates baseline odds (Model 1). Ordered logits do not contain baseline odds.
*p < 0.10; ** < 0.05 (two-tailed)

In analyzing the catalytic hypotheses, Model 1 unsurprisingly finds that many of the theorized causes of mass atrocities do, in fact, lead to a higher likelihood of an atrocity occurring—consistent with theoretical expectations. The one exception to these expectations is that of food scarcity, which shows a decrease in the likelihood of an atrocity occurring. We theorize that this results from the fact that many countries with no observable food shortages (e.g., Israel, Turkey, and Colombia) are just as likely to commit an atrocity as those with shortages (e.g., DR Congo, Somalia, and Chad). What this also means, however, is that the prevailing theory of drought-caused food shortages in Syria being the source of atrocities[46] may be called into question or may simply be an outlier compared to the global dataset. In fact, GAIN data show that Syria had experienced higher levels of food scarcity throughout the 10 years prior to the droughts in 2008-2010, without resorting to a mass atrocity. This is not to say that food shortages have no effect on the likelihood of a mass atrocity occurring, but that in and of itself, food scarcity alone cannot cause an atrocity. Food scarcity would need to be paired with some sort of state fragility, or in the case of the Arab Spring, rising expectations that the government should address widespread hunger, which may be met with brutal force, should the government believe its legitimacy is in question.

Having identified those variables that are expected to act as catalysts for mass atrocity, we now turn to determining which of these variables might act as an accelerant—making death tolls higher—once an atrocity has begun.

Analysis of the accelerant hypotheses is challenging due to the much lower number of case-years where an atrocity has occurred. As a result, evaluating each variable's effect on the number of deaths caused (once an atrocity has begun) yields sparse results. Although water scarcity and state fragility appear to have some effect on the likelihood of increased deaths, the overall model performs rather poorly (Pseudo-R2 of 0.029).

Interpreting the results of Models 1 and 2 might lead one to believe that although state fragility is the largest catalyst of atrocities, exposure to climate change is a larger catalyst than a state's adaptive capacity, or scarcity of food and water. From Model 1, one might also conclude that climate change increases the likelihood of a mass atrocity for all nations by 9.4 percent. Similarly, one might also conclude that none of these variables have much of an effect on the magnitude of killing that occurs during these atrocities (Model 2). However, these interpretations would be incomplete, as these models hide the nonlinear effects of climate change on fragile nations.

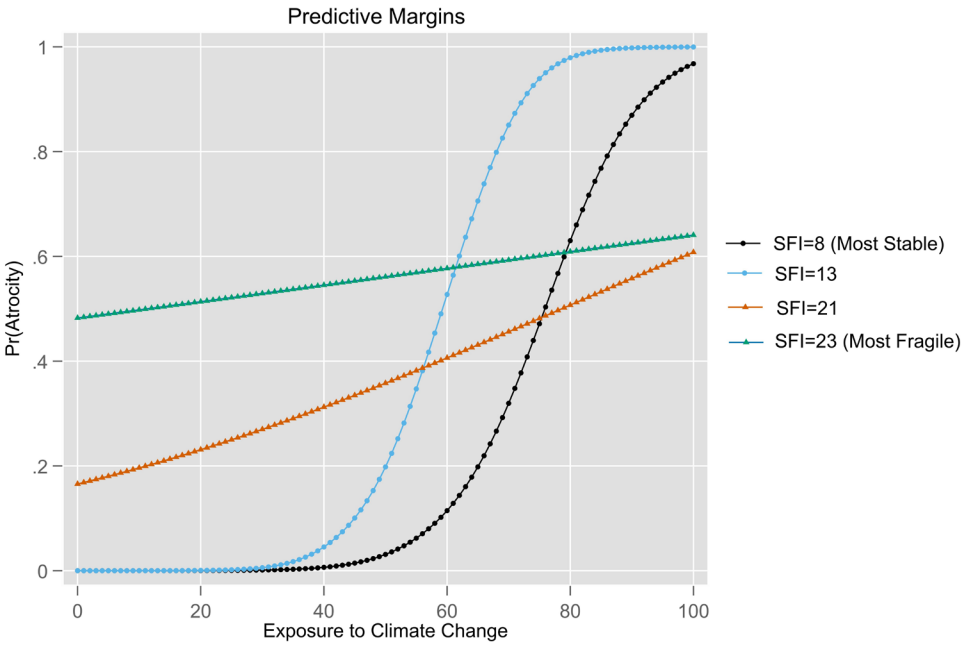
Returning to the mass atrocity literature, the Stimson Institute and Center for Naval Analysis have theorized that climate change effects may act as "force multipliers" with the factors associated with producing the atrocities. Of particular interest is a state's effectiveness and legitimacy and thereby its overall level of fragility. In truth, these very interactive effects between exposure to climate change and a state's level of fragility are what provide profound insights into the effects of climate change on mass atrocities.

Model 3 includes the interaction of exposure to climate change and the level of state fragility, as theorized above. Here, state fragility becomes a much larger catalyst of mass atrocities around the world. Additionally, Model 3 also reveals that climate change in and of itself does not increase the likelihood of a mass atrocity occurring in a given nation (Hypothesis 2a). Instead, what we see is that climate change primarily acts as a catalyst for atrocities in those nations that we would normally categorize as stable. This can be more clearly observed in Figure 1, which plots the effects of climate change across four different levels of state fragility. For those nations that are the most fragile, climate change provides a positive, but marginal, effect on the probability of mass atrocity occurrence, as those fragile nations are already quite prone to atrocities regardless of the presence of climate change. As a result, exposure to climate change in nations such as Afghanistan, DR Congo, or Sudan has little effect on the likelihood of an atrocity occurring.

On the other hand, climate change has a substantial effect for more stable nations, causing an exponential increase in the probability for atrocity in these traditionally immune nations. Here, it becomes clearer that even the most stable nations are not immune to committing atrocities as the effects of climate change increase. Such examples would include Russia, Thailand, and Indonesia, each with relatively stable governments prior to committing an atrocity,[47] experiencing high levels of exposure to climate change, and ultimately initiating an atrocity in a particular year. Therefore, while climate change has little effect on the probability of atrocity for fragile states, it can certainly act as a catalyst for more stable nations.

The remainder of the explanatory variables in Model 3 remain statistically significant with similar magnitudes as from Model 1.

Figure 1. Effect of Climate Change and Fragility on Probability of Atrocity



Turning once again to the accelerants of mass atrocities, despite the low number of observations, several additional conclusions can be drawn from Model 4. First, a nation's fragility, adaptive capacity, and water scarcity are the only variables that exhibit both catalytic and accelerant properties. Additionally, state fragility remains the largest accelerant of civilian deaths, albeit with a lower level of statistical significance. More importantly, exposure to climate change provides no effect as an accelerant on the likelihood of increased number of deaths—either by itself, or when interacted with the level of fragility present in the particular nation.

Table 2. Models 3 and 4 (Interactive Effects)

	Model 3 (Catalysts) Binary Logit DV: Occurrence of Atrocity			Model 4 (Accelerants) Ordered Logit DV: Number of Deaths		
IVs	**Odds Ratio**	**% Change in Odds**		**Odds Ratio**	**% Change in Odds**	
Exposure to Climate Change	1.043	*+4.3%*		1.057	*+5.7%*	
Adaptive Incapacity	1.109	*+10.9%*	**	1.102	*+10.2%*	**
Food Scarcity	0.960	*-4.0%*	**	1.006	*+0.6%*	
Water Scarcity	1.045	*+4.5%*	**	1.036	*+3.6%*	**
State Fragility	2.519	*+151.9%*	**	1.887	*+88.7%*	*
State Fragility * Exposure to Climate						
0 (Least Fragile)	1	(empty)			(empty)	
1	1	(empty)			(empty)	
2	1	(empty)			(empty)	
3	1.190	*+19.0%*	**		(ommitted)	
4	1.226	*+22.6%*	**	1.079	*+7.9%*	
5	1.228	*+22.8%*	**	1.092	*+9.2%*	
6	1	(empty)			(empty)	
7	1.121	*+12.1%*	*	0.892	*-10.8%*	
8	1.110	*+11.0%*	*	0.924	*-7.6%*	
9	1.159	*+15.9%*	**	0.920	*-8.0%*	
10	1.116	*+11.6%*	**	0.947	*-5.3%*	
11	1.103	*+10.3%*	**	0.932	*-6.8%*	
12	1.105	*+10.5%*	**	0.944	*-5.6%*	
13	1.086	*+8.6%*	**	0.904	*-9.6%*	
14	1.076	*+7.6%*	**	0.911	*-8.9%*	
15	1.044	*+4.4%*		0.927	*-7.3%*	
16	1.045	*+4.5%*	*	0.898	*-10.2%*	
17	1.018	*+1.8%*		0.890	*-11.0%*	
18	1.023	*+2.3%*		0.888	*-11.2%*	
19	0.986	*-1.4%*		0.853	*-14.7%*	
20	0.999	*-0.1%*		0.890	*-11.0%*	
21	1.004	*+0.4%*		0.897	*-10.3%*	
22	1.004	*+0.4%*		0.880	*-12.0%*	
23	0.997	*-0.3%*		0.855	*-14.5%*	
24	1	(omitted)		0.867	*-13.3%*	
25 (Most Fragile)	1	(empty)		0.849	*-15.1%*	
Constant	0.000		**			
Number of Cases	**2,738**			**268**		
$\chi 2$	**605.93**			**93.28**		
Probability <	**0.0001**			**0.0001**		
Pseudo R^2	**0.3480**			**0.1690**		

Notes: Cell entries are odds ratios, based on unstandardized binary logistic (Model 3) and ordered logistic (Model 4) regression coefficients and standard errors. These odds ratios have been tranformed into the percentage change in odds of an atrocity occuring. Constant indicates baseline odds (Model 3). Ordered logits do not contain baseline odds.
*p < 0.10; ** < 0.05 (two-tailed)

Conclusion

This study supports several main findings. First, exposure to climate change per se is neither a catalyst nor accelerant for mass atrocities. This is hardly surprising as no serious person is arguing that simply because the seas and the temperature are rising that people are going to kill thousands of innocent people. The commission of mass atrocities is a political act—albeit a horrific one—that is committed because key decision-makers see it to be advancing their larger strategic interests. If climate change is going to lead to mass atrocities, it has to be part of that larger political puzzle.

Second, findings presented here offer weak support at best for the claim that droughts and food shortages cause mass atrocities. Food and water are vital resources and countries do go to war over them, and, after conquering a territory, a state may seek to eliminate the residents (e.g., Nazi Germany after its invasion of Poland); however, the findings here do not support the hypothesis that systematic incidents of that sort have taken place since 1995.

Third, findings here refute the claim that exposure to climate change acts as an accelerant after a mass atrocity has already begun. There is nothing uniquely horrific (as measured by deaths) about mass atrocities that also have exposure to climate change.

Having noted these negative findings, this study does suggest that climate change may have acute causal impacts on mass atrocities. A state's fragility, adaptive capacity, and water scarcity exhibit both catalytic and accelerant properties. Additionally, and most importantly, exposure to climate change acts as a catalyst for relatively stable states, but climate change has little additional effect on the likelihood of fragile states committing mass atrocities. This insight may prove exceptionally important in future research and prevention efforts. For instance, we might learn more from case study analyses investigating the differing effects of climate change on Russia (relatively stable) and the Sudan (very fragile). Moreover, this finding would suggest that mass atrocities are going to take place in fragile states regardless of climate mitigation effects: other intervention efforts are required.

Moving forward, more granular research is needed. For instance, the findings presented in this study were based on data that consolidated scores for entire countries, and this, of course, can be very misleading. That is, the mean area in which an atrocity took place was between 10-25 percent of the size of the state, whereas many of the explanatory variables being used were state-wide averages (e.g., state-wide levels of resource scarcity or government legitimacy). Uganda is an excellent illustration. It is a medium-size country, and it typically produces a strong legitimacy score. However, northern portions of the country contain pockets of people who are highly dissatisfied with President Museveni's government. Moreover, the violence has been largely contained to the north. State-wide scores of legitimacy would tend to obscure this important variation.

One intent of this paper was to start the process of untangling the possible relationships between climate change and the occurrence mass atrocities. This paper's findings suggest

that climate change may be playing a virulent role in producing mass atrocities in otherwise stable states. However, climate change's role is likely more complicated—and possibly more consequential—than these findings support. Additional large-n statistical studies buttressed by in-depth case study analysis are needed.

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New Leadership Approaches for Climate Change and Environmental Security

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Abstract: Climate change has become a threat multiplier in every corner of the globe, substantially impacting human security, especially in the developing world. Drought, desertification, sea level rise, and coastal floods have resulted in climate migration to urban centers, increasing demands for water and food, with governmental and societal resources overwhelming already strained assets. Under these conditions, civil order breaks down, and crime and victimization of vulnerable populations becomes endemic. Human security becomes compromised. With civil war a possibility, regional and national security interests come to center stage. This nexus between climate change and conflict requires new approaches to address environmental security systematically and holistically. The authors recommend three important steps to develop this new domain of national security. First, issues associated with environmental security need to be elevated to the same level of importance as traditional domains of military operations, such as air, land, sea, space, and cyber. Second, addressing environmental security needs to be fully integrated into the national security strategy of the United States, with a strong emphasis on a whole of government and whole of society approach. This approach should include the elevation of development to be an instrument of national power as a co-equal with diplomacy, information, military, and economic instruments. Finally, and perhaps most importantly, a future generation of military and civilian leaders must be educated and trained to be intellectually invested in the environmental security domain. This paper explores these issues and presents recommendations to achieve these critical first steps to advance a more resilient and sustainable future.

Keywords: Environmental Security; Military Domain; Development; Instruments of Power; Leadership.

Introduction and Background

The role of climate change as a threat multiplier across multiple domains is well documented. The term "threat multiplier" in the context of environmental security was first coined by the Center for Climate and Security in 2007.[1] It was later identified in the 2014 Quadrennial Defense Review published by the U.S. Department of Defense.[2] It has since been validated in a comprehensive study of the relationship between climate change and political instability across Middle East and North African (MENA) countries,[3] and considered in a prominent way in NATO's engagements, policy frameworks, and operations.[4] Overall, it aptly captures the snowballing effects driven by climate change. The changing climate has exacerbated environmental degradation related to deforestation, desertification, droughts, floods, and wildfires, impacting human access to safe and sufficient amounts of food, water, and other natural resources. This relationship is illustrated in Figure 1.

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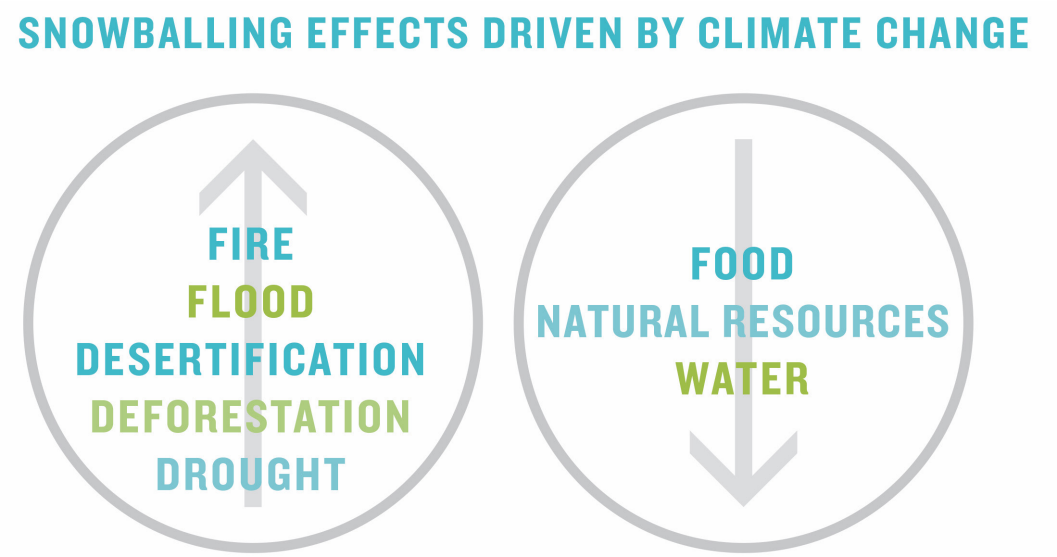

Figure 1. Snowballing Effects of Climate Change

For military and defense establishments around the world, understanding the role that climate change—and more broadly a degraded environment—plays in national and global security considerations is paramount to deter avoidable wars and ensure sustainable global development with peace as the central tenet. The emerging domain of environmental security, a term that encompasses climate security where environmental degradation as well as conflict and security challenges are juxtaposed for both recognizing problems and analyzing them to implement actionable solutions, offers a pathway to do just that.

From "a measure of the threats to our values"[5] to "a pursuit to curtail challenges to the interdependent human-biome ecosystem,"[6] environmental security definitions have evolved over time. In the twenty-first century, as the current generation grapples with its existential crises of a changing climate and pandemics that have underscored the need to reimagine previous versions of access, rights, and human identities, a narrower definition of environmental security is helpful. Two definitions are offered for consideration: Zurlini and Müller's take as "environmental security is one in which social systems interact with ecological systems in sustainable ways, all individuals have fair and reasonable access to environmental goods, and mechanisms exist to address environmental crises and conflicts,"[7] and Belluck et. al's: "Environmental security involves actions that guard against environmental degradation in order to preserve or protect human, material, and natural resources, at scales, ranging from global to local."[8]

Moreover, Salako (2017) notes that environmental security is one of seven key components of human security.[9] In fact, military experts and several political leaders not only think deeply about the interconnectedness of human security with environmental

degradation, resource scarcity and conflict, but have attempted to develop policies, strategies, and implement actions to address this intersection. The National Intelligence Council (NIC) has noted several 2030 trends related to food, water and energy stresses and fragile states that are especially vulnerable to resource scarcity that can serve as precursors to conflict. Water scarcity, while also pervasive, is a result of an "imbalance between the demand and supply of water, in a geographical area."[10] Peter Gleick's "Water Conflict Chronology," maintained by the Pacific Institute, is a repository of water conflicts over the ages. For example, in the early 2000s in Israel, the withholding of resources to build a water treatment plant in a neighboring country was used as leverage to diminish their already scarce water resources and prevail in their ongoing conflict with the Palestinians.[11] As essential resources like food and water continue to be threatened by the changing environment, these security threats will likely only become larger. This also includes the potential for terrorist groups to target these valuable resources as scarcity increases. Water infrastructure could be targeted, as most is government owned, therefore potentially serving as a symbolic and political target for physical disruption, bioterrorism/chemical contamination, and cyber-attack.[12] The environmental conditions that result in this cycle of conflict and human insecurity will only become more prevalent as impacts from climate change accelerate and then further strain our ability to respond to crises. This intersection between climate change and conflict requires new approaches to address environmental security systematically and holistically.

Approach

This research used a mix of peer reviewed literature, and governmental and nongovernmental reports and publications to support our research for new approaches to address the relationship between climate change and conflict or environmental security. To prepare for this new domain of national security, three important steps must be taken. As a first step, the issues associated with environmental security need to be elevated to the same level of importance as the traditional domains of military operations, such as air, land, sea, space, and cyber. Once this domain has been elevated to its proper status, addressing environmental security needs to be fully integrated into our national security strategy. This approach should include the elevation of development to be an instrument of national power as a co-equal with the diplomacy, information, military, and economic instruments. Development as an instrument of national power should be reflected in a substantially elevated profile within the State Department to coordinate the development activities of the U.S. Agency for International Development (USAID), the Millennium Challenge Corporation, the U.S. Department of Defense, Non-Governmental Organizations, and partner nation capabilities.[13]

The confirmation in April 2021 of Samantha Power (a former U.S. ambassador to the United Nations) as the administrator of USAID, and her elevation to membership on the National Security Council, is a tremendous step forward. While coordination at this level will present many challenges, not the least of which will be the civil-military dynamic in

conflict areas, delivering a coordinated and comprehensive development plan is the key to ensuring the sustainable development of the world's population centers.

Finally, a new strategy to educate the future leaders of our world to lead us into an era of climate action is necessary. A new educational curriculum spanning undergraduate and graduate studies is essential to the goal of mitigating climate change-induced security issues. Current offerings in higher education were examined to make recommendations for improvement and expansion of environmental security curricula.

The three steps described above are illustrated in Figure 2.

Figure 2. Three Steps to Prepare

The Climate Change and Human Security Nexus

The nexus between climate change and human security is intuitive, and simultaneously not well understood. Stability in emerging and developing regions is largely dependent on conditions that promote human security and economic opportunity. Nations that cannot provide human security and economic opportunity often culminate in fragile or failing states. As a consequence of the role that the United States and its allies play in global governance, addressing fragile and failing states frequently becomes a matter of national security interest, as evidenced by the protracted involvement of the United States in Yemen and Somalia.

Globally, one of the primary contributors to human insecurity is climate change, which manifests itself through a variety of challenges, such as desertification, extreme flooding, food insecurity, water scarcity, climate migration, and rapid urbanization. A changing climate has contributed to ozone layer depletion and loss of biodiversity, and also served as a precursor of the global spread of diseases. Climate change has created a dynamic

international security environment for the United States, significantly increasing the risk of future conflict. To respond to these changing conditions, the U.S. should consider a policy of climate action as a means of strategic deterrence and conflict prevention. Conflict prevention—in the context of climate change—suggests the use of a whole of government and a whole of society approach to the nation's overall national security strategy.

Taken individually or in the aggregate, climate change-induced conditions create instability in nations where insufficient governance and/or natural resources exist to manage the shock of these events. Left unchecked, this cycle of climate change-induced insecurity in the developing world has the potential to create conditions of human insecurity, civil unrest, local conflict, and the potential for regional or international conflict. Accordingly, it is in the national security interest of the United States and its allies to use the full range of their national instruments of power, including diplomacy, information, military, and economic policies, to mitigate the potential for these destabilizing events by investing in a comprehensive and coordinated climate action plan. This paper argues that development must be elevated to be a co-equal instrument of national power, as development activities have the greatest potential to affect climate action and a more sustainable environment in the most unstable regions of the world.[14] While climate action requires a commitment to a long-term campaign, without a concerted and focused effort, there is no prospect of addressing the underlying climate change-induced causes of conflict that plague the developing world. It is a national security—and arguably a moral—imperative to deter conflict by aggressively pursuing climate action. In a national security context, conflict prevention is far less costly in lives lost and in national treasure than conflict resolution.

The Link Between Climate Crises and International Security

Humanitarian interventions in the developing world by military forces of western countries during the 1990s gave rise to a new understanding of how individual security and national security were interrelated.[15] Perhaps the most well-known example is the 1993 intervention of the United States to bring humanitarian relief to the famine-stricken citizens of Somalia.[16] Although the U.S. military intervention did lead to famine relief, it also led to a violent confrontation between the United States and forces loyal to Mohammed Farah Aided, a Somali warlord, known as the Battle of Mogadishu.[17] Such military interventions led to a rethinking of how human security affects regional and national security.[18]

A more contemporary example of the link between climate change, human security, and national security is the current situation in South Sudan. The links between climate change, migration, and conflict in South Sudan are well established.[19] The most pronounced Indian Ocean Dipole (also known as the East African El Nino) in generations has caused historic flooding on a scale not seen in 60 years.[20] The increasingly unpredictable flood seasons have caused food insecurity on an unprecedented scale. According to USAID, there are 5.5 million people in South Sudan requiring food assistance, with 1.7 million climate refugees.[21] This level of degraded human security has been seriously exacerbated by violence

between tribes and political parties, with activities from cattle rustling to extrajudicial killings seizing the spotlight as most people simply try to survive. The link between climate change, extreme flooding, and fighting is obvious to all who are paying attention in this struggling country.[22] As a result of these challenges, South Sudan is on track to be one of the largest recipients in the world of both USAID and World Food Programme (WFP) aid in 2021. Figure 3 illustrates the relationship between climate change and food security.

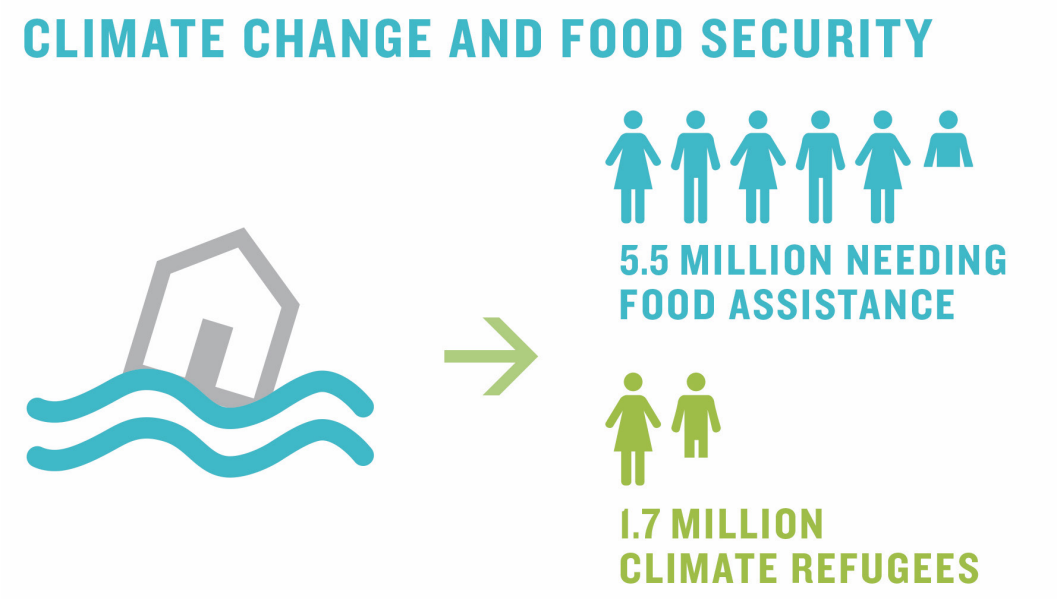

Figure 3. Climate Change and Food Security

The depth and complexity of these climate change-induced humanitarian catastrophes suggests that a new approach to solving these problems is required. Simple cause and effect analysis is no longer sufficient to address the wicked problems of climate change-induced insecurity. A new framework to address these multifactorial and multidimensional problem sets and train a new generation of military and civilian leaders to develop and apply these new concepts must be developed.

The Evolution of Development as an Instrument of National Power

Research at the U.S. Army War College has explored the concept of development as an instrument of American power.[23] The conclusion of that research was to suggest that the United States invest more heavily in international development activities as a means of preventing conflict, rather than the recurring pattern of unsustainable spending on conflict resolution and subsequent reconstruction. The conclusion also suggested that this approach is ever more important in a world that is globalizing and urbanizing at a dizzying rate. This research suggested that sustainable international development activities would

result in greater international security, manifested through improved human security in the urban areas of developing countries.[24]

Another study conducted for the U.S. Army's Strategic Studies Institute (SSI) reached a similar conclusion. This study established the necessity of linking development with security in Africa as an imperative for the national security of the United States. The SSI study documented the impact of mass migration on African security in the context of terrorism and political violence. This study specifically linked instability in all its forms, including crime, political stability, civil war, and transnational conflict, with decreased economic development. It also specifically articulated a vision for conflict prevention versus conflict resolution.[25]

As strategic military thought has evolved over the last thirty years, the idea of preventing conflict though international development rather than resolving it through military intervention has become mainstream.[26] Robert M. Gates, former U.S. Secretary of Defense and former Director of Central Intelligence, in a speech delivered in 2008, remarked that "the overall posture and thinking of the United States armed forces has shifted—away from solely focusing on direct American military action, and toward new capabilities to shape the security environment in ways that obviate the need for military intervention in the future."[27] The new capabilities that Secretary Gates described were international development capabilities, which are uniquely positioned to address climate change-induced challenges. This is strong evidence that the role that climate change is an important consideration in the creation of national security policy.

The fundamental relationship between international development and national security is outlined in the National Security Strategy of the United States.[28] While there are detractors from this approach,[29] who argue that development should not be a matter of national security for former colonial powers, the concept of linking development activities with national security interests have been an integral part of the national security strategy of the United States for generations. Perhaps the most prominent example of linking international development and national security was the Marshall Plan for the recovery of Europe after World War II.[30]

The civilian and military leaders of today's U.S. Armed Forces have a growing understanding of the complexities of environmental contexts and national security interests. In a report entitled "Megacities and the United States Army," the U.S. Army Strategic Studies Group (SSG) documented the relationship between challenges to the provision of basic services, especially infrastructure, and the propensity for increased conflict. Unfortunately, the SSG focused more on kinetic solutions (conflict resolution solution sets) in these complex environments, rather than development solutions (conflict prevention solution sets). However, there were some interesting observations about the threats posed by the conditions in the informal settlements of the emerging megacities.[31]

The report identified that the megacities would generate the preponderance of the friction in the developing world, a term used by the armed forces to describe nascent forms of conflict. They identified that instability will be focused on the urban environment, with slums posing a particular challenge to stability, with the urban environment becoming the strategic key terrain of future military intervention. Using a systems theory approach, the SSG identified the informal settlements of Rio de Janeiro and Sao Paulo, Brazil; Lagos, Nigeria; and Dhaka, Bangladesh, as particularly vexing environments in which the military will need to be prepared to operate, specifically due to the security threats these environments present.[32] Implicit in these studies is the basic understanding that each of these locations is subject to significant climate change-induced national security threats. See Figure 4 for a map of some of the areas most impacted by climate change-induced impacts.

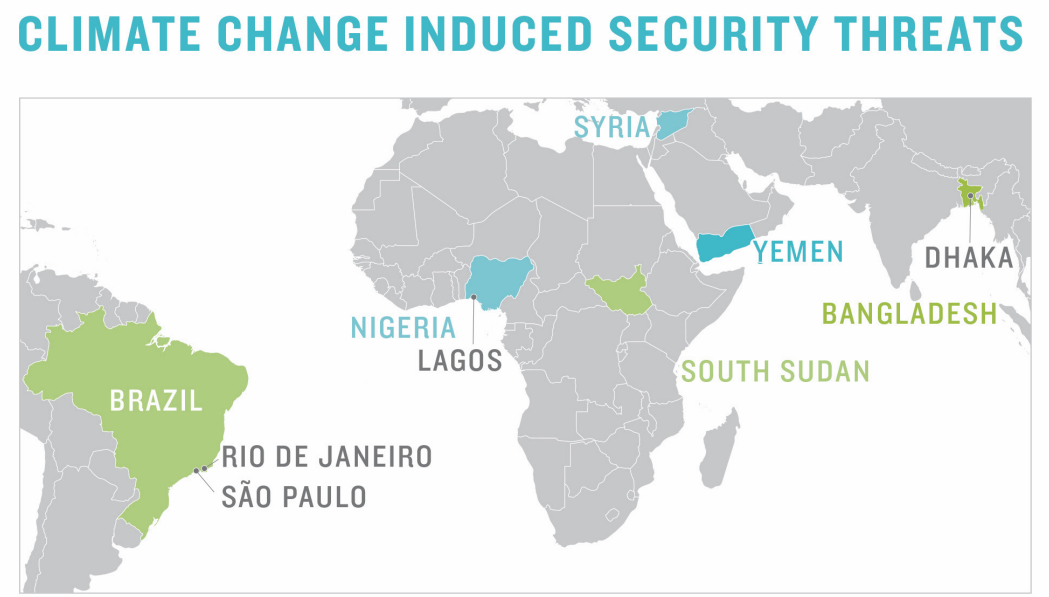

Figure 4. Climate Change-induced Security Threats

However, the U.S. Army does understand the criticality of development as a means of reducing the likelihood of conflict. Ongoing military operations in Africa are oriented to "the three Ds"—diplomacy, development, and defense. In operations described in Army Magazine, U.S. Army African Command is focusing its engagement strategy on development activities in the Lake Chad basin, which includes the nations of Nigeria, Niger, Chad, and Cameroon (see Figure 4). As Lake Chad reduces in size, threats to local and regional stability have emerged. Those threats include less food for local economies, a rapidly growing population, limited employment opportunities, and local and regional ethnic and religious tensions. These threats have resulted in growing internal displacement and migration, as well as extremist groups and criminal enterprises that are exploiting these conditions. These challenges affect political stability not only in Africa, but also in Europe due to stress placed on the immigration system.[33]

Figure 5. Lake Chad Basin

Further, research conducted at the University of Cambridge explored the links between sustainable urban design and human security as a means of reducing the propensity of conflict.[34] The aim of that research was to improve the development of urban design strategies for conflict prevention and to identify the best practices for urban design in the global megacities of the developing world, as well as to identify urban design approaches that have been successfully implemented in the world's most challenging urban environments. Identifying these techniques provides a roadmap for the rest of the developing world to follow as global urbanization trends continue and climate change threatens the sustainability of these growth patterns.[35]

Sustainability is increasingly considered a matter of national security.[36] The U.S. Army thinks about sustainability as a national security issue in a wide ranging of contexts, from

the business case to considerations on the use of military force. Army and Navy installations are suffering the effects of climate change, fossil fuel dependence, and resource scarcity like all other business-like organizations in the world. In addition, the prospects for military conflict in a world where depleting resources and climate change affect everything from regional stability to intrastate conflict require that military strategies consider sustainability as a consideration in reducing the likelihood of conflict.[37]

Wicked Problems, Systems Thinking, and a New Approach to Climate Change-Induced Insecurity

One approach to examining the relationship between climate change and national security is to use systems thinking. The use of systems thinking is a critical concept in examining the environment in a sustainability context.[38] A causal loop diagram is a useful way to envision the inter-relationship between climate change and national security. A causal loop diagram describing the systems approach to the relationship between climate change-induced issues and international security is illustrated in Figure 6.[39]

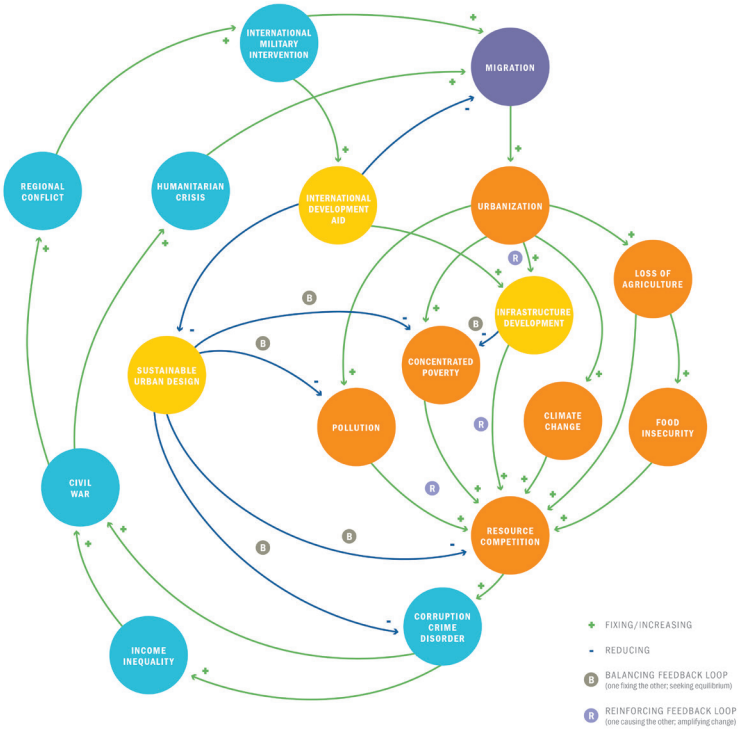

Figure 6: llustrative Causal Loop Diagram - Climate Change and International Security

A wicked problem is a set of problems that are difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. There is no definitive formulation of a wicked problem. In trying to solve for wicked problems, solutions are "better or worse," not complete resolutions, and there is no way to comprehensively test a solution. Specific aspects of the wicked problem may be susceptible to testing solutions, but each test risks further impacts. Because wicked problems can be symptoms of some other problem, care must be taken to avoid worse impacts, as well intentioned as the proposed solution might be.

Systems thinking presents an opportunity to explore a more comprehensive picture of cause and effect, layering societal issues that were once considered unrelated or marginally related into one problem set. Systems thinking creates an environment where individual contributions using multidisciplinary teams can make connections that others might not readily identify and develop discrete solutions for individual problems, and then consider those solutions in the broader context of the wicked problem. By adopting this approach, a whole of government/whole of society approach to solving wicked problems emerges, with a greater understanding of how interrelated problems can be addressed more holistically. The process of using these approaches should begin now with these techniques systematically integrated into curricula across undergraduate and graduate learning environments.

Climate Action

Despite the challenges presented by a lack of political consensus on the causes of climate change, there are hopeful signs that climate action can improve human security. Physical infrastructure constructed through development and direct investment is essential to economic and social sustainability. Floods of increasing intensity and frequency will render large areas of arable land unusable, precious water resources are squandered or sullied, food aid cannot get to those most in need, crops raised in one part of a country cannot get to market to relieve hunger, and the cycle of poverty continues. Likewise, development aid targeted toward more sustainable agricultural practices, sustainable management of water and other natural resources, and sustainable economic models can reduce or mitigate the ill effects of climate change. Every effort to thwart the negative impacts of climate change in the developing world is one small step toward reducing the likelihood of human insecurity and conflict.

There is general agreement that sustainable development is essential to reducing the negative impacts of climate change. Providing infrastructure development to informal settlements is widely recognized as a key step toward a more sustainable environment. Providing fresh water, sanitary sewer systems, electricity, transport, and solid waste management is a critical step on the path to sustainability.[40]

Educating a New Generation of Leaders

Finally, and perhaps most importantly, educating and training a future generation of military and civilian leaders who are intellectually invested in the environmental security domain, and who will rise to the challenges of climate change in the near and mid-term, will be critical. The environmental security domain is equally important as the traditional domains of conflict, including air, land, sea, space, and cyber. For the environmental security domain to be effective, investments in educating future military and civilian leaders who are fluent in the issues of environmental security must match investments in more traditional domains. To that end, there are few programs offered in traditional higher education to accomplish that goal.

A thorough review of current offerings in this field reveals the programs in Figure 7.

ENVIRONMENTAL SECURITY COURSES AND PROGRAMS

NAME	MAIN TOPICS	OFFERED THROUGH	LEVEL
Learning Pathway: Environmental Security	Aims to explore multiple ways in which environmental features play a role in security concerns. Includes 7 recommended courses.	University of Kansas	undergraduate
Course: Environmental Security/Conflict	Addresses some of the conceptual and contemporary issues relating to the impacts and effects of the environment on international, regional and national security, and the potential for social and political conflict in the Middle East and beyond. Topics include resource wars and energy security, food security, climate change and migration.	Georgetown University	graduate, undergraduate
Master of Arts in Environment, Development, and Peace: Specialization in Environmental Security and Governance	Gain insights into different theoretical frameworks, institutional tools and practical techniques related to water, food, and climate change, among others. Courses taken: Climate Change Governance; Water Security or Food Security; Environment, Conflicts and Sustainability.	University of Peace (Costa Rica)	graduate
Master of Science in Threat Response and Management: Environmental Security Concentration	Designed for those who want to address the challenges of climate change across the public sector, federal agency level, and sustainability and social responsibility in the private sector.	University of Chicago	graduate
Course: Environmental Security and Sustaining Peace	How natural resources and the environment impact conflict. How conflict harms natural resources and the environment. How natural resources and the environment support peacebuilding. How you can assess and address the relationship between natural resources and conflict.	SDG Academy/ edX	offered to anyone

Figure 7: Climate Security Courses and Programs

The multidisciplinary nature of environmental security as a field of study makes it challenging to develop a rigorous curriculum at the undergraduate level without compromising core studies to support the fundamentals. However, this research argues that a well-designed curriculum for environmental security as a major or concentration can be achieved by interweaving essential coursework in hard sciences, political science, international relations, and conflict studies. A curriculum based on these fundamentals will allow for the development of new graduates with a bachelor of science degree (or equivalent) with the intellectual rigor needed to master the emerging field of environmental security.

At the graduate level, there is ample opportunity to develop programs tailored to meet the needs of tomorrow's environmental security professionals. Certificate programs, master's programs, and doctorate programs should all be developed to support the professional needs of environmental security professionals as well as create an ecosystem of research and dialogue regarding this critical discipline. Post baccalaureate study and research is essential to setting the conditions for future success in the field of environmental security.

Conclusion

The growing field of environmental security presents many opportunities and challenges for our society. To meet the challenges, a multidisciplinary approach focused on placing significant emphasis on the three critical issues is required. First, environmental security must be considered as a new domain of military and civilian operations. Placing environmental security on par with the traditional domains of operations (air, land, sea, space, and cyber) will be a forcing function to ensure that strategic planning considers the environmental security equities of global operations and creates the foundation for rigorous professional development and education in the military services as well as civilian agencies.

Second, our national security strategy must be updated to fully reflect the challenges posed by climate change, climate migration, and other environmental security threats to stability. Reflecting this priority in the national security strategy sets the stage for a strong emphasis on a whole of government and whole of society approach when considering strategic actions in the pursuit of national interests. Emphasizing environmental security as a significant factor in our national security strategy requires the elevation of development to be an instrument of national power as a co-equal with the diplomacy, information, military, and economic instruments. The government agencies tasked with addressing climate change, development, and environmental security must be task-organized to bring the full capabilities of our government to bear on addressing the complex and wicked problems posed by climate change.

Finally, in conclusion, educational curricula in environmental security, at the undergraduate and graduate level, are essential to developing a next generation of professionals committed to this complex and emerging field of study. Undergraduate

programs will establish a baseline for future environmental security professionals, much as tailored programs did for cybersecurity. Likewise, graduate programs will create an ecosystem of research and professional development needed to sustain these professionals as they are tasked to address the challenges of climate change and environmental security. Combined, an educational framework focused on a whole of government and whole of society approach to the challenges of our time will pay long-term dividends as the world grapples with climate change and its many impacts.

Environmental security is poised to become one of the defining professions of this century. As a nation and as a society, tackling the issues associated with climate change and environmental security head-on is an imperative that cannot be ignored. Our future depends on it.

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Navigating Through a VUCA World by Using an Educational Compass

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Abstract: The security challenges of the twenty-first century can hardly be underestimated. These challenges are volatile, uncertain, complex, and ambiguous, with a tendency to become even more complicated and diverse. Nowadays, military leaders are challenged to solve problems within these four main security challenges. While facing such problems, military leaders are often stretched beyond their capabilities because current military education does not adequately provide them the knowledge and skills they need to deal with these problems. In order to prepare officers to best deal with the security challenges of today and the (near) future, a growing number of military academies recognize the need to address more than just military skills in their educational programs. The purpose of this article is to propose an easily applicable educational model which will enable military academies to effectively and efficiently design their education in order to prepare their future military leaders to best deal with security challenges of the twenty-first century.

Keywords: Curricular Components; Educational Compass; Educational Design; Educational Design Model; Lifelong Learning Competencies; Military Education; Twenty-first Century Security Challenges.

Introduction

Volatility, uncertainty, complexity and ambiguity characterize the world we live in and thus the contemporary environment in which military leaders operate. These four environmental characteristics are also referred to as VUCA. That is why twenty-first century security challenges—such as hybrid warfare, non-state actors, and exponentially increasing information and technologies—are becoming inevitable as they put an increasing demand on our military leaders to keep up while solving their assigned missions under critical, unforeseen and most immediate disadvantageous conditions.[1] As a result, preconditions, needs, processes, policy and operations are continuously adjusted, causing the operational context to become more unpredictable every day. The operational context is inextricably linked to military education, because this kind of education prepares military leaders to complete their missions. Sequentially, continuous changes in the operational context create different demands on educational design, content, and form. Unfortunately, today's defense organizations are too rigid, and designing and adjusting educational programs is so time-consuming that an educational program has to be revised as soon as it is ready to be implemented. Moreover, an increasing number of military academies now recognize the need to address more than just military skills in their educational programs.[2] Unfortunately, the knowledge and skills required to determine what content should be added and how this content should be taught is often lacking. This lack is exacerbated by the fact that educational design models are versatile and ambiguous, and succeed each other rapidly, which makes it difficult to choose an appropriate educational design model—even for educational specialists.

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Abovementioned tendencies endorse the rationale of this article: to propose an easily applicable and simple educational design model which will enable military academies to effectively and efficiently design a wide range of specific educational and training practices. Through this model, military educational programs will address the knowledge, skills, and attitudes required to execute military tasks within an operational context. As a result, their military education should prepare future military leaders to best deal with security challenges of the twenty-first century in a VUCA world. This way, no matter what assignment must be completed, military leaders can always deal with the unforeseen and the unknown. Therefore, our model enables military academies to give new meaning to the acronym VUCA through their education: vision, understanding, clarity and agility. Eventually, this new meaning should enable our future military leaders to face their operational environment that is characterized by volatility, uncertainty, complexity and ambiguity.

This article will first describe why there is a need for an easily applicable and simple educational design model. Secondly, the theoretical fundamentals of our model are explored. Thereafter, these fundamentals will be explained altogether. Finally, all fundamentals will be merged into our model: an educational compass that can be used by educational designers of military academies to enable future military leaders to navigate through a VUCA world.

Why a New Educational Design Model?

There are several reasons for proposing a new approach to designing military education. First, our continuously changing world—best described with the acronym VUCA—requires a different approach to military education. After all, what military leaders have to comply with is also continuously changing. Consequently, military academies, and in fact the entire organization, have to adapt their learning approaches to these changing circumstances.[3] Second, changes in the world also have repercussions on current, existing educational design models, causing these models to be complex and ambiguous, and to rapidly succeed each other. However, this variety of educational design models does not seem to have led to a unified approach that matches the context in which they are to be used. Third, the personnel responsible for designing education in the defense organization are often insufficiently equipped to perform this task. In addition, they cannot gain the necessary experience in designing education due to a lack of simple guidelines and due to the job rotation system. Therefore, there is a need for a new, easily applicable, simple educational design model that describes the steps needed to design education and offers flexibility within and between those steps.

How Is Our Educational Design Model Initiated?

Due to the fact that there are many complex and versatile educational design models available, it is difficult to design education efficiently and effectively, especially when there is

a lack of educational expertise. Although this article will not describe a complete overview of educational design models, this paragraph will first explain two models that supported our colleagues in designing education: constructive alignment and curricular spider web. Based on these educational design models, ten curricular components are distilled. Second, three additional curricular components are added based on our experience as educational specialists. Finally, three educational levels are explained at which these curricular components can be applied.

While working as educational specialists, we have been able to support many teachers in designing education. One way to do so is by using constructive alignment. This educational design model consists of three components: learning objectives, assessment, and learning activities. When these three components are aligned, a high-quality learning process is effectuated.[4] However, from our perspective, constructive alignment does not offer teachers sufficient guidance to properly design education. In other words, our teachers need more support than constructive alignment provides, because these three components are too abstract for teachers to design education. In our view, Van den Akker complements constructive alignment with his curricular spider web.[5] Van den Akker distinguishes seven additional curricular components: vision, teacher role(s), learning environment, learning tools, learning content, time, and grouping. Each component is elaborated with design questions that support teachers in making educational decisions.

Additionally, the extent to which collective goals of our defense organization are achieved is inextricably linked to the individual development of our human capital. In fact, human capital is an indispensable link for any other asset to reach their full potential.[6] Therefore, high-quality education is the foundation for the military to flourish. That is why the group for whom education is designed should not be forgotten.[7] Since the abovementioned two educational design models do not take this target group into account, this component is added as an eleventh curricular component. Furthermore, education should be in line with the context in which military leaders will perform their tasks. If not, military leaders may experience difficulties in transferring knowledge and skills into the operational context. Whereas context is of such great importance to the meaning of our education, context has been added as the twelfth curricular component. Moreover, apart from knowledge and skills, education should focus on attitudes. One way of doing so is by teaching military leaders lifelong learning competencies. When students master these lifelong learning competencies, they are more likely to become great leaders and to be able to function within changing environments.[8] That is why lifelong learning competencies are considered as a thirteenth curricular component.

The abovementioned thirteen curricular components can be applied on three educational levels: macro, meso, and micro. Designing education at the macro level usually refers to a curriculum, at the meso level to a course, and at the micro level to a lesson. First, a curriculum includes all courses an educational program offers in order to achieve the objectives. Second, a course consists of several lessons that help students achieve the course

objectives. Finally, a lesson consists of learning activities that ensure a student achieves the learning objectives.

In conclusion, applying these thirteen curricular components helps ensure that coherent education is designed: learning objectives, assessment, learning activities, vision, teacher role(s), learning environment, learning tools, learning content, time, grouping, target group, context, and lifelong learning competencies. Designing education through these curricular components on macro, meso, and micro levels will effectuate coherence between and within educational programs, courses and lessons. These curricular components and educational levels underlie the foundation of our educational design model.

What Curricular Components Does Our Educational Design Model Consist Of?

Derived from the abovementioned theoretical framework and our experiences, thirteen curricular components are conditional for high-quality education. If high-quality educational design implies that all thirteen curricular components have been thought through, it can be stated with certainty that designing high-quality education is a complex assignment which cannot be performed by everyone. Therefore, an educational designer must always be aware that his considerations within one curricular component affect the elaboration of the other curricular components. Moreover, this task becomes even more complex when our continuously changing context is considered. Assuming not every educational designer possesses the required knowledge, skills, and experience, an easily applicable educational design model must be created. In order to do so, it is of great importance to determine what content these thirteen curricular components should contain. Although our expertise is focused on the elaboration of curricular components, the organizational aspect of education should not be forgotten. Van den Akker already briefly addresses organizational aspects of education by his component of time, but in our view but the operationalization of the component time is not exhaustive. Therefore, we complemented the component of time with seven additional organizational components that together comprise the thirteenth curricular component.

Target group

One of the key components in educational design is the need to contemplate the students for whom education is being developed, the target group. Obviously, the impact of an educational program is predominantly dependent on the students' level of mastery after completing their education. Since each target group is characterized by diversity an educational designer needs to understand which characteristics apply to the particular target group and how these characteristics provide either opportunities or constraints on an educational design. In order to characterize a target group, an educational designer should examine several topics: general characteristics, specific entry characteristics, learning styles, personal and social characteristics, cultural background, physical abilities, and maturity level.[9] By means of these topics, an instructional designer gains insight into a

range of characteristics of the target group, varying from gender to age, work experience, prior education, motivation, (meta)cognitive skills, expectations, digital dexterity, and ethnicity.[10]

Context

A student must be able to learn any time, any place, anywhere. Learning is a continuous process that does not take place only inside the classroom. In fact: teaching theory in the classroom only supports what has to be done in the operational context. That is why education should focus on enabling students to apply knowledge and skills integrally in the context of any professional situation. One way of doing so is to consider in which contexts a student finds himself. An educational designer should distinguish a multitude of contexts, such as the digital classroom and the operational practice (e.g., spending the night in wooded terrain). Stressors can be used to increase awareness of the number of different situations that the profession has in store for the student. This awareness provides the student a broader frame of reference whenever he finds himself not only in a similar situation, but also in new, unfamiliar situations.[11]

Vision on education and learning

A vision on education and learning describes which goals an academy wants to achieve, what high-quality education should look like, and how education and learning can be optimally designed. Therefore, a vision indicates in what way students can be educated most effectively and gives direction to teachers' learning interventions and didactics. That is why a vision has a major influence on the design of education.[12] In order to formulate a vision, a number of steps should be taken. First, it is important to examine current developments for the defense organization, such as "hybrid warfare." Second, it is then important to identify developments in the field of learning and education. For example, students should be able to learn any time, any place, anywhere. Once these developments have been analyzed, design principles can be formulated that give direction to the structure of education and learning. Finally, a vision is established which describes the purpose, the content and form, and the organization of education and learning.

Lifelong Learning Competencies

In order to prepare our military leaders to best deal with twenty-first century security challenges within a continuously changing context, academies should help them master lifelong learning competencies.[13] The P21 Framework describes lifelong learning competencies in a way they can be incorporated relatively easily into any curriculum.[14] This framework describes learning and innovation competencies, information, media and technology competencies, and life and career competencies. Based on our experiences, most of the military educational programs do not address these lifelong learning competencies explicitly.

Learning objectives

Learning objectives indicate what content must be mastered at which level and thus give direction to the content of education. Ideally, learning objectives are brief, clear, and specific statements of what students will be able to do at the end of an educational program. Learning objectives can be used by an educational designer as a way to clarify, structure, sequence, and plan the educational design.[15] Generally, learning objectives consist of four components: content, behavior, conditions, and performance. First, an educational designer should focus on what content a student should master. Second, the behavioral component can be determined based on the content component. This component indicates what a student should be able to do with the content.[16] Third, a condition indicates criteria under which the student must show the desired behavior. Finally, a learning objective may include the minimum performance that the teacher would like to see. For example, the teacher can set a time limit or indicate how accurately students must work. Since it is not always possible to have learning objectives consisting of these four components, it is recommended to describe at least the behavioral and content component.

Assessment

Once learning objectives are established, consideration should be given to the way in which it can be assessed whether a student meets these objectives.[17] Assessment refers to a variety of methods that an educational designer uses to evaluate, measure, and document each student's readiness, learning progress, skill acquisition, or educational needs.[18] Broadly, two types of assessment are distinguished: formative and summative. On the one hand, a formative assessment is an in-process evaluation of student learning. Typically, this type of assessment is performed multiple times during an educational program and provides both teachers and students feedback on their learning process. On the other hand, summative assessments evaluate student learning at the end of an educational program. These kinds of assessments are typically graded to determine whether a student has achieved the learning objectives.[19]

Whether a formative and/or summative assessment is chosen, an instructional designer can choose between a wide range of assessment forms. But how to select the appropriate type of assessment? Learning objectives are key in determining what type of assessment is most suitable. The verb in the learning objective indicates what kind of assessment should be chosen. Therefore, the more complete a learning objective is formulated, the easier it is for an educational designer to select the most appropriate type of assessment.

Learning activities

After determining what and how learning content will be taught and measured, appropriate learning activities should be selected. Learning activities describe what activities are used to stimulate each student's learning process in mastering the learning content. Various learning activities can be distinguished, such as teacher-centered activities and student-centered activities. Teacher-centered activities include activities

where teachers direct students, while student-centered activities consist of activities where students direct themselves and are being guided by their teachers. Learning activities can also be distinguished by the skill a student masters while participating in activities: (meta) cognitive activities, affective activities and psychomotor activities.

Several factors influence the choice of the best learning activity: target group, vision on education and learning, learning objectives, and assessment. First, the target group is the first factor an educational designer should consider, because if this group is not used in active learning, students require more guidance for the activity to be successful. Second, learning objectives clarify which content must be mastered at what level. This information is indispensable because, for example, a student cannot learn to shoot by only attending a lecture about this topic. Third, the type of assessment(s) must be considered before learning activities are selected. For example, when a student must be able to shoot, he should be given the opportunity to practice before taking the assessment. Last, the vision on education and learning influences which activities are possible and feasible.[20]

Teacher role(s)

Since teacher roles go far beyond teaching, teachers must possess knowledge and skills that encourage student success such as building a safe learning environment, mentoring students, being role models, being subject matter experts, counseling students, and teaching students how to use and apply knowledge and skills in their lives (inside and out of the classroom). That is why teachers fulfill six teacher roles: diagnostician, challenger, model learner, activator, monitor, and evaluator.[21] First, a teacher needs to be able to adequately diagnose (previously) acquired knowledge, skills, and attitudes students did or did not master, or mastered unsatisfactorily. This diagnosis helps the teacher determine how to introduce new content and skills in a way that integrates with students' learning needs. Second, a teacher needs to be able to challenge students to learn and apply new knowledge, to learn and try out new skills in several different situations.[22] In order to do so, a safe and positive learning environment is conditional.[23] Third, a teacher needs to be a role model.24 Fourth, a teacher needs to be able to activate the use of knowledge, skills, and attitudes by means of different learning activities.[25] Fifth, a teacher needs to be able to take a step back and monitor the learning progress of students. At the same time, a teacher helps students who are in need, so that they are also able to accomplish the learning objectives. This way, a teacher is a monitor who provides students with feedback and feedforward.[26] Last, a teacher needs to be able to evaluate and assess the quality of the learning process of students to determine to what extent students have accomplished the learning objective.[27] The teacher should continuously switch between these six roles. In doing so, a teacher aligns with the needs of the target group and the context in which students are learning.

Learning content

In order to apply learning content integrally in the context of a professional situation it should be based on three aspects: knowledge, skills and attitudes. The aforementioned lifelong learning competencies are inextricably linked to all learning content that is to be designed.

Whether an educational designer is concerned with designing new education or renewing existing education, the learning content must always meet the vision on education and learning, the learning objectives and the tasks that the target group will have to perform.

But how does an educational designer determine which learning content is important? This process starts with determining the main theme, such as military intelligence. Subsequently, this main theme is then divided into sub-themes. One way of doing so is by asking open questions about the main theme. The answers to these questions should clarify which topics should be included in the learning content. Another way to obtain this clarification is by brainstorming about the main theme with subject matter experts. As a result, a mind map is created in which the connections between different sub-themes are identified. As soon as an overview of all sub-themes has been obtained, an educational designer must evaluate whether this overview is complete when compared with the target group analysis and the learning objectives. Thereafter, the order of learning content is conceived. It is of great importance that the learning content forms a logical whole. Organizing principles can help to achieve this logical structure of content. Moreover, organizing principles provide students a frame of reference that enables them to process (new) knowledge, skills, and attitudes[28]. Without being exhaustive, an educational designer might structure learning content based on complexity (easy to difficult), chronology (step A to Z), or importance (generic to specific). Which principle is most suitable depends on the results of the target group analysis, the vision on education and learning, the learning objectives, and teacher roles.

Learning tools

Learning tools comprise all resources and materials that support the learning process. For example, resources include handbooks, doctrines, literature, subject matter experts, and Information Communication Technology (ICT). These resources support the learning process of students and that is why they should not be forgotten. An example of materials used in education could be a resuscitation dummy, weapon, compass, or map. In order to determine which learning tools an educational designer needs, the designer consults the target group analysis, learning objectives, learning content, and learning activities.

Learning environment

Learning takes place in a learning environment. This environment is often expressed in physical and non-physical factors. An example of a physical factor is the availability of sufficient learning tools within a classroom, whereas a non-physical factor is related to the atmosphere in which learning takes place. The self-determination theory describes three elements that may benefit a learning environment: autonomy, competence, and connection.[29] There are several ways to meet these elements, such as letting students choose their learning activities (autonomy), providing feedback on both shortcomings and progress (competence), and creating a safe space in which experimentation is encouraged and mistakes are allowed (connection). Nonetheless, the framework for a learning environment is to be devised by an educational designer, but it is the experience of the student that determines how the learning environment is perceived.[30]

Grouping

An educational designer must make decisions regarding whether to divide students into groups. Working in groups can be beneficial for the following reasons: what is learned is better processed and applied; social skills are practiced (such as dividing tasks, listening to each other and comparing arguments); and student independence is promoted. An educational designer should determine whether learning activities should be performed individually, in pairs, in groups, or plenary. Whatever choice is made, it must contribute to achieving the learning objectives. In addition, consideration can also be given to the homogeneity or heterogeneity of a group. For example, groups can be classified by previous education, age, learning pace and learning styles.[31]

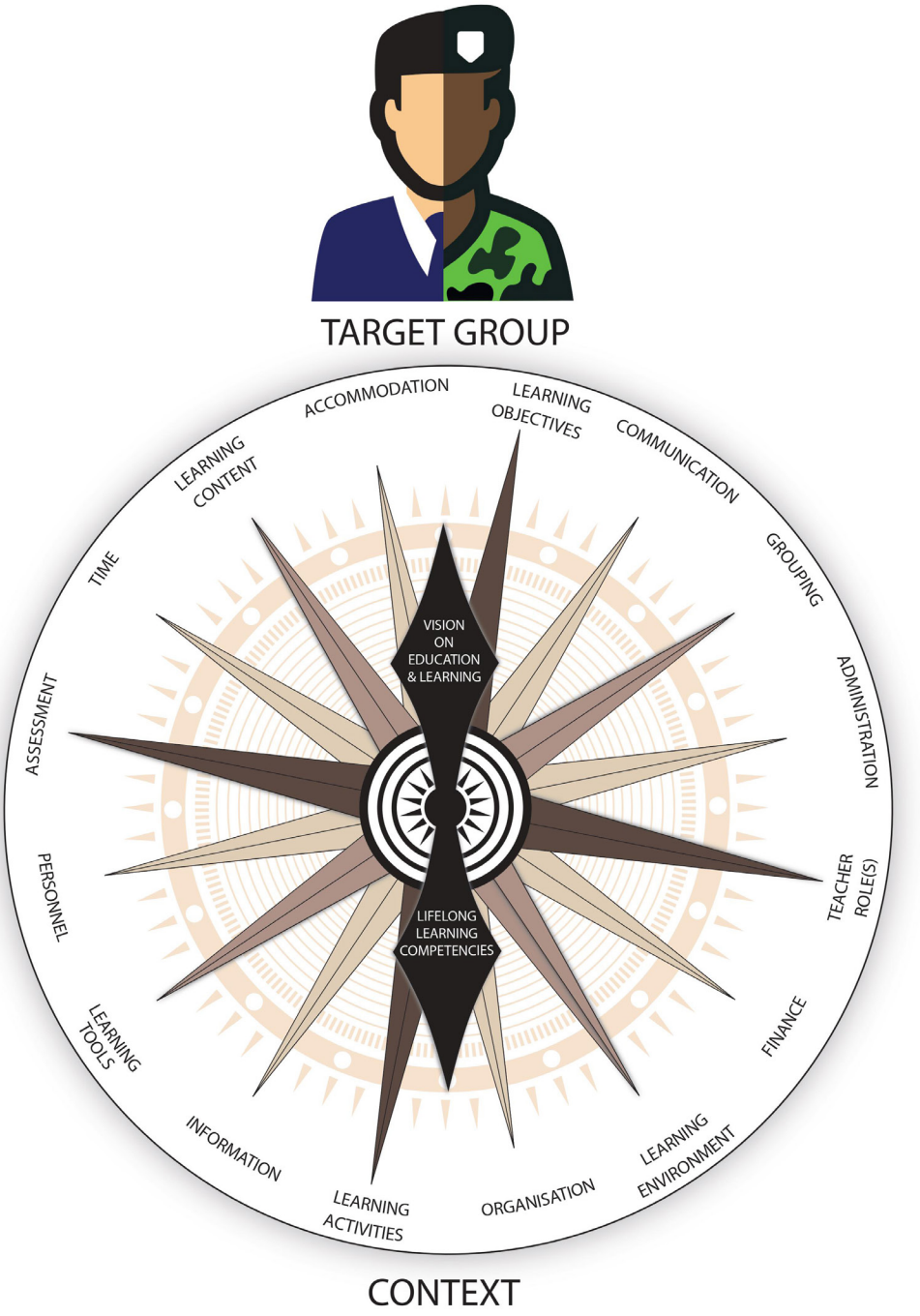
Organizational components of education

In addition to the curricular components, it is also necessary to elaborate and secure the organizational components of education. After all, the following eight organizational components ensure that the educational program can actually be accomplished in the way it was designed: personnel, information, organization, time, finance, communication, administration, and accommodation. The personnel component guarantees sufficient qualified teachers and other personnel, such as guest lecturers, subject matter experts and staff personnel. This way, the educational designer makes sure that the required personnel is available. When considering the information component, an educational designer must elaborate what information should be provided to students and teachers. The organizational component focuses on coherence and coordination within and between all components of education. The time component consists of two sub-components: the total duration of the lesson, course, or curriculum and how often these are taught in an academic year; and the availability of teachers and the time a teacher needs in order to prepare, execute and evaluate their education. The financial component determines whether the educational design can be realized within budget. Several aspects should be considered, for example, budgets regarding guest lecturers or the purchase of necessary materials,. The communication component describes when and what will be communicated internally and externally, and to whom. The administration component provides insight into what systems will be used when it comes to tracking learning outcomes, student counselling and scheduling education. Last, the accommodation component monitors whether sufficient accommodation is available in terms of classrooms, tents (in case they go on a bivouac), beds (in case of a boarding school system), et cetera. Based on these eight components, the educational designer will be able to examine whether the ideal design is feasible.

Our educational design model

Thirteen indispensable curricular components and their interdependencies have been elaborated. These interdependencies are visually represented in Figure 1 by our educational compass. Military academies can use our educational compass to design education that enables future military leaders to best deal with twenty-first century security challenges in a VUCA world.

Figure 1: Our Educational Compass



The thirteen curricular components have been merged into a compass for various reasons. First, a compass gives direction. More specifically, our educational compass directs military academies in designing their education effectively and efficiently. Second, a compass suggests that all components should be in balance with each other: No matter what way a compass is used, the distance between north-south and east-west always remains the same. Third, the way in which a compass continuously adjusts itself has been an important characteristic that had to be reflected in our model. For example, by evaluating experiences of both students and teachers, an educational designer can determine if and how the educational program should be adjusted for the next cycle. This way, a continuously improving cycle is pursued. Last, a compass was chosen because our model is descriptive instead of prescriptive. In doing so, the educational compass does justice to the complexity of any educational design assignment.

The educational compass is held by the target group. The visual representation of the target group is two-dimensional. On the one hand, the target group consists of both civilians and military personnel; on the other, it emphasizes the importance of paying attention to the human being behind the employee. Both dimensions are indispensable when designing education. Our educational compass consists of a rotating needle and three compass roses. The rotating needle consists of a vision on education and learning and lifelong learning competencies. These two components give direction to the curricular components that are described in three cascading compass roses (indicated with three different shades): learning objectives - assessment - learning activities - teacher role(s), learning content - grouping - learning environment - learning tools, and organizational components of education. All parts within the educational compass are encompassed by the protective layer around it—the context. Without taking the context into account, the rotating needle and compass roses would no longer be in line with each other, and the compass would not work. Therefore, it is important to relate each curricular component to a meaningful, realistic, and authentic context.

Our educational compass is roughly divided into three elements: target group, compass, and context. Depending on the educational design assignment and available amount of time, an educational designer should be able to deliberately select the necessary curricular components that match the assignment and available amount of time. This way, the educational designer should be able to tailor our educational design model every time. However, an educational designer must always consider—regardless of limiting factors—the target group, the rotating needle and first compass rose of the compass ,and the context in order to design high-quality education.

Concluding Remarks

Recapitulating, this article set out to propose an easily applicable and simple educational design model. Through our educational compass military academies should be able to develop an educational program which enables future military leaders to best deal with

security challenges of the twenty-first century in a VUCA world. Applying our educational compass will ensure that military educational programs address required knowledge, skills, attitudes, and lifelong learning competencies to execute military assignments within an operational context. In order to do so, thirteen indispensable curricular components have been elaborated: target group, vision on education and learning, lifelong learning competencies, learning objectives, assessment, learning activities, teacher role(s), context, learning content, learning tools, learning environment, grouping, and organizational components of education. To ensure that educational designers, regardless of their knowledge, skills, and experience, are able to direct themselves through these thirteen curricular components, a layering between these components has been provided. First, the target group should be analyzed. In addition, the educational designer should determine in which context(s) students should be able to apply their knowledge and skills. Second, a vision on education and learning and lifelong learning competencies should be formulated. Third, an educational designer should focus on the first compass rose, describing learning objectives, assessment, learning activities and teacher role(s). Fourth, the designer should pay attention to the second compass rose: learning content, learning tools, learning environment and grouping. Fifth, the third rose indicates the organizational components of education. Moreover, after the educational design has been completed, attention must be paid to its quality and feasibility through continuous evaluation.

Our educational compass allows military academies to (re)design their education as the continuous changes in the operational context have an impact on educational design, content, and form. It is certain that these changes will continue in the future, increasing the need for a sustainable educational design model. We have tried to meet this need by proposing a unified designing approach with our educational compass. By dividing our educational compass into several layers, it should be easily applicable in any situation—regardless of available time and design experience—for educational designers at any military academy.

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We Need to Rethink Reality: The War Nexus and Complexity

André Simonyi

Abstract: Concepts such as complex adaptative systems, networking and chaos have been around over much of the twentieth century in many fields and disciplines. Yet, complexity thinking is mostly overlooked in the education of future military leaders. Consistent with the traditional Newtonian reductionist approach, the world is still presented in a linear and causal fashion with ready-made problem-solving methodologies. In this paper, we challenge this linearity and argue that to address complex challenges in a complex world, we should shift to complexity thinking as the principal cognitive imprint. With the multidimensional reorganization of global society, the metaphorical boundaries circumscribing military interventions, the battle-space, become porous and difficult, if not impossible to isolate. Today's battle-space expands into a complex environment encompassing all societal domains to create the war nexus. Yet we still think of the battle-space as a closed system. To understand this evolving paradigm, leaders at all levels need to process reality in terms of complexity while retaining their operational focus. In time, this shift will provide the institutional capacity to understand, analyze, plan, and act in the current multidimensional war nexus.

Keywords: Complexity War; Military Education; Battle-space; Systems Theory; Total War; Whole of Government; War Continuum.

Introduction

"To accept that the world is complex rather than predictable and controllable is to change our approach to everything: our approach to change, to management, to policy development, to evaluation, to leadership—and to living."[1]

Over the last four hundred years, the realm of the soldier, the battlefield, has expanded dramatically. From the fields of Agincourt to the battle-spaces of Afghanistan and Iraq, the representation of war has grown from a relatively simple, well-defined place to a complex, multilayered environment. Yet, our doctrines retain, for the most part, war as an autonomous domain, a closed system — the clausewitzian extension of politics bringing closure to a dilemma by its decisiveness.[2] This representation, however, is increasingly met with contradictions: the capacity to bring decisive closure through victory on the battlefield, or battle-space, has eroded gradually. Winning wars in the twenty-first century is a soft notion defined by its multiplicity and evasiveness.

As military might is increasingly a tool in the arsenal rather than the last resort, waging war encapsulates a complex and multidimensional environment. It involves many interdependent domains, or systems, creating the conditions of success for a national security strategy. This is not "total war," as the mobilization of national resources to support the war effort, but rather the coordination of a complex set of assets—political,

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economy, information, to name a few—in a complex environment. This shift is first and foremost ontological: from a closed battle-space where victory can be achieved, we shift our representation of war and conflict to a complex environment, multilayered and multidimensional, in which victory is not defined by armistice but by relative positioning of the actors involved. Although this complexity is upon us, our policies, doctrines, education, and training systems remain strongly anchored in a classical, closed system, battle environment. How can we acknowledge the paradigmatic change of complexity? In this article, we argue that to act within the complex security environment, we must first learn to think and see the world as a complex environment and engage a complete paradigmatic intellectual shift at all levels.

Anchored in a Newtonian approach to knowledge, our ontological understanding of our world and its challenges is driven by our epistemological foundations. From childhood education, we learn to find solutions in a world that is given to us. In the military context in particular, critical thinking and reflexivity are recent additions and remain peripheral. For the most part, we are taught not to challenge the framework—the box—and to find solutions to problems by reducing the issue to components that we can then repair. This competence-based approach to education and training reduces knowledge to performance objectives, providing for highly skilled individuals and groups. Most, if not all, western defense and military organizations perpetuate this modernist approach to knowledge, and young soldiers, non-commissioned officers (NCOs), and officers learn to view, analyze, plan, and act within a generic environment—their battle-space—which they transpose and adapt to their specific environment of operation.

In a recent guidance document, the U.S. Joint Chief of Staff states that "we must shift our professional military education (PME) curricula from a predominately topic-based model to outcomes-based approach [that] emphasize[s] ingenuity, intellectual application, and military professionalism in the art and science of warfighting." Coherent with mission command,[3] this shift is directed toward mid-career level officers at the joint level,[4] and sometimes NCOs, depending on their national training system, engaging implicitly, and sometimes explicitly, with complexity thinking at the operational art level. In short order, these students of complexity are required to completely reverse their onto-epistemological lenses and view, analyze, plan, and act in terms of "uncertainty," "feedback loops," and "emergence." The leap is considerable. Moreover, the structure to which they are returning mostly operates within the traditional assumptions of methodological reductionism, inside a pre-set box.

This paper argues for a profound intellectual shift embracing complexity thinking as the onto-epistemological framework for the defense establishment and the security environment. But how can we challenge four hundred years of Newtonian reductionism[5] and engage the most dramatic reversal in cognitive approaches to planning and problem solving? From Newton to Einstein, we are trying to bridge classical and quantum physics, combining the small and the big, the complicated and the complex.[6] It is a dramatic

undertaking for which many thinkers have dedicated their lives. Command and staff colleges are the usual breeding grounds for "Design Thinking," the complexity version of the Operational Planning Process. But without a deeper systemic change and the creation of a continuum in the battle-space conceptualized without regards of size or origin, we will keep on fighting the last war. There is no box, except the one we create.

Mirroring Concepts: War and Warfare in the Twenty-first Century

Before we move on, let's take a moment to consider the ontological shift proposed. The concept of war has existed since the dawn of time and the idea tends to be the timeless representation of an organized violent struggle between political units using military means. Yet a contingent analysis of the phenomena demonstrates variations and changes throughout history. The passage from western pre-modern to modern times, characterized by the state system, rational thinking, and individualism, was accompanied by the creation of an international legal framework. This legal apparatus established the norms of state-on-state affairs and created the separation between the domestic and international realm. Sovereignty over territory, and legitimacy in acting in the international realm, became the standard. The control of violence regulated either through policing at home or military at the borders and the western rules of violence dominated the judicial world: only states declared, won, or lost wars. In this contingent form, war represented controlled violence between legally recognized opponents, and any divergence from this created a new vocabulary: insurrection, revolution, war on terror, etc. Definitionally, we saw warfare as the enactment of national militaries to wage violence to support national strategies and gain decisive victory where diplomacy failed.[7]

Characterizing the dominant organizational logic of the political world during the last few hundred years, this arrangement began faltering during the twentieth century. Since World War II, conflicts and wars are rarely, if ever, declared, and victory became a fleeting concept. These conflicts challenged the fundamental concepts regulating the international system.[8] Territorial integrity was violated regularly, and the legitimacy of violent action included preventive strikes.[9] At the domestic level, in the name of national security, the war on terror initiated internationally a wave of policies infringing basic democratic rules such as privacy and, more importantly, habeas corpus. In many democratic countries, the legislative branch has been circumvented giving the executive branches carte blanche to wage war. What does it mean to be at war in the twenty-first century? How do we define its conceptual boundaries? Does war as a concept lose its strength and usefulness?

If we mirror the concept of war to its alter ego, warfare, we see that they are not aligned. Representing the enactment of war, the study of warfare gives us an insight on the contingent definition of war. From the perspective of the conduct of war, military thinkers, intellectuals, and strategists sensed the change induced by the impact of exponential development in technology and the multiplicity and variations in the threat. Doctrinally, battle-space dominance and victory as the tangible end in the form of a tactical, operational,

or strategic accomplishment remains the principal assumption. To this end, organizational doctrines such as network-centric warfare and methodological approaches such as the operational planning process are the primary tools in the toolbox.

Epistemologically and methodologically, the widening and deepening of the battle-space led to serious research in novel approaches such as "Design Thinking," or its synonyms, "Military Design" and "Systemic Operational Design," "…an attempt to rationalize complexity through systemic logic employing a holistic approach that translates strategic direction and policy into operational level designs."[10] Forward looking as it integrates "…signs indicative of complex behavior, it divides warfare into two epistemological distinctions: reductionism at the tactical level and complexity at the level of operational art.[11] But the box itself remains unchanged: warfare is conducted within the battle-space with military means; victory, by design, is the end-state sought.

In the twenty-first century, war's traditional modernist conceptual boundaries—the state, sovereignty, legitimacy, and territory—are challenged. New political and non-political units act transnationally and virtually, using new approaches to political violence, transcending borders, and defying traditional political legitimacy. Hence, war in the twenty-first century happens beyond the battlefield creating a complex environment encompassing all societal domains: the war nexus.[12] In contrast, warfare, although embracing the idea of "environment in becoming," remains within the closed boundaries of the battle-space.[13] With the expansion of war as an environment encompassing many interacting systems, of which the battle-space is but one, we need to ontologically represent conflict as a complex system at all levels. Hence the operational level of war is not a boundary between the tactical and the strategic, but a system within systems, in an environment. As such, complexity thinking is not a hinge between levels but a norm that views war as a nexus.

The Fear of Fighting the Last War

"It has been said critically that there is a tendency in many armies to spend the peace time studying how to fight the last war."[14]

This section discusses the intellectual shift between Newtonian recurrence and Einsteinian relativity from an ontological point of view, considering their impact on our intellectual representation of war. Western society's intellectual mapping from the primary school onwards is built on the mechanistic cartesian scientific method of problem-solving. The extension of the scientific method in the eighteenth and nineteenth centuries to social science created an intellectual imprint on our approach to predict the future, making the search for laws through recurrences an integral part of the mechanistic scientific method. To understand a phenomenon, the scientist, natural or social, creates a hypothesis that (s) he tests in a controlled environment. Based on the recurrence of the results, laws explaining the functioning of our world emerge. When applied to social phenomena, e.g., elections, mobilization, or war, to name a few, we create a permanent image of a complicated system

that we can understand by reducing it into its component parts. Once in the world of recurrences and laws, change becomes a friction, rather than the norm.

On the other side of this spectrum, relativity, complexity, and chaos engage with non-linearity and uncertainty. This means that although laws might work at the mechanistic level and/or in controlled environments, there is a level at which the amount of interacting actors/systems and external contradictions render any form of prediction impossible. In this realm, change is the norm, and as we attempt to understand the environment, its systems, and their interactions, our capacity to foresee the outcome, or emergence, remains limited to trends and possibilities. Few are educated to seeing and dealing life in general from a complexity perspective, instability, and unpredictability. For many, change is an exception and returning to equilibrium is sought.[15] In contrast, for complexity thinking "equilibrium is another word for death."[16] Observing systems and emergence leads us to an uncertain future, one we do not control.

Complex and complicated systems exist side by side in our intellectual arrangement of the world and we all engage with both, consciously and unconsciously, daily. Because of our education, formal and informal, complexity is rarely, if ever, a conscious part of our intellectual process. As a result, although we recognize the complexity of a problem through metaphors, our reflex is to deconstruct and treat the broken part.

Are these approaches incommensurable? The scientific world is still exploring this question, some excluding both domains while others are attempting to bridge quantum and classical physics.[17] Both approaches provide answers within their respective realms and the question is not one of either/or, but rather of striking the proper balance. This balance, however, is not struck through a clear demarcation line between "levels" within a "hierarchical" structure, as between the tactical and the operational portions of war. Rather, these approaches are often overlapping, even fused.

For the soldier and sailor to operate efficiently, the battle-space is reduced to manageable dimensions of objectives and resources.[18] Using standard operating procedures (SOPs) at the lower levels, the battle-space is deconstructed vertically to create imbrication and coherence in action. At the higher end, policy and doctrine encapsulates this integration, seeking the harmonious action of all parts involved. In the United States' capstone publication for all joint operations, we can read:

"Unified action synchronizes, coordinates, and/or integrates joint, single-service, and multinational operations with the operations of other United States government (USG) departments and agencies, Nongovernmental organizations (NGOs), Intergovernmental organizations (IGOs) (e.g., the United Nations (UN)), and the private sector to achieve unity of effort. Unity of command within the military instrument of national power supports the national strategic direction through close coordination with the other instruments of national power."[19]

Within this reductionist paradigm, the battle-space continuum extends through a series of overlapping levels. Problem solving is a question of identifying and dealing with a dependent variable upon which an action is required. In this process, independent variables become risk factors and uncertainty mitigated by various human and technological tools leading to planning for contingencies.

In contrast, complex systems exemplified by insect colonies, the immune system, economy, or the world wide web, seem to operate with a different set of tenets,[20] which Mitchell summarizes with the following definition: "A system in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing and adaptation via learning or evolution."[21] These parameters for complexity, characteristics, and definition are not, inherently, in contradiction with the unified and synchronized action sought by the SOPs and doctrinal integration presented above. In fact, rules, structures, and processes are part and parcel of any complex system as they define their autonomy and differentiate them from other complex systems. Whether it is an ant colony or a military organization, rules and guidelines direct the conduct of the component parts. It is the number of components and the external influence—other systems and the environment—that create non-linearity and uncertainty. Survival or obsolescence is dependent on the system's capacity to adapt to a changing environment.

Ontologically, the battle environment is not controlled, and objectives are not "dependent" variables, but rather elements subject to unpredictability and non-linearity. The reality of the battle environment at any level is closer to a complex system than a laboratory subject to analytical reduction. Special operations units, cyber cells, drone operators all operate at the strategic level in this complex environment. Even a small tactical unit on a mission is placed in a complex environment with multiple systems potentially interfering with its progression. In contrast, a large formation may find itself in a complicated rather than a complex situation, operating in relatively well-controlled environment with few interacting systems. And it is possible that the small tactical unit mentioned is part of this latter large formation.

The segmentation of the battle environment into tactical, operational, strategic, and political (or grand strategy) levels require reflexive analysis in a historical context as they represent a spatial and structural breakdown of the battle-space, conditioning the system's structure and processes. From a systemic perspective, these levels represent a complex continuum of operations regardless of size and positionality. Moreover, as argued earlier in the text, with the expansion of the concept of war embracing multiple domains to create a complex battle environment, the battle-space as closed system is de facto opened to interact with others. This creates a true complex continuum within which, regardless of size, all levels and domains are bound to interact. The creation of the systemic continuum that embraces change, with non-linearity and emergence as the norm, begins with the intergenerational capacity to think in those terms. Only then will we prepare for the next crisis.

Creating the Capacity for Complexity Thinking

The expansion of the battle-space beyond the sole realm of the military does not question the current doctrinal foundations such as systemic disruption[22], nor does it insert itself in the debates such as maneuver versus attrition. It reinforces the non-linear nature of war as understood by Clausewitz[23] and Boyd's disruption of the decision cycle (OODA loop)[24] as they have expanded our understanding of the concepts of war and warfare. Rather, it opens the dialogue concerning the battle-space becoming increasingly permeable to other systems at all levels of command. From chaoplexity[25] emerges an environment expanding from the military/defense system to include functional systems of the state that traditionally have been stove piped.

The amalgamation of reductionism and complexity thinking can lead to the synchronization of a battle-space. This space exists within a battle environment and requires a synergic knowledge system engaging both the end state and the emergent. The necessity for this synergistic integration is not bound by tactical, operational, or strategic/political levels but is rather overlapping and fused. Hence, the introduction of complexity as an ontology at the very early stages of education is not only advantageous, but part and parcel of understanding the battle environment. Exposing young leaders to both reductionist and complexity thinking induces the intellectual flexibility, discernment, and ontological flexibility[26] necessary to face their immediate challenges and build their collective capacity to transform and adapt.

To create a transgenerational capacity in complexity thinking, introducing complexity early in the educational is necessary. Complexity, before it becomes an applicable epistemology and method, is a metaphor, or metaphors, encapsulated in several concepts such as emergence, non-linearity, feedback, etc. Learning the vocabulary and connecting the concepts to visualize complexity in their daily lives is the initial step to creating a shift. Students are extremely open to these concepts as they can apply and see them in action almost immediately in their close surrounding. For example, for officer-cadets and naval-cadets, transforming the exercise of conceptualizing a hierarchical military academy into a complex system within an environment opens their mind to possibilities of such intellectual opening.[27] In order to build the institutional capacity to think in terms of complexity, its inception is required at the source and integrated throughout a career. This inevitably requires time, patience, and determination.

The Challenges of Change

The implementation of this type of foundational change requires we address epistemology, or the way of knowing.[28] As part of building its capacity, military training typically follows a reductionist approach to programming education. Every trade and specialty required to create a capability are deconstructed into performance objectives at the individual and collective level. These performance objectives add up to create "qualified" individuals capable of working within a structure, itself "qualified" to accomplish several

specific missions. The military training system is highly effective, integrating technical and tactical changes through experimentation and lessons learned via feedback loops. Moreover, sophisticated militaries actively engage in strategic visioning, an exercise providing educated options for the future battle-space.

In contrast, systems thinking cannot be reduced to a set of knowledge nuggets added to the whole. To the contrary, its pedagogy must be treated as a holistic, systemic undertaking. Intellectual and cognitive silos must be broken down to create the truly common vision of a complex world with a complex security environment. Although seemingly incommensurable, the challenge of building this new knowledge system does not reside within the intellectual capacity to integrate these approaches, but rather with the systemic capacity to undertake this change. In other words, we do not suggest that the training system is obsolete or inefficient, quite the contrary. Instead, we argue that educating in complexity should be conceptualized as the other side of the same coin.

Shifting culture in the defense environment, as in any institutions, is a challenge. Overcoming resistance to change will require vision, strong leadership, good planning, and patience. More importantly, the main hurdle facing this ontological shift resides in the system's capacity to educate the younger generation. As our western education system perpetuates the reductionist view, institutions find themselves in a knowledge gap. It is a chicken-and-egg conundrum: as we do not have an organized knowledge base to educate, we cannot initiate the next generation of thinkers to carry forward. The challenge is to find ways to circumvent this knowledge gap. It begins with relationships and networking.

Within any social system, relationships play a dominant role in the bridging of formal structure/process arrangements and informal cross and transdisciplinary arrangements. Relationships and the creation of networks is essential for creating the baseline for change. To initiate and implement complexity thinking as the ontological baseline, networking of like-minded leaders and thinkers at the national and transnational level is essential to create the necessary momentum. The mobilization of knowledge-hubs from neighboring sectors versed in this transformational approach, such as business management, environmental projects, and others, can expand the knowledge base in education, implementation, and planning. These formal and informal nodes of communications can become the initial intellectual laboratories and breeding grounds for new ideas, possibly creating the condition of emergence to temporary arrangements such as working groups and research networks. Across the defense systems and beyond, national and transnational, there are several individuals and intellectual centers working semi-independently on the topic of complexity. Harnessing these potentials, creating the synergy, and initiating a momentum seems to be the approach to crystallize the idea of change toward complexity thinking.

Emergence

In an earlier debate, a general and an academic debated whether we "should teach junior members what the 'box' is before we teach them at mid-career level to think outside of it or reshape it?"[29] This question entraps the question into an either/or, or yes/no. Once we adopt complexity thinking as the foundational element, the ontological trap of the "box" disappears. It is the creation of the box that traps the mind into thinking within that framework, and it follows that we adjust our epistemological stance and methodological approaches to deal with the box. Complexity thinking eliminates the said box and engages with creativity and design from the get-go. Change has been upon us, within the defense establishments and beyond, encompassing all domains in the security environment. There is no "independent action" or hierarchy in conflict. Our minds need adjust to this already existing ontology. Creating the battle environment continuum continuously re-emerging frees us to think about the ways to acquire knowledge and engage with the proper set of tools.

Structure and process work inherently together, and the hallmark of any defense environment is to have a strong and sturdy arrangement. In the context of change, experience demonstrates that inertia and resistance is strong unless it is backed by the people enacting it every day. Hence, introducing structural and procedural change begins by educating people and building the intellectual capacity to incorporate, think, analyze, and create change. This process of education is inherently complex and unpredictable. Hence, doctrinal solutions cannot be forced fed, but rather harnessed through the incremental integration of knowledge.

Accepting change as the endless journey of emergences is a colossal undertaking. It challenges the very core of our collective and individual beliefs about reality and the ways to know. Systems thinking creates the intellectual space where change is the norm and status quo is non-existent. Shifting our gaze to include non-linearity and emergence, we conceptualize the contemporary battle environment made of multiple interacting systems, of which the military is but one. Understanding, analyzing, planning, and acting within this complex environment requires an open-minded generation of leaders capable of integrating complexity as the norm.

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Endnotes

1. Jean G. Boulton, Peter M. Allen, and Cliff Bowman, *Embracing Complexity: Strategic Perspectives for an Age of Turbulence*, 1st ed. (Oxford: Oxford University Press, 2015), 123.
2. "War is socially sanctioned violence to achieve a political purpose. War can result from the failure of states to resolve their disputes by diplomatic means." U.S. Joint Chiefs of Staff, "Joint Publication 1, Doctrine for the Armed Forces of the United States", 2017, ix.
3. Mission command is the conduct of military operations through decentralized execution based upon mission-type orders.
4. "Joint operations are military actions conducted by joint forces and those service forces employed in specified command relationships with each other, which of themselves do not establish joint forces. A joint force is one composed of significant elements, assigned or attached, of two or more Military Departments operating under a single joint force commander,..." U.S. Joint Chiefs of Staff, "Joint Operations (3-0)", 2018, p. ix.
5. Newtonian reductionism relates to the mechanistic knowledge of the whole by understanding its parts.
6. A system is deemed "complicated" when, regardless of the number of components and sophistication of tasks, it can be analyzed by reduction or analysis of the component parts (e.g., an engine). In contrast, a complex system cannot be reduced to the sum of its parts (e.g., mayonnaise – one cannot deconstruct mayonnaise to its component parts). Hence the dictum, "the whole is more than the sum of its parts."
7. This is a clausewitzian view of war. There are variations on the theme (e.g., Charles Tilly, Max Weber, etc.), they all reach back to the anarchical nature of the international system or the absence of a supranational authority to regulate violence.
8. For more on change at the international level and the concept of "Grotian Moment," see Michael P. Scharf, "How the War against ISIS Changed International Law," *Case Western Reserve Journal of International Law* 48, no. 1–2 (2016): 15–67.
9. Preventive war is an attack launched to defeat a potential opponent and is an act of aggression violating international law. Not to confuse with preemptive war. See Matthew J. Flynn, *First Strike: Preemptive War in Modern History* (New York: Routledge, 2008).
10. Paul Blakesley et al., "Systemic Operational Design: An Introduction" (Fort Leavenworth, Kansas, School of Advanced Military Studies, 2005).
11. War nexus means the coordinated and uncoordinated meeting of different domains (military, economy, diplomacy, information etc.). All these domains, or systems, operate within the complex war environment. Hence, nonlinearity, unpredictability and feedback loops create "becoming", or emergence, rather than decisive finality.
12. Manabrata Guha, *Reimagining War in the Twenty-first Century: From Clausewitz to Network-Centric Warfare*, 1st edition (Abingdon: Routledge, 2010), 6.

13. J. L. Schley, "Some Notes on the World War," *The Military Engineer* 21, no. 115 (1929): 55–68.
14. The current pandemic is a significant example. Largely viewed as an exception, the return to "normal" is part of the common discourse, https://www.voanews.com/covid-19-pandemic/many-americans-anxious-about-returning-normal-after-pandemic. Yet, there are conversations about a path forward, https://www.weforum.org/agenda/2020/04/covid-19-three-horizons-framework/.
15. Paul Cilliers, *Complexity and Postmodernism: Understanding Complex Systems*, 1st ed. (London; New York: Routledge, 1998), 4.
16. Brian Greene, *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory*, 2nd ed. (New York, London: W. W. Norton & Company, 2010), 117-131.
17. From the tactical level battle procedure to the operational planning process, the objective is to eliminate uncertainty and risk while maneuvering resources to achieve the end-state. Lack of absolute knowledge creating the residual uncertainty at the onset of an operation is integrated as the Commander's flair or intuition (committing the reserves in battle is one known moment).
18. US Joint Chiefs of Staff (JP-1) op. cit., II-8.
19. Regardless of size, complex systems have the following main characteristics: 1:They consist of a large number of interacting elements rendering the understanding of the system difficult; 2: Interactions are non-linear in that the outcome of the interaction is unpredictable; 3: Interactions lead to feedback loops acting on the system; 4: Complex systems are open as they interact with their environment (hence the importance to define the environment); 5: Complex systems operate far from equilibrium, i.e. change in the modus operandum; 6: The historical context of the complex systems is determinant for understanding the current status.
20. Melanie Mitchell, *Complexity: A Guided Tour*, 1st ed. (Oxford University Press, 2009), 13.
21. Marinus Era Novum, "Marine Corps Maneuver Warfare: The Historical Context," *Marine Corps Gazette*, 2020, September edition.
22. Alan Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," *International Security* 17, no. 3 (1992): 59-90, https://doi.org/10.2307/2539130.
23. Col John Boyd (1927-1997), pilot in the United States Air Force and strategist, generally known for the "Boyd Cycle" or OODA (Orient-Observe-Decide-Act) loop and the idea that the essence of victory lies in the capacity to enter the opponent's decision cycle. For more, see Frans P. B. Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*, 1st ed. (Cheltenham: Routledge, 2006).

24. Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, Critical War Studies ; v. 1 (New York: Columbia University Press, 2009). "Chaoplexity refers to the amalgamation of chaos and complexity."
25. Michael C. Jackson, *Critical Systems Thinking and the Management of Complexity*, 1st ed. (Hoboken, NJ: Wiley, 2019).
26. The author integrates complexity to its undergraduate course curricula. It proves highly effective.
27. M. G. Piety, *Ways of Knowing: Kierkegaard's Pluralist Epistemology* (Waco, Texas: Baylor University Press, 2010).
28. Simon Bernard, Ben Zweibelson, and Aaron P. Jackson, "Teachers, Leave Them Kids Alone: Debating Two Approaches for Design Education in Military Organizations," *The Blue Knight* (January 2018), https://www.cmrsj-rmcsj.forces.gc.ca/cb-bk/esse/2018/e2/e2-eng.asp?idpage=6.

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Authority and Military Command: Reflection on the Challenges Military Academies Face in Today's Profound Social and Cultural Changes

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Abstract: This paper aims to reflect on the training and education of officer-cadets in military academies, taking note of a societal trend observed by the vast longitudinal statistical study World Value Survey, conducted by the American political scientist Ronald Inglehart and his research team.[1] Throughout the west, we have observed a shift away from deference to all forms of external authority. Younger generations are increasingly critical of any form of relationship or organizational structure in which unequal relationships dominate and are more reluctant to join organizations in which they do not retain full control over all decisions affecting them and their immediate environment. How will military academies in the future adapt to this new social reality? How to bring young men and women to acquire and develop certain values that are central to the officer profession or to the armed forces in general, but that are on a sharp decline in civil society in which they have yet been socialized before their enrollment? This paper offers some reflections on this topic by focusing on three specific challenges. First, it attempts to show how learning to obey, as a necessary step in the learning of command, may represent a particular challenge for future officer cadets. Second, it will discuss the negative impact that this social trend will have on the necessary bond of trust with the military leadership. Third, it aims to demonstrate that this social trend risks affecting the sense of service, an essential element of military commitment for all officers. Finally, it outlines a solution to address these three challenges in the form of preparatory training dedicated to the military command system.

Keywords: Officer Training; Officer Profession, Command; Authority; Obedience; Officer Education; Civil-military Relations, Military Academy.

Introduction

Military academies train young men and women in the art of command and military sciences so that they can fulfill their duties and responsibilities as officers in the armed forces after graduation. These institutions offer comprehensive programs that include post-secondary education (most often leading to a university degree), leadership training, physical education, and character education. The leadership training inevitably includes a period of initial training, of varying length, during which officer-cadets are subjected to a strict disciplinary program, following a pedagogical approach widely accepted in military institutions around the world: before learning to command, one must learn to obey. Learning to obey is an essential element in the familiarization of cadets with the unique nature of the military's system of authority, which differs in many respects from those governing civilian institutions in which they have evolved before donning the uniform. This learning process is generally a difficult one for cadets.

Major societal trends in western liberal societies suggest that this learning of authority

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may pose an additional challenge for future generations of officer-cadets. Inglehart has highlighted in his vast longitudinal statistical study *World Value Survey*, that we are witnessing everywhere in the west a transition from a society dominated by "survival values" to a society where the values of "self-expression" prevail. One of the major components of this new set of values is "a shift away from deference to all forms of external authority."[2] Authority figures, whatever the context, no longer exercise, especially with younger generations, the same symbolic power that they did in the past. In other words, the notion of authority and the system of representation and symbolic control that accompanies it no longer feed the same charge today, as they are more and more questioned in a way never seen before. In addition to this, Inglehart and his team observed another trend that is not without consequence for the military institution, which is that of the "sharp decline in the willingness to fight for one's country,"[3] notably, once again, among younger generations throughout the west. It is thus clear that contemporary western societies are going through a crisis of values, the magnitude of which, one could argue, is comparable, with that which marked the turbulent 1960s. Several values essential to the proper functioning of any system of military authority, such as obedience, conformity to certain common values, self-sacrifice, loyalty to the institution, a sense of service or duty, etc., appears to be in sharp decline everywhere in the west within civil society.

Our intention is not here to condemn this social phenomenon by recalling how much better things were before our time. It is only to take note of this new reality and to reflect on its impact on the training offered by military academies. One would be naive to think that these major societal trends will have no effect on these institutions in the coming years. Although the military forms an ecosystem that operates largely at the margins of society, it continues to be influenced by societal trends affecting the latter, if not primarily, then indirectly, through the candidates it welcomes into its rank, as they are recruited from civil society, and thus invariably modify the social composition of the armed forces. Military academies must take the full measure of these trends to better understand the candidates they train and educate. Thus, how to bring young men and women to acquire and develop certain values that are central to the officer profession or to the armed forces in general, but that are on a sharp decline in civil society in which they have yet been socialized before their enrollment?

This paper aims to reflect on the training and education of officer-cadets in military academies. It intends to reflect on the nature of this training and education and the values that are specific to it, and about the dominant values in western civil society, taking note of the growing gap that exists between these two sets of values. The present reflection is based on the findings of Inglehart in his World Value Survey. Our reflection will deal only with the question of the current erosion of authority in society and will leave aside the other question, just as relevant, which concerns the decline of the will to defend one's country; being a complex question, it would deserve a separate treatment. In addition, this paper does not aim to reflect on the impact of these societal changes on the profession of arms as a whole, but more precisely and modestly, on military academies and officer-

cadets alone. Our reflection will focus on three distinct challenges. First, we will attempt to show how the respect of obedience, as a necessary step in the learning of command, may represent a particular challenge for future officer cadets. Second, we will look at the negative impact that the erosion of authority will have on the inevitable bond of trust that must exist between the officer-cadet and the military leadership. Third, we will show that the erosion of authority risks affecting the sense of service, an essential element of military commitment for any officer. Finally, a possible solution to address these challenges in the form of preparatory training dedicated to the military command system will be outlined.

The Erosion of Authority in Contemporary Western Societies

Allow me to evoke here a personal experience I recently had in two classes of first-year officer-cadets to whom I have the privilege of teaching at the Royal Military College Saint-Jean, as a testimony to the erosion of authority that is currently affecting western society. In an introduction course to philosophy, I asked my students to write an argumentative dissertation on the general theme of command and leadership. They were asked to reflect on the profession of officer and on the essential qualities required to exercise military command. These thirty students, whose average age is around seventeen or eighteen, had only been at the military academy a few weeks. Their integration to military life was still relatively superficial. In this sense, we can say that they were still, in terms of values, lifestyle, and ways of understanding the world, essentially the product of their environment, that is, that of civil society, in which they have grown up and been socialized until now—here with all of them coming from francophone Québec. The reading of these dissertations, all produced individually and without consultation with their classmates, revealed a unanimous conception of command and leadership: to be a good leader, one must listen to their subordinates. In none of these essays did we find the idea that the art of command could mobilize a certain type of decision-making skill, that it relates to a specific type of power relations, that it could be linked to certain duties and responsibilities, etc. No reference, even minimal, or even allusive, to the idea of authority emerged from these essays. In the eyes of these first-year cadets, the most important thing to be a good commanding officer is to listen to your subordinates. These responses suggest not some specific conception of authority, but rather, problematically in my view, the very absence of any conception of authority altogether. However anecdotal it may seem, this personal experience nevertheless coincides largely on a broader level with a strong societal trend, revealed through larger sociological studies.

In this paper and for the sake of this discussion, we understand authority (or "domination, herrschaft), following Max Weber's definition as "any chance that an individual has to find determinable persons ready to obey an order of determined content."[4] In other words, one person has authority over another if they can give "order" to them. Weber distinguished three distinct forms of authority, which refer to three distinct sources of legitimacy, the last two of which can be mobilized by officers in their leadership. The traditional form is based on respect for customs and traditions. Carried by the power of

tradition, a person embodying it thus finds themselves exercising over others a certain form of authority. The legal form derives its source from the institutional structure on which it is based. In the military institution, it is articulated in the form of the legitimate authority granted to the officer, holder of a commission, to exercise authority over the troops and subordinate officers. In this case, authority is embedded in a rigid structure, around the chain of command. Finally, the third form is rooted in the personality traits of the person in authority. In addition to deriving their power from the authority granted to them by the military structure, of which rank is the most visible illustration, officers can also exercise influence through the charisma they can display in their relations with their subordinates. Candidates who enter the military academy must be trained to be able, once they receive their commission, to exercise, through their command, a form of authority, by relying both on the legal framework of the military command structure, as well as on certain personal provisions.

Inglehart has been leading a sociological study of unprecedented scope for more than thirty years. The World Value Survey tracks, through surveys conducted in more than 100 countries containing over 90 percent of the world's population, certain societal trends affecting large population groups. Among the trends emerging from these data is the fact that in western societies (United States, Canada, France, Germany, Italy, Spain, U.K., etc.), we currently observe a transition between two dominant value models. The "self-expression" values are now tending to supplant those hitherto associated with what is known as "survival" values. This tendency seems even more pronounced among younger generations, where this new set of values appears to be largely dominant. The transition in values translates into a shift in child-rearing values, from emphasis on hard work toward emphasis on imagination and tolerance as important values to teach a child. Societies that rank high on self-expression values tend to have an environment of trust and tolerance, in which people place a relatively high value on individual freedom and have activist political orientations.[5]

But this is also accompanied by another phenomenon, this one more worrying from a military point of view, namely a "shift away from deference to all forms of external authority." This is explained by the fact that submission to authority has high costs: an individual's personal goals must be subordinate to those of others. Under conditions of insecurity, people are willing to do so. Under threat of invasion, civil war, or economic collapse, people tend to seek strong authority figures who can protect them from danger. Conversely, prosperity and security are conducive to tolerance of diversity and rising demands to have a say in what happens to them.[6]

Younger generations are increasingly critical of any form of relationship or organizational structure in which unequal relationships dominate. They are more and more reluctant to become members of organizations in which they do not retain full control over all decisions affecting them and their immediate environment. In his studies, Inglehart is not particularly interested in the military. However, we believe that his research

constitutes a solid starting point for reflecting on the impact that these societal trends can have on the military institution, and on military academies, in the manner of the overall approach carried out by researchers before us interested in civil-military relations, such as sociologists Charles C. Moskos, Morris Janowitz, or Bernard Boëne,and others.[7] To our knowledge, the trends observed by the World Value Survey have not yet led to the reflection we propose here.

This erosion of authority identified through the World Value Survey tool largely coincides with other phenomena observed throughout the west that confirm this trend in several areas. On the political level, this is observable in the current crisis of representative democracy, which can be seen in a decreasing voter turnout,[8] a growing distrust of political institutions and of public office holders,[9] as well as a decline of traditional political parties everywhere in the west, etc.[10] This erosion also partly explains the growing influence of some populist political figures who paradoxically openly claim a certain authoritarianism.[11] But this demise of authority can also be seen in public institutions, mainly in school, that institution with which young people have had the most contact since their childhood.[12] Today, throughout the west, at all academic levels, the relationship between teacher and student is increasingly characterized by a desire to attenuate authority markers that underlies it. The learner-centered approach, an increasingly dominant approach throughout the school, at all school cycles, but in particular from secondary school, has the effect of redefining the relationship between learner and teacher around a more egalitarian mode less marked by traditional authority markers (teacher as an expert, teacher as a dispenser of knowledge, respect for instructions, etc.).[13] In pointing out this phenomenon, it is not our intention to engage here in a debate on the educational virtues of this new pedagogical approach—whose effectiveness seems amply demonstrated in studies[14]—but simply to underline how much it affects the way in which young people are familiarized with authority at school.

Although widespread and multifaceted, the dangers of this erosion of authority should not be overstated. This societal transition to new dominant values is probably not so great as to lead to a collapse of our public or political institutions. Just as these institutions of the 1960s were able to withstand the social pressures of that decade, with perhaps sometimes significant adjustments, so too can our institutions, including our armed forces, be expected to be able to adapt to the new dominant values. That said, we believe that this crisis is sufficiently perceptible in an institution in which authority occupies such a central place as in the armed forces. No other institution in liberal democratic societies is permeated by the principle of authority than the military institution, which takes a particular form, that of "military command." This hierarchical, relatively rigid, and all-encompassing authority structure has historically proven to be the most effective system for conducting military operations, particularly on a large scale in the context of armed conflict, the ultimate raison d'être of any military institution. But there is no reason to believe that this system should be abandoned. The challenge facing military academies is thus how to get officer-cadets to appropriate this unique system of authority, as they join the military academy.

Learning to Obey and Command

In the past, officer-cadets who entered military academies all came with some idea of what authority is. Schooled in institutions in which a certain form of authority was deployed, with the teacher as the main figure, they were socialized in a way to show deference to external authority, recognizing that it confers on certain people a type of power, sometimes real, sometimes symbolic, to which we must consent. They were also aware that all systems of authority are based on a relationship of relative inequality among members of the same organization, precisely according to the place and role of each one in this system, and that accordingly, some people have precedence over others, and might also enjoy privileges not granted to all. They also knew that the counterpart is that authority always comes with responsibilities and a level of accountability, in terms of decision-making, personnel management, administration of disciplinary measures, etc. Finally, they had integrated the idea that authority granted to people comes with precise limits, which prevent them abusing it. Perhaps they had also been able to experience authority in other organizations. The authority found in the school, in the sports club, in the social club, etc. was certainly of a different type, sometimes even of a very different one, than the one deployed within the military institution, but it was based on the same universal principle. The young man and woman who entered the military academy until recently had already integrated this notion. All that remained was to familiarize themselves with the unique form it takes within the military institution. The situation will be different in the years to come.

The erosion of authority, which can be observed everywhere in western liberal societies, is likely to result in a greater integration challenge for future cohorts of young men and woman who will enter military academies in three different ways. Let us discuss them, in turn, before outlining a possible solution for these challenges.

First Challenge: Learning Authority in the Military Context

First, future generations of cadets will be faced with the challenge not only to have to learn about the form authority takes in the military, but more fundamentally in a sense, what authority is all about. If integration to the military academy has always been a challenge for cadets, particularly because of the demanding training through which it is delivered in its initial phase, one can easily imagine how much more difficult this integration will be for cadets in the coming years. This may increase the failure rate and reduce the retention rate in general. While candidates who join military academies throughout the west today do so voluntarily, the retention rate, particularly in the early stages of their training process, is contingent upon maintaining a sufficiently high degree of commitment and willingness to continue on this path, even when faced with difficult challenges, hence the importance of this reflection on the impact of this social trend on cadet training.

Distinct in many respects from any other civil institution, notably because of its unique organizational culture, its somewhat "strange" rituals from a civilian point of view, the professional requirements imposed on their members, etc., the military institution is even more distinct because of the singular nature of its system of authority. The military

command unfolds as a system marked by a rigid hierarchy, of which ranks are the most visible external manifestation, which assigns each member, soldier, non-commissioned member, and officer to a precise place and role within a complex organizational structure, to which nothing is left to chance. In addition, this system is based on a very centralized planning and decision-making process, with minimal input from the lower echelons of the hierarchy and with a top-down execution. Over time, this system has been able to adapt and the type of authority which today structure the relationship, for example, between an officer and their troops in the current western armies, is very different from that which prevailed in any nineteenth-century European army. Recently, with operational experience in theatres dominated with hybrid warfare and driven by a new mission-oriented command approach, we have witnessed a tendency in most western militaries toward a certain loosening of this system, which translates into granting greater freedom of action and decision to officers, at every level, and even to some non-commissioned members.[15] But, despite this new tendency, and in comparison, with the mode of operation that prevails in any civilian institution, the military system of authority continues to display a undeniable high degree of centralization and a relatively rigid hierarchy. Furthermore, military command is an encompassing system, in that it imposes itself to service men and women well beyond the contractual framework of their professional activities, encompassing a good respect the whole of their person. Military command can decline itself in different ways depending on the sub military culture of each element (Air Force, Navy, Army, Special Forces). Nevertheless, beyond these differences, it presents a character that clearly distinguishes it from any type of system of authority prevailing in civil society.

We are thus inclined to think that officer-cadets who will integrate military academies in the coming years will be more likely to question this system and the real and symbolic power through which it deploys itself. These critiques might not always aim at questioning its legitimacy—although it is also possible; in this case, one may be tempted to say that the profession of arms might not be the right choice for individuals expressing such critique—, but be simply the expression of a deep misunderstanding of the very idea of authority itself. Military academies must recognize this if they are to find the best way to teach them about authority in its military form.

Second Challenge: The Necessary Bond of Trust

The second challenge facing future cohorts of young men and women entering the military academies will be one of trust with the military leadership. Any form of learning, regardless of the type of learning and the nature of the institution offering it, always requires the existence and the maintenance of a solid bond of trust between the educator and the student (or between a "teacher" and their "pupil"). The student must have confidence that the person who oversees their education is competent and therefore masters not only of the subject matter they are transmitting, but also the most effective pedagogical techniques to achieve it. In the same sense, the student must also maintain a similar bond of trust with the institution in which this teaching is conducted. He or she must also have confidence

that their educator truly cares about their education. If this bond of trust is broken, the whole learning process becomes impossible. In practice, the strength of such a bond of trust is visible, for example, in the fact that the teacher can sometimes require the student to perform certain demanding tasks or learning exercises, whether on a physical, intellectual, or even psychological level, the purpose or pedagogical objective of which can sometimes escape the student engaged in such activity—only for them to realize later, sometimes even only much later, the full meaning of it. A student will only agree to submit to such a program if they have confidence in the authority figures in charge of their education.

In the military academy, such a bond of trust between the military staff and officer-cadets takes on an even stronger meaning, due to the particularly demanding nature of its training program. Thus, for example, cadets may only agree to undertake the physically demanding challenge, to support the inevitable psychological strain and the many unavoidable hardships and privations that come with any military training, if they have sufficient confidence that what is required of them is justified. Other mechanisms may also come into play here, such as the weight of tradition. Indeed, cadets are all the more inclined to perform demanding tasks knowing that generations of cadets before them have submitted to such a program. Another of these mechanisms is the sense of accomplishment. Most cadets derive a certain pride and a source of personal motivation from passing demanding tests, driven by the conviction that what is required of them is precisely not within the reach of all. Furthermore, serving in the military in the service of the country's defense is perceived by many cadets as a noble task, for which certain sacrifices are amply justified. Tradition, a sense of self-accomplishment, and service to one's country in the military undoubtedly play an essential role in the motivation of a cadet to submit to a demanding training program such as those offered at military academies. However, more fundamentally, we believe that the maintenance of a solid bond of trust with military authority figures is fundamental. It is this bond of trust that risks being undermined in the coming years with the erosion of the general notion of authority in society.

In addition, if this bond of trust between the military instructor and officer-cadet must be strong, it is also due to the singular objective of the educational program provided at the military academy, which is to train in the art of command. As mentioned in the introduction of this paper, learning to command requires first learning to obey. The erosion of authority that can be seen everywhere in the west will probably not result in the eradication of all forms of obedience within the educational institutions attended by young people. In schools, some form of obedience will continue to be required from students, if only minimally, in the form of a code of conduct through which schools can maintain an environment conducive to student learning. We can thus assume that cadets who will attend military academies in the future will know, at least minimally, what obedience to such a code is, despite the erosion of the idea of authority in general. However, in the military academy, obedience required by cadets is not only to ensure an environment conducive to learning—although it obviously contributes to it—but it also represents a learning objective in itself. Learning to obey has a much stronger meaning in this context,

as evidenced by the strict disciplinary code imposed on cadets, than what can be seen in civilian schools. This educational objective will certainly need to be well understood by cohorts of future cadets if they are to adhere to it.

Third Challenge: Military Service

Finally, the third and last challenge awaiting officer-cadets in the years to come concerns the nature of the commitment required of them in joining the academy, that of military service. Active military service imposes on all military personnel, regardless of rank or position, a form of commitment to the armed forces that has few equivalents in civil society, except perhaps in some religious institutions, such as the Catholic church, for priests and other clergy. Active service implies, among other things, giving up control to the military hierarchy over several aspects affecting not only one's professional life (e.g., choice of assignment, position, career paths, etc.), but also in many respects one's personal life (e.g., service during extended hours, on weekends or evenings, being away from one's family for extended periods of time, respecting a certain code of conduct involving, among other things, the requirement to have a regulation haircut, etc.). Being in the military is more than just a job; it is a "calling." as it is based on a comprehensive organizational commitment.[16] It is easy to imagine how generations of cadets entering the military academy in the future may be more reluctant to embrace the profession of arms as the values of self-expression, including the idea of strong personal control over all aspects of one's life, become more prevalent in society.

In the case of generations of officers who will graduate from military academies, in addition to the challenges posed by active military service, come important professional responsibilities that are related to the exercise of military command. It is one thing to submit to a system of authority in a "passive" manner, so to speak, being placed in a subordinate position under a figure of authority—a position in which, for example, cadets find themselves at the military academy—it is quite another to be in a position of command and to exercise "active" military authority over subordinates—a position in which cadets will find themselves after graduation. In other words, it is one thing to learn to obey, another to learn to command. Young officers will then have to take full measure of the roles and responsibilities awaiting them as figures of authority themselves within the military command system, which they will have to assume entirely and from which they will not be able to relinquish, even partially or momentarily, as long as they remain on active duty. Accepting such a role certainly implies significant personal sacrifices and sometimes putting the organization's goals ahead of personal ones. It will also mean accepting, for the good of the organization and when required, to "impose" control over many aspects of their subordinates' lives. It is likely that many of these subordinates will exhibit the same resistance to show deference to external authority as discussed in this paper, making the exercise of command the more difficult. It will also involve assuming virtually unlimited accountability. In the military authority structure, the officer is fully accountable for all his or her decisions, including the potentially bad ones that may sometimes be made. To

appreciate the full extent of this responsibility, it must be remembered that it includes, for some officers assigned to tactical units, the exercise of command in theatres of war where decisions may unfortunately involve life and death. In receiving their commissions as officers, graduates of military academies will also have to accept the social status associated with being an officer. This will require of them to be attentive to their troops, but at the same time to be able to maintain a symbolic distance with them, as one of the devices of the officer's authority. In a society in which there is a strong desire to erase all markers of inequality, this may represent a real challenge for many future officers.

More broadly, in order to live up to the responsibilities entrusted to them, officer will need to accept not only the validity of the system of military authority, as well as their role and place within it, but also more fundamentally, they will need to maintain a strong confidence in the idea that it represents the most appropriate management system for an organization such as the armed forces, given its particular core mandate. This should never translate into a "blind" confidence in the institution or the military hierarchy. Every officer will only be able to serve the armed forces well and thus truly contribute as a central actor in the military decision-making process, at all levels of command that they may occupy throughout their career, if they demonstrate their constant capacity to use critical thinking. However, their degree of trust toward the military institution and its singular system of authority will need to be solid, given the inevitable doubts that will arise about this system and the chain of command over the course of a military career. This confidence will all the more easily be sustained if the officer is, in turn, fully convinced that the chain of command will always be present to support them as active figures of authority themselves.

A Possible Solution: Initial Training Dedicated to the Military Command System

How should military academies respond to these three challenges? What solutions are available to them? One such avenue would be for military academies to provide cadets with a specific preparatory program that will aim to familiarize them in a theoretical and non-engaging perspective with military command, as the preferred mode of organization and management of the military institution. In our view such a program would align well with the approach that tends to gain prominence in most military academies in recent years that aims at the development of critical thinking skills in officer-cadets, rooted in a broad general knowledge. Academies could provide this training to cadets right upon their admission and before being actually "caught up" in this system of authority while beginning their professional military training. In this way, it would be a matter of making explicit, and exposing to open discussion, reflection, and critique, what in the past had essentially been an informal and implicitly integrated learning process for cadets entering the military academy. Until now, learning about military command was not followed by any prior training, as it was learned, so to speak, "on the job", first and foremost under the command of the drill sergeant. It may be useful for this training to mobilize the resources of social sciences, to explain not only the actual functioning of this system, but

also its history, the principles that underlie it, and its validity, in order to show how it still represents the most appropriate management system for an organization such as the armed forces, given its particular core mandate. We believe that only once the legitimacy of the principles underlying the command system is well founded, can cadets then be led to learn the roles and responsibilities of an officer in that system, which certainly includes understanding how to exercise initiative, creativity, and critical thinking as essential elements of the functioning of that system. Awareness of the inevitable tension between obeying and taking initiative is only possible if the overall military system of authority is first well understood. This type of training could assuredly contribute to a more successful integration of future cohorts of cadets into their new environment.

Such a program would thus better respond to the first challenge of familiarizing cadets with military authority in a way that is more conducive to candidates for whom the very notion of authority is unclear (challenge 1). This program would also contribute to consolidate the bond of trust with the military leadership (challenge 2). The more the cadet understands the system of authority within which this educational relationship takes place, the more likely they are to have confidence in the military leadership that oversees their training. Finally, this initiative would also help to consolidate the notion of service that is at the heart of the unique commitment that binds the officer to the military institution (challenge 3).

Let us use an analogy to describe the meaning of the proposed solution path. Until the 1970s, there was no military morning exercise instituted within the U.S. military, as recruits were generally fit at enrollment. Since then, however, the practice of morning physical training has become more regular and necessary, as the overall fitness level of recruits has greatly decreased over time. The solution we propose here is of the same nature, in that it calls for an initiative by military academies that was unnecessary in the past but is now required to address a significant change in the new cohorts of cadets, in order to continue to fulfill its traditional training objective, which is to train and educate officers capable to occupy the responsibilities which await them within the armed forces upon graduation.[17]

Conclusion

The reader may be led to believe that our analysis is tinged with a certain amount of pessimism and that perhaps we are exaggerating the risk that this societal trend of the decline of authority in general in society actually will pose to military academies in the future. We are confident that these institutions can and will continue to fulfill their training and education responsibilities in the future if they are more responsive to these societal trends. Without sacrificing any of their organizational identity, forged by traditions and know-how that go back generations, an identity that is itself derived from the unique mandate entrusted to them by the armed forces, military academies must nevertheless take the full measure of these social trends, to better understand the candidates they have the mandate to train and educate. There is no doubt that the learning curve for future generations of cadets entering the military academies is likely to be steeper. Western military academies

should take note of this and adapt to this new reality if they want to continue to fulfill their training and education mission: training for officers to prepare them for their first command responsibilities at a junior level, but more fundamentally, to be ready, through further training and education combined with practical experience in units and selection processes, to occupy all the great variety of positions reserved for officers, up to senior military appointments.

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New Directions in Intelligence Education

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Abstract: Although several colleges and universities have established academic programs in intelligence studies and there is an extensive literature on intelligence education, the field remains constrained by an overly narrow understanding of what intelligence is and the range of problems to which it should be applied. We argue that intelligence should be understood as a flexible profession that supports decision-making through forecasting, and that intelligence educators should accordingly prepare students for a wide variety of roles that fall outside the traditional intelligence domain. In doing so, we review the intelligence education literature, identifying several key areas that remain undefined or where a clear consensus has yet to emerge; for example, the extent to which academic intelligence programs should seek to replicate the technical training provided by intelligence services. Furthermore, we identify criminal intelligence, medical intelligence, commercial intelligence, and—especially—information operations as areas in which intelligence educators should invest going forward.

Keywords: Intelligence Education; Intelligence Studies; Intelligence Training; Information Operations; Information Science; Information Warfare.

Introduction

The U.S. military defines intelligence primarily as "the product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations."[1]

This definition is conservative, in that it associates the practice of intelligence mainly with warfare and with foreign countries. In and of itself, this is understandable, given that intelligence has historically evolved as an extension of statecraft and military operations. Nevertheless, this common understanding of intelligence is increasingly outdated, and it fails to account for how much more diverse the intelligence field has become in response to advances in information technology. Therefore, we argue that effectively preparing students to excel in the intelligence field in the twenty-first century requires a significantly broader perspective on what intelligence is and what functions it serves.

As the world evolves toward a globally integrated information society, the practice of intelligence is becoming central to a wide variety of governmental and extra-governmental functions that fall outside the scope of the traditional Intelligence Community (IC). As numerous scholars attest, the emergence of networked computer technology, in conjunction with rapid globalization, has given rise to a world order characterized by cross-national economic, political, and social integration, near-instantaneous communication, global supply chains, and rapid evolution of both cultural and technological forms. This in

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turn transforms the distribution of power on the world stage, with nation-states yielding authority to supranational institutions, multinational corporations, and individuals and social movements empowered by new technologies.[2]

This pivot away from the primacy of the nation-state toward a globally-connected information civilization requires, we believe, a more encompassing definition of intelligence. Fortunately, the Canadian intelligence scholar Alan Breakspear provides a well-thought-out definition that affords intelligence educators a suitable foundation for preparing students to meet these challenges:

"Intelligence is a corporate capability to forecast change in time to do something about it. The capability involves foresight and insight, and is intended to identify impending change, which may be positive, representing opportunity, or negative, representing threat."[3]

The advantage of this definition is that it can be applied across a variety of disciplines and settings and is flexible enough to accommodate both governmental and non-governmental intelligence activities. The urgency of adopting a more comprehensive approach to educating intelligence professionals becomes apparent when we consider that the U.S. and other high-technology democracies are increasingly subject to sustained campaigns of asymmetric and information warfare by multiple actors,[4] in particular the Russian Federation, which possesses what is arguably the most refined information warfare doctrine currently in existence. For Russia, information warfare is inherently holistic, making no delineation between cyber, psychological, and traditional kinetic domains.[5] Furthermore, adversaries around the world are adopting this blended approach based on the success of Russian operations.[6]

This novel state of conflict is characterized by hybrid threats, defined by NATO as those threats combining "military and non-military as well as covert and overt means, including disinformation, cyber-attacks, economic pressure, deployment of irregular armed groups and use of regular forces."[7] Since it is not information technology itself that determines the patterns and outcomes of its own adoption, but rather the underlying institutional and political-cultural fabric of a society,[8] the places where that fabric is frayed (i.e., around divisive or emergent issues) become targets of adversarial information warfare, and therefore necessary subjects of intelligence analysis. Furthermore, if information defense is to reflect the holistic nature of information warfare, then it should be as Waltzmann suggests, "whole-of-nation in character," involving coordination across "national government organizations, military, intelligence community, industry, media, research organizations, academia and citizen organized groups."[9] Expanding the already interdisciplinary purview of intelligence education to reflect this represents one of the most urgent tasks facing the field.

The novel threat environment requires a reorientation in how we understand the context in which intelligence should be practiced and the range of problems to which it should be applied. On the governmental side, there is a growing awareness that such

non-traditional security issues as global public health, transnational migration, and environmental degradation—as well as information warfare—pose very real threats to the national interest, and therefore qualify as legitimate foci of intelligence.[10] At the same time, intelligence methodologies are increasingly being adapted to the needs of private sector actors. In light of these developments, we argue that intelligence education is at present too strongly geared toward the U.S. Intelligence Community and should seek out broader opportunities to apply intelligence skills in the context of a knowledge society. We begin with a brief survey of current literature that explores how intelligence is taught at colleges and universities. We then identify some key areas that we believe require greater attention from intelligence educators. Finally, we conclude by arguing that intelligence should reconceptualize itself as a versatile field that prepares graduates to serve in a variety of roles and sectors. Whether employed in the armed forces, government agencies, or the private sector, this broad approach to intelligence should draw on social science, computer science, and security studies to anticipate trends that threaten the integrity and stability of democratic societies along the widest possible front.

Intelligence Education and Training

Although espionage has been a component of statecraft since ancient times,[11] the emergence of intelligence as a dedicated occupation is a comparatively recent phenomenon, and its development as a formalized profession on par with medicine, law, and architecture remains incomplete.[12] Throughout history, the collection and analysis of strategically valuable intelligence has existed as an extension of a society's overall capacity for managing information.[13] Initially conducted on an ad hoc basis, intelligence has assumed an increasingly specialized character, particularly since World War II.[14] With numerous large and well-funded institutions now employing intelligence specialists working across a variety of subdisciplines, there is a trend toward regarding intelligence as a vocation deserving of its own professional schools. And yet, despite the logical inference that intelligence studies programs should focus on turning out intelligence practitioners in much the same way that engineering schools graduate qualified engineers,[15] realizing this vision has proved complicated, in that the still-provisional status of intelligence as a recognized profession also implies uncertainty about whether intelligence studies should be understood as an academic discipline in its own right or as an interdisciplinary field. Richards argues that there are pros and cons on both sides of this debate, pointing out that it remains unclear whether intelligence studies exists primarily to train intelligence professionals or to act as detached and occasionally critical commentators on intelligence affairs.[16] This in turn has implications for practical questions such as the value of employing veteran intelligence professionals as intelligence educators—a practice which is necessary if the main focus of the discipline is vocational training,[17] but which may introduce issues of bias if the field is seen as requiring distance from the national security organs.

Part of the basis for intelligence studies' failure to emerge as a fully-fledged discipline in its own right can be found in the relationship between intelligence education programs and security studies, with the former generally being treated as an adjunct to the latter.[18] Crosston underscores the price paid when intelligence studies follows too closely in the footsteps of security studies, namely in its propensity to prioritize grand strategic narratives over the cultivation of tools needed to accurately predict the emergence of new threats.[19] Marrin examines intelligence studies from the standpoint of its research output, arguing that the discipline has very little sense of its own history, resulting in a situation where "intelligence scholars seem to be re-inventing the conceptual wheel every 15 years or so without really making advances in terms of disciplinary knowledge."[20] In parallel with the disagreement over fundamental questions of disciplinary identity, a lively debate has emerged over whether intelligence studies programs should focus on imparting theoretical knowledge (intelligence education) or whether they should also provide training in technical competencies such as tradecraft and analysis (intelligence training). The dominant perspective among intelligence scholars tends to be that the discipline should focus on the who, what, and why of intelligence (education), while leaving the how (training) to the agencies that end up hiring their graduates.[21] Coulthart and Crosston take this view, defining intelligence education as an "umbrella term for the process of educating intelligence practitioners and scholars"[22]—a perspective which leaves the door open for technical training, but generally emphasizes conceptual knowledge over operational skills. A key rationale for this education-oriented perspective is the idea that the most important tool that academic institutions can impart to future intelligence professionals is a solid foundation in reasoning and epistemology, and that a focus on tradecraft would detract from that.[23] Furthermore, Landon-Murray points out that whatever position one takes on what precisely an intelligence studies program should look like, it absolutely requires a rigorous grounding in empirical social science methodology.[24]

The voices on the intelligence training side of the debate are fewer in number, but their contributions to intelligence pedagogy are nevertheless substantial. The case for intelligence training in higher education rests in part on research showing that skills like tradecraft and subject matter expertise are precisely the areas in which new IC employees feel the least prepared.[25] Furthermore, there is a compelling argument to be made that experiential learning enhances student comprehension,[26] and that an intelligence curriculum based on a "skills and qualifications framework" lends itself to preparing graduates to rapidly integrate into their professional roles.[27] Naturally, there are also those whose perspective falls between these categories, notably Coulthart and Crosston, who advocate for a blended approach that incorporates elements of technical training into academic instruction.[28] This is complemented by a growing emphasis on developing partnerships between intelligence education programs and intelligence agencies that bridge the education-employment divide.[29] For example, a study of the Intelligence Community Centers of Academic Excellent initiative found that affiliated colleges sent a significant portion of their graduates into professional intelligence work.[30] Furthermore, a proposed Intelligence Officer Training

Corps modelled on ROTC would arguably be in a position to develop candidates that meet desired entry-level knowledge and skill requirements, while preserving the flexibility to major in a wide variety of disciplines relevant to intelligence work.[31] Overall, the proponents of an education-and-training compromise insist that intelligence studies programs must create a smooth transition between academia and professional training by producing graduates who can not only think critically, but also have "the skills to actually produce intel."[32]

New Directions in Intelligence Education

The U.S. Intelligence Community as it emerged in the aftermath of World War II was geared primarily toward strategic challenges posed by foreign governments, and it was only after the end of the Cold War that it came to prioritize a wider array of threats arising from newly empowered nonstate actors, with the shock of the 9/11 attacks driving home the need to take seriously the problem of transnational terrorism.[33] Indeed, this lesson may have been learned a bit too well, giving rise to a situation where the topic of terrorism is arguably overemphasized in intelligence curricula.[34] This focus on terrorism in turn highlighted the need for greater integration between intelligence and law enforcement to combat asymmetric threats, creating an opening for developing the parallel field of criminal intelligence. Bringing crime to the fore is important, because not only are terrorism and insurgency crimes, but highly organized forms of crime can also rise to a level that approximates insurgency,[35] and the lines separating violent extremism from organized crime and organized crime from regular crime can be blurry. At the same time, improvements in how police use information technology are gradually bringing law enforcement closer to the kind of systematic data collection and predictive analysis traditionally associated with strategic intelligence.[36] This trend is reflected in the increasing professionalization of criminal intelligence and its gradual integration into the intelligence mainstream.[37] This in turn should lay the foundation for applying intelligence methodologies to threats that—like most forms of crime—lack the centralized and goal-directed character of nation-states or hierarchical terrorist organizations.

The COVID-19 pandemic has also brought the formerly peripheral field of medical intelligence to the center of conversations on national security, highlighting the need to consider threats posed by natural phenomena such as pathogens, as well as the contributions of such previously obscure agencies such as the National Center for Medical Intelligence.[38] This newfound focus on epidemiology is becoming institutionalized in the IC,[39] and the field of intelligence education should broaden its course offerings accordingly. The same can be said for the growing salience of issues involving environmental degradation, transnational migration, and international civil society.[40]

Much like how the diversification of the intelligence field requires focusing on a wider range of problem sets, it also entails grappling with how intelligence is now being employed by a greater variety of actors than in the past. There is a need for intelligence educators

to devote more attention to the adoption of intelligence methodologies by corporations and other nongovernmental actors. With the preponderance of infrastructure essential to American security resting in private hands,[41] and with multinational corporations emerging on the world stage as highly influential actors in their own right,[42] the question of the extent to which private actors are able to leverage intelligence capabilities to inform their decision-making is far from trivial. Indeed, the growing need in this area has given rise to a corporate intelligence sector composed of companies such as Everbridge,[43] Strategic Forecasting ("Stratfor"),[44] and the Economist Intelligence Unit.[45] There exist several areas where the interests of these private-sector intelligence actors overlap with the traditional IC, such as pharmaceutical production, threats to public health, and cybersecurity concerns, making the education of qualified intelligence professionals prepared to serve in the private sector a question of national security. Nevertheless, existing curricula in this area are significantly underdeveloped.[46]

Our final area for growth in the intelligence education field is information operations (IO), which is increasingly emerging as a discipline separate from, yet adjacent to and intertwined with, intelligence. While both intelligence and IO concern themselves with the role of information in situations characterized by conflict or crisis, they differ in that intelligence concerns itself with the passive understanding of the operational environment, while IO seeks to leverage information as an offensive weapon to alter the information environment for strategic advantage.[47] As indicated earlier, grappling with the threats posed by asymmetric and information warfare promises to be one of the defining security issues of our time. The burgeoning importance of the information domain and the importance of prevailing in future information conflicts is reflected in developments ranging from the decision on the part of the U.S. Air Force to create a career field for information operations officers ("14F") alongside the long-established intelligence officer specialty ("14N")[48] to the establishment of the Global Engagement Center within the Department of State to counteract foreign disinformation.[49] Nevertheless, the vast majority of academic intelligence programs are almost wholly unprepared to meet the emerging need. In the course of doing research for this article, we were struck by the rarity with which the IO problem set is referenced in the intelligence education literature, as well as the spareness of high-quality academic courses addressing the topic. For this reason, we are convinced that expanding course offerings dealing with IO is one of the greatest contributions that intelligence educators could make in the coming years.

A discussion of the scope and structure of an academic program naturally raises questions about cost and revenue. For good or ill, any faculty member proposing a new field of study can certainly expect to have to justify it to their dean, and it is legitimate to ask about the career prospects of intelligence graduates. For this purpose, it would be beneficial to know how many graduates the IC is capable of absorbing into its ranks, but we have found it surprisingly difficult to get hard figures on this point.[50] However, given the breadth of intelligence studies programs already in existence,[51] it seems reasonable to infer that the market for government intelligence jobs is probably close to saturation.

Furthermore, although the IC is receptive to hiring intelligence studies minors, it has shown scant interest in majors.[52] Nevertheless, as we have sought to demonstrate throughout this article, there is ample need for intelligence skills in society at large. For this reason, intelligence studies programs should aim for flexibility and versatility in what they teach, imparting analysis and information management skills that are of value to the IC, but which can also be readily transferred to non-governmental employers, particularly those commercial actors who are increasingly being drawn into intelligence-adjacent realms thanks to the broadening scope of contemporary information warfare. In most cases, this can be accomplished without unusual institutional outlays, although there are some exceptions. For example, IBM i2 Analyst's Notebook certification is a highly sought-after credential both in the IC and elsewhere,[53] but it is very expensive to make the software available to students for training purposes. At our own university, we have found that this cost can be economized if i2 is taught intensively in one designated course specializing in computer-assisted analysis. Furthermore, training on i2 can be supplemented by familiarizing students with other, more affordable suites of intelligence-relevant software, such as ArcGIS.[54] Overall, the ideal approach to intelligence education would be a methodologically intensive minor that introduces students to the intelligence field while complementing majors in other disciplines that are of inherent interest to the IC and similar employers, such as engineering and foreign languages.

Conclusion

Having outlined some areas for intelligence studies to expand its offerings, we conclude with a modest proposal for how to think about educating intelligence professionals and intelligence scholars. In the past, there has been a tendency to conceptualize the intelligence profession narrowly as those competencies required to work for a government intelligence agency, but as we have sought to demonstrate, this definition is overly restrictive for an era characterized by the ubiquity of information. However, reconceptualizing intelligence as an applied form of information science offers us a way forward. In a society awash in data, the information collection, analysis, and forecasting methodologies inherent to intelligence are finding significantly broader application than in the past. At the same time, the volume and speed of information poses unique challenges to producing intelligence, and educators should adjust accordingly. These challenges occur at two levels. First, the weaponization of information by hostile actors requires an understanding of information security in order to "characterize, understand, and forecast cyber-mediated changes in human behavior, social, cultural, and political outcomes."[55] Second, the sheer volume of information, alongside the constant erosion of trust across the cognitive environment, has made the collection, analysis, and forecasting of salient information much more difficult.[56] Intelligence educators must prepare their students to produce intelligence in what is an increasingly complex, dynamic, and contested information environment.

One model for what this might look like in practice can be derived from the growth of "information schools" at various universities.[57] Usually born out of preexisting library science programs where leaders came to see the need to train information professionals able to think outside the confines of the library, information schools take a comprehensive

approach to training students both to utilize information management techniques, as well as to conduct research on the role information plays in society. A particularly relevant concept within this field is information behavior—the totality of human behavior in relation to sources and channels of information,[58] or the process of information seeking, needs and uses (INSU).[59] An understanding of information behavior empowers intelligence analysts to make sense of data relative to their social context, the intentions and biases of information diffusers and receivers, and the cues upon which information is judged and acted upon.[60] Considering that the practice of intelligence is itself an information behavior, this framework is relevant both for overcoming the methodological challenges of the current information environment, as well as detecting and forecasting emerging threats and vulnerabilities related to the social diffusion of information.[61] A model grounded in information sciences provides a natural fit for intelligence studies, since intelligence is fundamentally about leveraging information for strategic advantage.[62]

The value of this approach lies in its acknowledgement that information is central to every function that seeks to safeguard society against emerging threats, and in its implicit recognition that the intelligence profession needs to be understood in the broadest possible terms.

Furthermore, by foregrounding the unique requirements for securing information societies, this approach lays a much needed foundation for training professionals capable of comprehending and innovating in the emerging field of information warfare. It is no longer sufficient simply to identify the skills needed to succeed as an analyst for the CIA or FBI; if it is to secure a place for itself as a recognized discipline, intelligence studies must train its graduates for the challenges of tomorrow rather than those of yesterday.

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Reappraisal of the Korean Military's Core Competences in the Age of the Phono Sapiens

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Abstract: This study explores the characteristics of three core competences that can lead the Phono sapiens generation, which uses smartphones as an extension of their bodies, to become ideal "democratic citizens in uniform" in Korea where the military maintains the conscription system. The democratic citizen concept poses two challenges: first, how the military explains the concept in the conscription system in a way that summons Phono sapiens as soldiers without choice, and second, how the military trains these recruits to be democratic citizens in uniforms. Based on the characteristics of Phono sapiens and the conscription system, we reappraised the three core competences of democratic citizens in uniform: reflection, sympathy, and tolerance (RST). In reflection, soldiers who feel confused when experiencing unfamiliar circumstances can view their situation as a temporary suspension of some of their rights as citizens. In terms of sympathy, which is the reproduction of the experience of another, soldiers realize that they are not accessories to be sacrificed for the army or the nation and thus develop a natural sense of comradeship. Finally, in requiring an other-oriented attitude, tolerance can lead soldiers to respect others' existence. RST competences are not developed separately but are intricately intertwined, and develop Phono sapiens' understanding of the personal liberty of service members while maintain a high degree of combat readiness. The RST competences can help KMA cadets and soldiers representative of Phono sapiens learn how to cultivate leadership skills and democratic values.

Keywords: Reflection; Sympathy; Tolerance; Competence; Democratic Citizens in Uniform; Conscription; Phono Sapiens.

Introduction

The military exists as the guardian of the state and as a legitimate institution for managing violence and using lethal force when necessary. It remains true–and is becoming more apparent–that "the (modern) military profession," as Samuel Huntington argues, "exists to serve the state. To render the highest possible service, the entire profession and the military force which it leads must be constituted as an effective instrument of the state policy."[1] In this regard, it does perceive waging war and increasing expertise or professional knowledge of war as its core function.

To perform its core function, the military endeavors to ensure a high level of discipline, morale, and unity, and to continuously train soldiers to win wars, and to maintain a hierarchical pyramid structure of command and control. In other words, to achieve the highest combat efficiency and ensure invincibility in war, the military emphasizes a sense

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of unity and camaraderie within its hierarchical control system and has a distinct culture. Under these circumstances, soldiers are expected to both obey legal orders and execute seemingly impossible orders during potentially fatal combat missions.

Notwithstanding, it is not beneficial for the military to overemphasize the extraordinary state of war at the national level, particularly in the Korean situation, when it does not produce needless casualties on a massive scale. Moreover, it should avoid regarding itself as "another state within the state": the military does not exist as a specialized and independent society.[2] Only when it exercises its power over personnel and property in accordance with democratic principles (i.e., when it is subject to civilian control) can its almost exclusive control within the chain of command be seen as legitimate.

The present situation in the Republic of Korea (ROK) due to the radical changes brought about by the democratization process has provoked a discussion about a new, or redefined, civil-military relationship in the context of its unique historical, political, and social experience. The current government's Defense Reform 2.0, is an improved version of the Roh Moo-hyun administration's Defense Reform 2020 implemented in 2004. Defense Reform 2.0 aims to create a smaller but smarter military by restructuring and modernizing its armed forces and addressing human rights issues and the service conditions of conscripts.[3] Notably, these changes, which involve reshaping cultural life in the barracks, are not limited to the improvement of soldiers' lifestyle. Furthermore, the Korean Army's modernization project Tigor 4.0 System, which envisions the creation of a smaller but smarter army based on a hyper-connected and artificial intelligence (AI)-driven ground network, should be considered in light of the development and maintenance of interoperability between the U.S. and ROK forces. Within the present demographic and political contexts of Korean society, the changes cannot be reversed.[4] In fact, the building of democratic armed forces was introduced very quickly after a series of reform initiatives, and the culture of the ROK military has been transformed dramatically over the past two decades.

Nevertheless, one of the important issues during this transformation has been the fear—felt not only in the military mind but also in the public realm—that democracy in the military will undermine its combat efficiency. Although the ROK military has recognized that the liberty and individual rights of its service members are important, it has long wished to distance itself from individual rights and democratic value on the grounds that the North Korean military threat remains unchanged but is becoming more serious. This threat calls for special consideration when promoting a democratic culture in the ROK.

With due consideration of various security issues, this paper discusses the future of the ROK military and explores the characteristics of a "democratic citizen in uniform." The idea of a democratic citizen in uniform encompasses two aspects: what it means to be a democratic citizen in the twenty-first century and how the military can support the production of democratic citizens. Before tackling this issue, it is important to understand

the conscription system that has operated in the ROK military since the 1960s, as well as the characteristics of the new generation, which has been dubbed "Phono sapiens," referring to the generation of young people who "use smart phones as an extension of their bodies."[5]

We then reappraise the core competences of democratic citizens in uniform and propose reflection, sympathy, and tolerance (RST) as key competences for Korea Military Academy(KMA)cadets and soldiers representative of Phono sapiens to cultivate. The paper advocates that these three key competences are important factors in determining the future of the democratic Korean Military.[6]

The Conscription System and Phono Sapiens

The term "democratic citizenship education" was introduced in formal educational contexts in the 1960s as a means of earning the Korean government popular support, as well as the support of the U.S., for its anti-communist policy.[7] Subsequently, the democratic movement in the 1970s and 1980s was an expression of the political resistance against the military dictatorship. Park Chung-hee, who took power in a military coup in 1961, declared a constitutional revision in 1973 to grant himself greater political power. Following Park's assassination in 1979, General Chun Doo-hwan seized power and was elected president in 1980. During these periods of military rule the military elites controlled the government bureaucracy and strengthened their rules with compulsory military training and service. As democratic citizenship education became equivalent to radical political education, military leaders were highly critical of the democratic rhetoric, believing that the democratization of the military would weaken its power and threaten national security.

Nowadays, however, the military is looking for ways to maintain a balance between national security and individual rights. For example, the Directive on Human Rights (amended by Act No. 2199 of September 27, 2018) of the Ministry of National Defense (MND) states, "The aim of military human rights education is to make soldiers aware of their rights and responsibilities as citizens in uniform and to spread a barracks culture that respects human rights."[8] This is significant not only in terms of the human rights policy, but also the recognition of human rights as a fundamental principle of the military. In view of MND acts, regulations, and administrative rules and legislative efforts that are underway in the area of soldier education, it is necessary to determine ways to strengthen democratic values in the military going forward and to propose diversity in recruit education.

What is noteworthy in the aforementioned legislative enactments is the scope of "democracy." For example, Administrative Rules Article 188 under the Framework Act on Military Status and Service (amended by Act No. 14609 of March 21, 2017), which governs citizenship education, reads, "The heads of the National Defense Agency, the joint chiefs of staff, and the chief of staff of each service establish a culture of respect for the human rights of the soldiers and eliminate undemocratic abuses while continuing to provide mental education and personalized guidance."[9] The 2019-2023 Comprehensive Plan for Defense Human Rights Policy further highlights that "improving human rights conditions in the

military will contribute to the promotion of invisible combat power."[10] The aforementioned regulatory language conveys the extent to which the MND deems democracy a core element in the creation of combat power.

As a result, the military has begun to reconsider the effectiveness of a coercive control and disconnection from society on conscripted young people. Having been maintained since the establishment of the ROK military, the conscription system is generally seen by young people as a requirement of sacrificing their time and "learning the framework of hierarchy."[11] In the past, complete isolation from society was considered the most effective way to turn young civilians into homogeneous soldiers, so recruits were prohibited from carrying personal belongings with them.

According to the Defense Human Rights Policy however, Korean soldiers are now allowed to use their mobile phones every evening. As *The Economist* observes, this easing of restrictions is "one of the more visible changes in South Korea's armed forces."[12] It also implies that the military has understood the characteristics of Millennials and Generation Z (the MZ generation) and thus allows conscripted soldiers to use their mobile phones in a way that facilitates their adaptation to life in the military. Although the MZ generation, the mobile generation, is a global phenomenon due to the development of digital technology, the Korean MZ generation is "the generation who has experienced the development of the Internet and the use of various app services armed with smartphones with the level of communication network up to 5G."[13]

In Korea, the MZ generation purchases what they want and performs their financial activities and learning through mobile devices. In this study, we regarded mobile technology as the most important factor in determining the tastes and trends of the MZ generation and thus defined them as "Phono sapiens" because they treat smartphones as an extension of their bodies and minds, not just as a means of communication.[14] Given that soldiers in their early 20s account for 70 percent of Korean military organizations, it is essential that the military understand the characteristics of this generation: it is no exaggeration to say that they are all Phono sapiens.[15] It is therefore only natural to have these mobile natives use mobile phones in the context of military human rights issues. As a result, the military's decision to allow soldiers to use their mobile phones in the barracks has had a positive effect on their adaptation to military life.[16]

The ideal goal of democratic civic education in the military is to make Phono sapiens believe that "every citizen has an obligation to serve his country and thereby (gain) an understanding of the role of the military in society and (strengthen) civil-military relations."[17] It should not be a system that deprives individuals of their freedom; rather, it should help people understand the value of democracy and the meaning of individual freedom and responsibility.

Like conscripts, KMA cadets undergo a socialization process through basic training. During the initial five-week training, they learn the values, attitudes, and skills associated

with the army and demonstrate their willingness to commit to public service.[18] The Korean Army has long believed that KMA cadets stand on a different footing to university students, and the KMA thus tends to focus on a disciplinary culture that demands instant and unquestioned obedience to orders. Now, however, it should be not taken for granted that the transition from civilian to military life is the primary goal of the socialization process. In this complicated socialization process, a new approach is needed for young cadets who, as Phono sapiens, are seen as a somewhat different species from previous generations.

This study focuses on the fact that almost 300 cadets who share the characteristics of Phono sapiens serve as second lieutenants across the country each year. This means that they can become empowering leaders and have an important impact on soldiers' daily lives in the barracks: cadets are not only important receivers, but also skillful providers of democratic education. We therefore set different types of democratic civic education for cadets who are required to learn key competences and disseminated them to soldiers, presenting the competences that are important for Phono sapiens in the next section.

Characteristics of the Three Core Competences

Competences are "correlated with performance on the job,"[19] and therefore usually indicate how proficient an individual is in performing that job. The competences discussed in this paper are not the abilities that an individual already possesses but potential abilities that can be acquired through education. For example, if a soldier's ability is "leadership, personal discipline, and physical fitness,"then competences can be defined as the motivation or inspiration that makes them develop these abilities and "continue" to do so.[20]

According to most Korean scholars in the field of citizenship education, there are three key factors of democratic citizenship education and competence in each relevant area (i.e., key competence at an individual level, citizenship competence at civic and social levels, and democratic competence at a democratic level).[21] The necessary competences for a democratic citizen can only be developed from the level of an individual's everyday life, through their community, to a national level. However, as Cho noted, the problem with the implementation of this education program is "the inconsistency in the contents of democratic citizenship education which leads to a lack of coherence and unity in the education program, causing confusion and creating difficulties amongst teachers and program practitioners."[22] This is reflected in the education offered from elementary to high school, where Korean students only participate in student councils, mock voting, mock court trials, parliament tours, and municipal court tours.[23]

Comprehending the difficulties of democratic citizenship education, the KMA designed the SITE Leadership Program, which instills democratic citizenship values in cadets. The program is based on the idea that "every cadet is a leader" and that it is necessary for all cadets to develop and strengthen their leadership skills and competences each year. The SITE program influences how cadets describe themselves as citizens and as soldiers, how they should relate to others, and how they can protect democracy. Simply put, cadets

systematically improve their individual, team, and organizational leadership skills as they go through the program's four leadership training stages. Upon successful completion, cadets advance to the next stage, as shown in Figure 1.

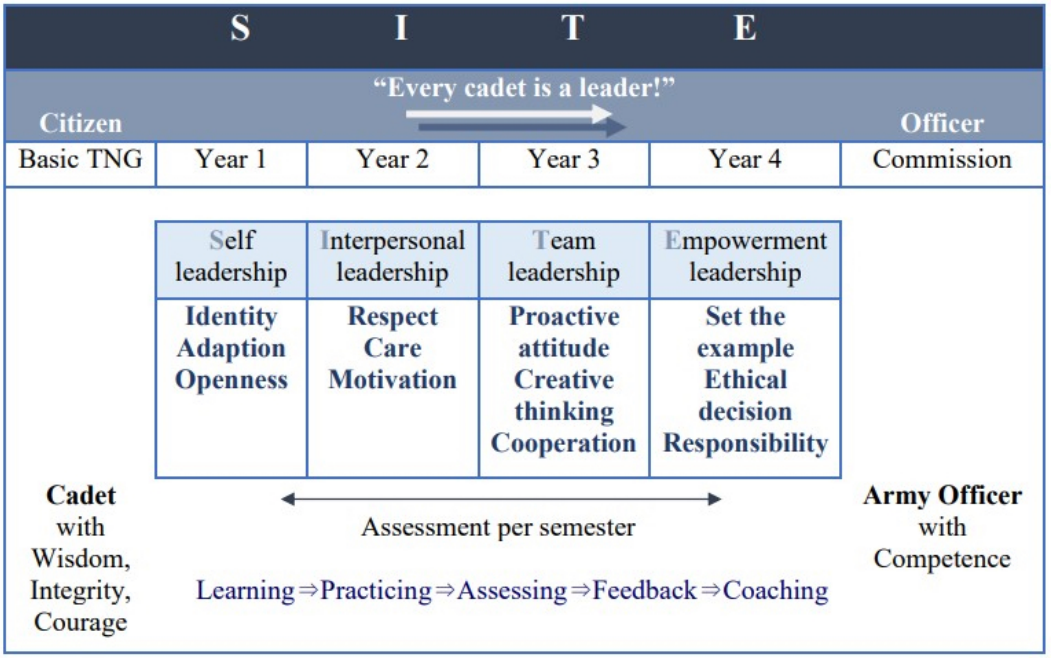

Figure 1: KMA SITE Leadership Program[24]

In the SITE program, the evaluation system of leadership competences was improved through the inclusion of an annual assessment. The main tool chosen for this program over a four-year period was a competence evaluation for all cadets (encompassing their horizontal and vertical relationships) and coaching feedback sessions. Group counseling provided by the Office of Leadership and Character Education three or four times a year provides useful opportunities for cadets to develop their core competences.

The significance of the SITE program is that it incorporates the unique and complex characteristics of South Korea's social and political conditions. Although South Korea is considered one of the most democratic countries in the Asia-Pacific region, Koreans are currently experiencing polarization in terms of income and ideology and face complicated defense and diplomatic issues with respect to security on the Korean Peninsula as well as with the U.S., China, and Japan. Cadets should understand the concept of balanced and rational democracy in these extreme circumstances.

Accordingly, along with necessary traditional virtues, such as loyalty, courage, honor, responsibility, critical thinking, leadership skills, a law-abiding attitude, and a professional ethos, we propose three core competences that will help cadets learn the values that are required of an officer and how they are acquired at each stage of the SITE program. In the

rest of this paper, we explain how these RST competences can help cadets internalize the concept of democratic citizens in uniform and understand why they have to follow the process of the SITE program.

RST competences are not developed separately but are intricately intertwined. Sympathy and tolerance are based on self-understanding through reflection, and tolerance can be described as a state of expanding sympathy to a community level. Reflection, in turn, is based on sympathy and tolerance since self-understanding is achieved through comparisons with others. As such, all three competences are important for cultivating a "democratic citizen in the community." That said, we propose gender awareness education at the KMA as a case model to deal with gender equality issues in the military on a practical level while cultivating democratic citizenship.

By exploring "me" as a citizen and as a soldier, the first core competence, reflection, is one of the most important core competences. Because of the soldiers' special status and the closed environment of the military, it cannot be claimed that the relationship between soldiers and military organizations is the same as that between citizens and states. Soldiers cannot demand freedom and equality.[25] Most of the education in the military therefore centers on the specificity of military organization.

We, however, think it would be ineffective to order Phono sapiens, who value individual activity and freedom, to follow the characteristics of the military unconditionally. Reflection aims to help cadets and soldiers understand their specific situation, so those who feel confused in unfamiliar circumstances can view their situation as a temporary suspension of some of their rights as citizens and not as a state of exclusion and disconnection. Moreover, reflection makes cadets and soldiers recognize what it means to be a leader in their lives and the military. Because reflection can help cadets bring order to a chaotic mind,[26] cadets can develop the self-leadership skills required in the first stage of the SITE program. Above all, cadets and soldiers will be able to understand why they have to fight and become "combat-effective soldiers" through "a military socialization process characterized by strict disciplines and arduous training."[27] They will also learn to control themselves effectively and make more ethical and rational decisions when facing dilemmas.

Based on reflection, gender awareness education should be reappraised as part of human rights education. The current education program for soldiers mainly aims to prevent sexual violence occurring in the military and instructs soldiers what to do and what not to do as a soldier. As a result, on the one hand, cadets and soldiers become bored because they are not convinced of the importance of taking the class on gender awareness. On the other hand, those who have developed the competence to reflect cannot help but think fundamentally about why gender-related issues are relevant in military life. We believe that they understand that gender-related problems like sexual harassment can be caused by a lack of democratic civic consciousness, not by instinctive problems such as sexual desire.

The second core competence, sympathy, can be important in building ethical relationships between soldiers who undertake reflection. We suggest sympathy as the basis for instilling a democratic culture in Phono sapiens as they have to live with others and obey others' orders in military life. Stack Jr. notes that sympathy is "the reproduction of the experience of another, and it is through sympathy that we come to understand others taking us beyond mere self-interest."[28] Simply put, sympathy is a way of understanding others and helps soldiers realize that they are not accessories to be sacrificed for the Army or the nation. If soldiers perceive themselves as independent individuals rather than inferior beings, they will also see other soldiers as deserving of respect and develop a natural sense of comradeship.

Moreover, through sympathy, each soldier can recognize their appropriate role in the military system: superiors establish their leadership, colleagues encourage fellowship, and subordinates practice followship. With camaraderie based on sympathy, the soldier will recognize that all soldiers are connected to one another for a common goal: to safeguard the nation. For cadets, sympathy also is an important factor in establishing interpersonal relationships, so it can help them approach soldiers with different levels of education and of different origins and ages. Tian noted that "they need not only to train the soldiers in battle skills but also to develop subordinates in every aspect of their lives: they become both supervisors and friends of the soldiers."[29] In other words, cadets should be both a commander with authority and a collaborator who helps their subordinates adapt well to the military.

The biggest problem with sex-related education courses like sexual harassment is that people are not interested in the content unless it directly affects them. Sympathy allows them to understand that losing a right like sexual self-determination is linked to losing one's citizenship. In education programs, it is as important to make soldiers sympathize with the risks and pain victims face as it is to convey the message that they should not commit sexual violence. Sympathy for the situations others find themselves in and the pain they experience is a shortcut to preventing sexual violence and can minimize secondary damage.

The third key competence, tolerance, emphasizes a friendly attitude toward society within certain limits.[30] According to Forst, "individuals show respect for diversity by viewing disparate groups as morally and politically equal even though they may differ fundamentally in beliefs, practices, and lifestyles."[31] The most important characteristic of tolerance is accepting that others may be different from oneself in every aspect.[32] Accordingly, while sympathy is the ability to care for others and maintain a sense of camaraderie, tolerance refers to the acknowledgment of the existence of others and the fact that people are different. Tolerance therefore requires an other-oriented attitude. As a result, tolerance is the most difficult competence for Phono sapiens as they tend to focus on "individual happiness, authenticity, self-actualization, and self-sufficiency."[33] Given these characteristics, we believe that tolerance is the most necessary competence to develop in the soldiers of the Phono sapiens generation.

In terms of gender issues, Korea's policy of mandatory military service has become one of the most important sources of gender conflict in the country and its digital space. Park noted that "while Korean middle-aged people consider themselves to be the patriarchs overseeing women, young Korean men see themselves as victims of gender equality policies."[34] This phenomenon stems from the belief that everyone beyond the individual is perceived as a competitor in neoliberal capitalism. In addition, given that the suicide of Korea's first transgender soldier following his discharge from the Army have become subjects of heated debate in the digital sphere in 2021,[35] the transgender issue and military service should be discussed together. These two events appear to deal with completely different aspects, but they are essentially the same. They pose the fundamental question of justice, which is the most important term in modern Korean society, especially among the MZ generation (Phono sapiens).[36] It is significant that digital media has become an important battleground for voicing current debates. When observing or engaging in public debates, the MZ generation, especially young cadets, fail to understand the various principles of justice, such as equity, equality, need, and procedure,[37] so they only argue that competing and winning on the same basis is just. A lack of awareness of others drives people to insist on a twisted form of justice.

Tolerance in the military is not intended to eliminate unity; rather, the aim is to understand that the process through which soldiers feel and realize unity in the military can vary. In other words, in the past, soldiers were forced to become soldiers, but Phono sapiens need various programs to help them adjust to the military while improving their self-efficiency. If the leader is able to give the right orders to each soldier, then the soldiers will feel empowered and contribute to society as democratic citizens. Education that empowers cadets is therefore vitally important as cadets can then help their subordinates feel empowered. It is for this reason that the final stage of leadership training in the SITE program is empowering leadership.

As indicated previously, tolerance is useful in dealing with online and offline hate speech, which is an important issue in gender awareness programs. As the composition of the Cadet Corps becomes diverse and foreign exchanges between military academies increase, the fundamental source of hatred, namely, gender, should be addressed, as should new emerging challenges based on race, national origin, color, disability, and sexual orientation. For example, by exploring the media's portrayal of, and language against, women in our gender awareness program, we can help male cadets accept female cadets as part of their team. Similarly, programs focused on social and cultural tolerance that accurately convey the causes and risks of hate speech to cadets will remind them of the importance of using the right language and help them develop new ways of experiencing camaraderie.

Conclusion

The Korean military has demonstrated its continued interest in fostering the development of soldiers who will defend democracy by introducing the concept of democratic citizens in uniform. To support this, in this paper, we provided recommendations for competence-based programs to develop Phono sapiens' understanding of the personal liberty of service members while maintaining a high degree of combat readiness. The RST competences can help soldiers representative of Phono sapiens learn how to cultivate leadership skills and democratic values. By using reflection, Korean soldiers can establish their own identity as democratic citizens in uniform and develop self-leadership. Based on this, they will be able to feel sympathy and realize how they are connected to one other. They subsequently need to learn tolerance, which will help them recognize that, even if they are connected, they are totally independent beings. Tolerance may in turn lead them to respect the existence of others.

As a result, the characteristics of the key competences of reflection, empathy, and tolerance can help soldiers adapt well to the military and grow into democratic citizens in military uniform. We believe that these competences (summarized in Table 1 in reference to gender awareness education) are appropriate for application in programs for young cadets and soldiers.

Competences		
Category	**Method & Type of Leadership**	**Gender Awareness Education**
Reflection (R)	Exploring oneself, self-leadership	Comprehend the cause of sexual harassment in military
Sympathy (S)	Understanding others, interpersonal leadership	Escape the bystander's position
Tolerance (T)	Accepting others, empowering leadership	Avoid the hate speech

Table 1: RST Competences and Their Application in Gender Awareness Education

In conclusion, as Korea is still a divided country, even after the end of the Cold War, it maintains a conscription system and has complicated defense and diplomatic relations based on the Korea-U.S. alliance. The pros and cons of the RST program, which was designed with due consideration of this unique situation in Korea, can be shared with people engaged in world military education and facilitate the exchange of views.

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Disclaimer: The ideas and viewpoints advanced in this article are those of the authors and do not necessarily reflect the official policy or position of the Korea Military Academy and the Korean Army.

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Squaring the Circle: The Evolution of NATO's Strategic Communication Since the 1990s

Linda Risso

Abstract: This article examines the development of the North Atlantic Treaty Organization's (NATO) approach to strategic communications. It argues that while over the past thirty years the Alliance has produced an effective Strategic Communications (StratCom) institutional framework and set of policies, its dual nature as a military and political multinational organization has prevented the creation of a unified narrative to underpin its strategic communication effort. The article considers key turning points to examine the development of NATO StratCom. It starts with the aerial campaign in Kosovo (1998-1999), which caused unprecedented levels of scrutiny from the western media and public. The process received further impetus following the establishment of International Security Assistance Force (ISAF) in Afghanistan a decade later. The launch of the ISAF Communication Directorate was a huge leap forward at the tactical level. However, it was the occupation of Crimea and the crisis in Ukraine in 2014 that led to a proper coordination of all strategic communication activities across the Alliance in 2017. Today, capability building and the lack of a clear vision and effective narrative continue to affect the Alliance's information effort.

Keywords: NATO; SHAPE; Strategic Communications; ISAF; Kosovo.

Introduction

Before the aerial campaign in Bosnia and Herzegovina in 1995, the North Atlantic Treaty Organization (NATO) did not have a strategic communication policy worthy of its name. Following the engagement in Kosovo (1998-1999), the Alliance carried out a radical review of its communication strategy. The process received further impetus following the establishment of International Security Assistance Force (ISAF) in Afghanistan a decade later. Strategic Communications (StratCom) were formally incorporated into NATO strategy in response to the occupation of Crimea of 2014 and it has been expanding ever since.

Through the analysis of official documents produced at key turning points over the past thirty years, this article examines the development of the Alliance's approach to strategic communication with a particular focus on the attempt to develop an overarching narrative and a coherent framework to deliver effective communication campaigns.

StratCom: A Challenge for NATO

There is no consensus on what strategic communication is or how it should be implemented. It is, however, agreed that successful strategic communication influences

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target audiences sufficiently to cause them to change or maintain their behavior. As a result, an effective approach to strategic communication must be based on the formulation and execution of plans that are coherent with each other and which support the delivery of a defined overarching intent.[1] A successful strategic communication strategy relies on a unified and coherent narrative, which allow the organization to adapt its information programs to different mediums, multiple target audiences, and the changing developing environment without inconsistencies and conflicting messaging.[2] As explained below, the search for a coherent narrative to underpin NATO communication strategy is further complicated by the fact that the Alliance is both a political and military organization that brings together allied and partner nations. It is also challenging because of the competing goals, priorities, and practices of all the parties involved. The political side of the Alliance prioritizes building public trust and support for NATO's goals across multiple audiences and through different mediums, which range from press conferences at the end of high-profile events to daily updates via social media. In this context, political messaging must reinforce a coherent and convincing narrative about NATO's mission and the role of the Alliance in the global security architecture. The military side, on the other hand, focuses primarily on how to integrate communications into strategic planning and operations, at strategic, operational, and tactical levels, and ensures that the message is clear and coherent, and the chain of command is able to oversee its application in all its contexts.[3] Yet, despite all these differences, the two spheres must move in the same direction and have complementary actionable goals. There must be an overarching coherent narrative and vision to bind all the actors together and to drive them in the same direction.

In NATO, the term is used in its plural form: Strategic Communications (StratCom) to reflect the complex nature of the Alliance as a multinational military and political organization that aims to coordinate the information effort of multiple actors and agencies across different sectors. NATO StratCom is defined as "the coordinated and appropriate use of NATO communications activities and capabilities—Public Diplomacy, Public Affairs, Military Public Affairs, Information Operations, and Psychological Operations, as appropriate—in support of Alliance policies, operations and activities, and in order to advance NATO's aims."[4]

Kosovo: A Wake-Up Call

NATO's strategic communication has always aimed to promote of public awareness of the Alliance's objectives as it is believed that a better understanding of what NATO does and how it works would in turn lead to stronger support of its policies, operations, and other activities.

During the Cold War, the NATO Information Service and the NATO Press Office informed the public about the North Atlantic Treaty and the Alliance's collective defense objectives. However, at the time, NATO was not operational. This meant that the primary aim of the information effort was restricted to maintaining public support for the Alliance

and the collective defense effort. NATO's information campaigns reiterated that the Alliance was a political and military association of like-minded nations determined to defend themselves from the Soviet Union and the Warsaw Pact, whose aggressive posture was a threat.[5] Relations with the media did not go beyond press releases and the occasional press conference at the end of high-profile meetings. Crucially, military leaders—both the Military Committee at the NATO Headquarters (HQ) in Brussels and the Command Groups at the operational HQs—were not involved in the information campaigns and never dealt with the media directly.[6] In fact, throughout the Cold War, there was no military strategic communication worth of its name. This reflected a common phenomenon of that era: military authorities in the western nations did not engage with the concept of StratCom and often considered it as something removed from their core duties.[7]

At the time of the Kosovo campaign, the NATO HQ in Brussels opened its gates to the media for the first time.[8] Of course, the operations in Bosnia-Herzegovina a few years earlier had already offered a glimpse of what the transition to operations meant from the point of view of media and public relations. However, the engagement in Bosnia Herzegovina was a limited air campaign, which lasted only a few weeks and did not prepare the NATO information officers for what Kosovo would bring.[9]

Kosovo was a steep learning curve for all parties involved. The journalists had to find their way among the intricacies of NATO's operational jargon and a multitude of acronyms as well as to understand its complex multinational decision-making processes.[10] Crucially, the NATO information officials did not anticipate the level of scrutiny from the western media. They also failed to anticipate the Serbian ability to exploit the information war. It was no longer possible to issue "no comment" statements and to speak casually of "collateral damage."[11] NATO was scrutinized for its actions and for the financial and human cost of the operation as well as for the legality of the operations. It was essential to be as open as possible about the developments on the ground to ensure that the journalists could report accurately. This, however, had to be done without the risk of jeopardizing ongoing operations.

In the initial phase, the lack of leadership and clear visions of NATO's priority in the field of communication undermined the information effort. Priority was given to operational effectiveness, which meant that as little information as possible about tactical progress and operational plans was divulged. This approach often resulted in blunders that severely undermined the Alliance's credibility and public support. A good example was the attack on the passenger train at the Grdelica Gorge, on April 12, 1999. NATO targeted the Leskovac railway bridge because it was part of a re-supply route used by Serb forces. A passenger train was crossing the bridge at the time and was struck by two missiles. According to General Wesley Clark (Supreme Allied Commander Europe, SACEUR) and Jamie Shea (NATO spokesperson), the train had been travelling fast across the gorge and the pilot did not have time to react in time.[12] Controversy arose after it emerged that a video released to support NATO's version of the events had been sped up three times.[13] Similarly, the bombing of the

Djakovica Convoy two days later exposed similar inconsistencies. NATO initially denied, but later had to acknowledge, the attack. Even more damningly was the fact that NATO was forced to admit that the aircraft had been flying at an altitude of 15,000 feet and the pilots had identified the target with the naked eye rather than remotely.[14]

One of the key problems for the NATO information officers at the time was that the Alliance's involvement was purely based on aerial operations, and therefore its officers could only produce images taken from fighter planes and maps, which were of little use to non-specialists and failed to capture the imagination of the public. The Alliance was often unable to respond effectively to the requests for information coming from the journalists particularly as far as the impact of the bombings was concerned. However, reporters on the ground and Tanjug (the Yugoslavian news agency) published pictures and videos of the devastation, which caused furor among the western public and were easily exploited by the Serbian leaders. When all the major western broadcasters began to report regularly from Serbia, NATO's inability to provide first-hand information from the ground left its media team exposed to criticism and lack of transparency.[15]

At the time, NATO military leaders were reluctant to participate in the press briefing. When they did participate, their answers were often short and technical.[16] This was partially due to the lack of media training and partially to their reluctance to comment on ongoing operations. Soon, tensions built within the Alliance: information officers at the political headquarters in Brussels wanted to prevent a negative story to occupy the media space for too long because of lack of information provided by NATO, while the military leaders at the Supreme Headquarters Allied Powers Europe (SHAPE) in Mons were less invested and prioritized operations on the ground. Jamie Shea, who was NATO spokesperson at the time, found the attitude of his colleagues at SHAPE deeply frustrating. He recalls that "they did not know how important the media was."[17] Relations between the two headquarters became increasingly tense to the point that Shea established his own network of contacts to be informed personally and outside the formal chain of command about how the campaign was developing and what would come next. This, Shea recalls, was the only way for him to know what the military command was doing.[18]

One additional complication for NATO was its multinational nature. The campaign in Kosovo was controversial and public opinion was divided. National governments were cautious, at times bordering on suspicious, about any move to strengthen NATO's communication policy as they wanted to retain total control over how the war effort was communicated to their own public.

With the agreement of the member nations, NATO's strategic communication campaign aimed at harnessing public support across all member nations. It did so by creating a narrative about the need for the international community to intervene in Kosovo to protect human rights and it identified NATO as the only organization able to do. The narrative effectively linked the operation in Kosovo to the failure to act a few years earlier in Bosnia,

which had led to the Srebrenica Massacre (1995).[19]

NATO's information officers consistently stressed the humanitarian nature of the mission and the need to have a strong military component to support the diplomatic effort. By doing so, NATO pushed forward two complementary visions: to justify its action in Kosovo in the name of human rights and to legitimize the continuation of its own existence as a viable organization for the post-Cold War security environment.[20]

ISAF: A Catalyst

If Kosovo was a wake-up call, Afghanistan was a catalyst for the establishment of a coherent NATO StratCom policy. The International Security Assistance Force (ISAF), the NATO-led security mission in Afghanistan, was launched in 2001.[21]

Since the beginning, ISAF faced an enormous challenge both in terms of security and defense operation as well as in terms of strategic communications. Brett Boudreau, a former Canadian military public affairs officer, has written a detailed account of how ISAF initially failed to set clear information priorities and goals and how the Coalition struggled to agree a way forward.[22] In Afghanistan, the Taliban used information as a critical strategic tool, whose effectiveness was enhanced by a strong, coherent narrative in which foreign troops were portrayed as occupying forces that wanted to make Afghanistan a godless pawn of the West.[23] In the words of the UK Chief of the Defence Staff, Air Chief Marshal Sir Jock Stirrup, as far as the information effort was involved, the Taliban "have beaten us to the punch on numerous occasions, and by doing so they have magnified the sense of difficulty and diminished the sense of progress."[24] The Coalition failed to capture the imagination of the local population. A limited understanding of the culture, language, and customs of Afghanistan was certainly an obstacle. But the real problem was the lack of a real communication strategy and of a clear narrative.[25]

Many nations had joined ISAF as a peacekeeping mission but soon got entangled in a full-spectrum counter-insurgency operation, which often meant death among their troops that deeply undermined public support at home. National government provided different explanations of why their forces had been sent to Afghanistan and what they hoped to achieve. The narratives ranged from the fight against international terrorism to the attempt to support the development of Afghan democracy and the rights of women. As a result, ISAF did not have a convincing overarching narrative, which significantly undermined its ability to engage the public of the NATO nations. Rather than having a unified narrative, there was a multitude of perspectives and views.[26] For the same reason, there was also no coordination of messaging with the ISAF partners (the Afghan government, non-government organizations [NGOs], aid agencies, the United Nations, and the European Union). The lack of coherence was compounded by the regular rotation of personnel, which led to loss of an already limited expertise, and fragmentation of effort.[27]

Finally, a further complication was that for much of the campaign, most of the U.S. troops remained outside ISAF. They were deployed on Operation Enduring Freedom and therefore were under a different command structure, with a commander sitting in Bagram, not in Kabul. He was answerable to the commander of the United States Central Command (CENTCOM) in Tampa, Florida, not to SACEUR at SHAPE in Belgium. Journalists, whether local or international, did not know whom to call to check on reports of incidents. The fact that the public affairs teams in each command had to clear what could be released and ensure consistency of messaging with other commands caused further delays and frustration. It was not until the second part of General David McKiernan's tour in 2008 that the ISAF commander became double-hatted as commander of Operation Enduring Freedom as well. This decision improved the information coordination efforts.[28]

A new approach to strategic communications was needed, both in terms of policies as well as in terms of the skills and training of the people who would apply such policies. There was no room for improvisation: NATO had to recruit top-level information specialists to gain a deeper understanding of the complexities of the new global information environment and to respond effectively to the Taliban communication assault.[29] Mark Laity, who first visited ISAF as SHAPE's Chief of Public Affairs, recalls that at that point ISAF's "structures, policies, doctrines and processes tended to marginalize communications both within the disciplines and from the wider headquarters. Our training was woeful with, too often, good people thrown in to learn on the job, trying to pick up skills unrelated to the common experience of most military officers. Concepts such as Strategic Narrative were little appreciated, our ability to understand cultures, and how to speak to them even less so."[30]

A key figure in Afghanistan was Lieutenant General Ton van Loon (NL). Formerly Commander of Region Command South in Kandahar in 2007, van Loon was convinced of the centrality of StratCom in modern warfare. When he became commander of 1 (DEU/NL) Corps in 2010, he created a Communication and Engagement Division, the first of its kind in ISAF. The new D division prefigured the structures required for this kind of mission and offered a blueprint for document MC 0628, which was agreed by NATO seven years later and which laid the foundation of what is now NATO StratCom as it is today.[31]

In June 2009, U.S. General Stanley McChrystal arrived as the new Commander of the International Security Assistance Force (COMISAF) and famously argued that "winning the battle of perception is key […] we win when the people decide we win."[32] McChrystal immediately pushed toward deeper and better synchronization of the Coalition's strategic communication effort. In his COMISAF Initial Assessment, McChrystal included the need for a fundamental change of culture in how ISAF approached operations and argued that "StratCom should not be a separate Line of Operation, but rather an integral and fully embedded part of policy development, planning processes, and the execution of operations. Analyzing and maximizing StratCom effects must be central to the formulation of schemes of maneuver and during the execution of operations."[33] McChrystal created the ISAF Communication Directorate under a 2-star officer charged to "plan, coordinate, execute, and assess all Strategic Communication efforts, including Public Affairs, Information Operations and Psychological Operations throughout the Combined Joint Area of Operations".[34]

In his approach to strategic communications, McChrystal referred to the extensive development that the discipline had already undergone in the United States, where StratCom had become a well-established discipline since the publication in 2006 of *QDR Execution Roadmap for Strategic Communications*.[35] Significantly, a few months before his appointment as the new SACEUR, Admiral James Stavridis also wrote in strong terms about the crucial importance of strategic communications for military strategy and planning. Stavridis also argued in favor of the need to adjust the strategy and the policies to multiple audiences and mediums.[36] The military and political context was therefore ripe for McChrystal's action in Afghanistan.

In the history of NATO StratCom, the decisions taken by van Loon and McChrystal meant that most of the core principles and features of MC 0628, the 2017 document that laid the foundations of NATO StratCom, were already preconfigured at the operational level in 2009. The next step was to convince the political and military leaders of the Alliance of the importance of coordination and synchronization of all information operations to enhance effectiveness and to maximize synergies at the strategic level.

However, while the decisions of van Loon and McChrystal did provide a framework and a strategy, they did not provide a narrative to underpin the strategic communication effort. This should have been formulated by political leaders at the NATO HQ and in the capitals of the member nations. However, a unifying vision never materialized as each nation shifted the focus of their messaging on ISAF from counter-insurgency to the fight against international terrorism and ISAF as a peace building operation.[37]

At NATO, the process moved forward with the creation of NATO Public Affairs in 2007[38] and received further impetus at the 2009 Summit when it was officially recognized at the highest level that "strategic communications are an integral part of our efforts to achieve the Alliance's political and military objectives."[39] On 29 September 2009, the North Atlantic Council approved the NATO StratCom Policy, which brought together Public Diplomacy, Public Affairs and Military Public Affairs functions along with Information Operations and Psychological Operations (PSYOPS).[40] By publishing the Policy, the Alliance recognized the importance of a timely and accurate communication strategy as an integral tool to achieve its political and military objectives. It was the beginning of the birth of NATO StratCom. The 2009 StratCom Policy pointed to the need to raise the level of cohesion of the Alliance information policies and practices, both military and civilian, to improve its communication with multiple target audiences with optimal use of resources and maximum coherence of message.[41]

By the end of the following year, under the direction of Stavridis, the new NATO Military Concept for Strategic Communications enabled the development of new capabilities within NATO's military forces and structures. It was formally recognized that strategic communication must not be an afterthought in any stage of the planning and operational processes, but it must be at the core of the discussions. It also stressed the need for trained

professionals within the armed forces to carry out these functions. Crucially, the Concept tasked Allied Command Operations (ACO) and Allied Command Transformation (ACT) to begin a capability development program.[42]

The NATO Military Concept for StratCom published in 2011 identified the military components of StratCom and their specific areas of responsibility, with a comprehensive assessment of the specialist requirements in terms of personnel, organization, and assets. The most important step that resulted from the Concept document was the fact that both ACO and ACT established StratCom Branches in their Command Groups, thus working closely with the Supreme Allied Commander Europe at SHAPE and the Supreme Allied Commander Transformation at ACT. As a follow-up, ACT also developed a NATO StratCom Capabilities Implementation Plan to assist the nations in building a capability across the StratCom disciplines. The Capabilities Implementation Plan provides detailed guidance to NATO Commanders to assist them in defining strategic, actionable goals, and to produce clear, guidelines and priorities for all information officials across the Alliance.[43]

Around the same time, Operation Unified Protector (Libya) and NATO's annual Crisis Management Exercises reinforced the need for clear StratCom Policy Joint Implementation Guidelines (JIGs), which were then incorporated as an annex to the StratCom Policy document of 2009.[44]

By 2011, the concept of StratCom had become embedded in NATO's political and military thinking as a process. Yet, StratCom was not a coordinating function within NATO and several member nations remained skeptical about a strong, centralized communication agency within NATO.

NATO's First Military Policy on Strategic Communications

In 2014, the occupation of Crimea and the crisis in Ukraine demonstrated that the Russians made effective use of information to disrupt and deceive. This could take the form of trolling, disinformation, and false narratives, to mislead or to control. It was clear that the Russian use of information was not an improvised effort, but a fully integrated part of the overall strategy.[45]

The Russian use of information and disinformation gave NATO the same shock at the political-military level that the Taliban had given ISAF at the operational level a decade earlier.[46] In the 2014 Summit Communique, NATO's leaders stated their commitment to "enhancing Strategic Communications,"[47] which accelerated the path toward further coordination and unity of effort. The result was NATO Military Policy on Strategic Communication (MC 0628) of 2017.

MC 0628 is both a tool and a concept. The new approach was agreed by SHAPE in August 2017, in a policy statement defining StratCom as "the integration of communication capabilities and information staff function with other military activities, in order to

understand and shape the information environment in support of NATO aims and objectives."[48] At the same time, the establishment of the NATO-accredited Strategic Communications Centre of Excellence in Latvia supported the coordination effort.[49]

MC 0628 put forward two key principles to underpin the NATO Strategic Communication policy. First, the recognition of the specificity of military strategic communication policy in terms of goals, best practices, priorities, and recruitment of specialists. Second, the understanding that political and military communications are different, yet complementary. MC 0628 stated clearly that two must move in the same direction and have complementary actionable goals. Crucially, MC 0628 called for the creation of an institutional framework to achieve effective coordination and to facilitate interaction.[50] From a military point of view, it was also acknowledged that StratCom is primarily a process and not an organization or a function. In a military context, NATO Military StratCom must be seen as a means to integrate information and communication functions into the strategic and operational planning to enhance tactical presence on the ground in kinetic operations both internally (your own military forces) and externally (adversaries and civilians).[51] Crucially, it envisages the inclusion of StratCom in operational planning from the earliest stages of any crisis or operation.[52] In the words of Stavridis, "For a combatant commander, the place to "organize" strategic communication is at the operational level".[53]

Following the approval of MC 0628, the military committee has approved a new military public affairs policy (MC 0457/3), which defines military public affairs in NATO as "the capability responsible for promoting NATO's military aims and objectives by communicating accurate information in a timely manner to various audiences. This communication enhances awareness and understanding of the military aspects of the Alliance's role, aims, operations, missions, activities and issues, thereby reinforcing its organisational credibility."[54] NATO has introduced training standards for military public affairs that include pre-assignment training and experience standards. Crucially, military public affairs capabilities are now targeted in the NATO Defense Planning.[55]

Conclusion and Recommendations

Since 2017, NATO and SHAPE have put in place a clear plan for effective strategic communications, which includes a clear institutional framework and chain of command. StratCom is today an important part of the strategic and operational thinking at as it is demonstrated by the fact that the Communication Division works in close contact with the SACEUR, the Deputy SACEUR and the Command Group.[56] Yet, NATO StratCom continues to be a process and not a function in itself. This means that it aims primarily to facilitate and streamline the integration of the existing information and communication functions of military and political agencies at national and alliance level. There is the risk that this function could simply interpose another layer of coordination without adding value. Ultimately, the initiative remains in the hands of the political leaders at the HQ in Brussels and in the capital of the member nations.

Nations have their own StratCom agencies and plans and they naturally prioritize their own national interests, concerns, and sensitivities. This can lead to a fragmented discourse, duplication of effort, and to inconsistencies. As argued elsewhere, this is an issue that has affected the development of NATO's communication and information policies since the foundation of the Alliance.[57] However, if NATO and its nations want to produce an effective StratCom effort, they must coordinate their work more effectively. Closer coordination should have two complementary aims. It should produce a convincing narrative and coherent vision of NATO's mission and goals to underpin its StratCom and to appeal to all target audiences. It should also bring tighter coordination between the NATO HQs and the national agencies with the aim of achieving greater effectiveness and coherence of messaging.

Finally, it is essential to recruit experienced StratCom advisors, who must have a deep understanding of both military and political tasks of the Alliance and who can work across multiple disciplines and audiences. According to a recent SHAPE document: "Although there is some capacity within NATO and the Nations to educate and train military PAOs [Public Affairs Officers], this is insufficient to meet the growing demand. Furthermore, there is limited capacity within NATO and only a few nations to educate and train military PAOs. This is insufficient to meet the operational requirement of trained communicators."[58]

NATO StratCom continues to be an evolving discipline. The launch of MC 0628 has marked an acceleration in the coordination process of military StratCom. It has created a vision for the future with clear and effective processes that facilitate and streamline—rather than simply coordinate or even hamper—Alliance-wide information and communications efforts. The challenge that remains is to create a coherent and unifying narrative that is shared by all allied nations and that underpins the content of StratCom in all its forms.

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Intercultural Competence Training at a US Service Academy: Pilot Study

Kelly Lemmons

Abstract: Intercultural competence has been identified as an important attribute for the twenty-first-century officer and is commonly included as a desired institutional outcome within the U.S. service academies. However, intercultural competence has remained difficult and elusive to measure, and it is unknown whether academies are meeting the outcome of increasing cadets' intercultural competence. This pilot study uses a small sample size in a controlled experiment to measure whether or not intentional intercultural competence training courses can increase cadets' intercultural competence, and whether or not the course can be scaled from 40 lessons to 20 lessons to 8 lessons and remain effective. Using small sample size control groups as representations of the student body, this research seeks to understand what intercultural competence gains are being made by students who are not receiving intentional intercultural competence training. Results show that the 40, 20, and 8-lesson intentional intercultural competence training courses have a significant effect on cadet's intercultural competence, with control groups, who receive no intentional training, showing no significant changes in intercultural competence. This paper, along with findings from related research, provide data suggesting that service academies are not meeting intercultural competence outcomes. This paper postulates that 8-lesson intercultural competence training courses may provide cadets with the tools to not only increase their intercultural competence through the duration of the course, but also to sustain and build upon these mechanics for the duration of their study at the academy, meeting institutional outcomes and developing interculturally competent graduates.

Keywords: Intercultural Competence; Study Abroad; Cultural Geography.

Introduction

The United States Air Force Academy (USAFA), as part of the Human Condition, Cultures, and Societies Institutional Outcome, states that "our graduates will be required to interact successfully with a wide range of individuals, to include those representing cultures and societies different from their own…being able to prudently interact with…cross-cultural competence."[1] Similarly, the United States Military Academy (USMA) states that intercultural competence is "one of the important goals of the curriculum,"[2] that cadets will "engage in and reflect on cross cultural experiences."[3] In conjunction within these "institutional outcomes" is the fact that intercultural competence has also been identified as an important attribute for the twenty-first-century military officer. Uribe, LeLoup, and Haverluk [4] stress this point by stating that "the nature of today's post-cold war conflicts clearly shows that the men and women being prepared at USAFA as future leaders will face increasingly complex multicultural environments. They will have to lead a more diverse force, work with coalition partners and allies, and interact with members of local populations around the world."

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Intercultural competence may simply be defined as one's "ability to think and act in interculturally appropriate ways."[5] However, this definition lacks rigor and is purposefully general, as intercultural competence is difficult to define and lacks a generally agreed-upon definition. Deardorff,[6] in an article specifically designed to establish a definition of intercultural competence, states that the definition of intercultural competence depends on context, but that the most agreed upon (3.5 out of 5) definition by a panel of researchers and higher education administrators was developed by Byram:[7] "Knowledge of others; knowledge of self; skills to interpret and relate; skills to discover and/or to interact; valuing others' values, beliefs, and behaviors; and relativizing one's self. Linguistic competence plays a key role."

Despite being a desired outcome across various U.S. service academies, intercultural competence assessment has proven very difficult and costly. The difficulties will be explained in greater detail later in this article but are namely due to the fact that intercultural competence belongs to no respective discipline, and thus there is a dearth of perspective instructors who might teach the comprehensive course which is needed to meet the outcome. Also, as this article will illustrate in the next section, it has been shown that intercultural competence is not something merely learned across a diverse core curriculum, or even by participating in a study abroad; rather, it requires an intentional process and practice for gains to be realized.

The cost comes from the labor of administering a survey and assessing a percentage of the student body with a pre- and post- intercultural competence survey to measure for changes in intercultural competence over the duration of the cadet experience. If the outcome is indeed institutional, then the statistical sample would be between 300 and 400 (assuming 4,000 cadet student body), with each participating cadet needing to take the survey twice. Surveys vary in cost from $11 to $100 per survey. Assuming 350 cadets, needing to take the survey twice, at an estimated cost of $20 per survey, the baseline cost would be around $14,000. This cost does not include the labor costs associated with administering such a survey. In the social sciences, an annual request of $14,000 for a survey is a big request, not to mention the added request of labor costs. Because of these difficulties and associated costs, major assessment protocols at USAFA have waned since 2014. Therefore, there exists a tremendous need to (1) re-assess what intercultural competence outcomes are being achieved, if any; (2) measure the effects of intentional intercultural competence training on select number of cadets; and (3) determine whether or not training can or even needs to be scaled to the entire student body. Through a small-sample, pilot study, this research paper seeks to further understand these three identified needs.

Intentional Intercultural Competence Training

The Georgetown Consortium Project (GCP), to date, was one of the most in-depth assessments involving more than 1,300 undergraduate students designed to measure changes in intercultural competence and second language acquisition.[8] The study was conducted through Georgetown University's Office of International Programs from 2003 to

2005 with the majority of students being enrolled in study abroad programs at Georgetown University, University of Minnesota-Twin Cities, Rice University, and Dickson College. The GCP used, in conjunction with other methodology, the same metric as this paper uses to assess for gains in intercultural competence: the Intercultural Development Inventory (IDI). The study found that when students were left to their own devices, i.e., to figure it out for themselves, that they made no significant gains in intercultural competence. It is assumed that universities are teaching aspects of intercultural competence across "the core curriculum" through courses in history, language, geography, political science, and behavioral sciences. However, as this GCP study suggests,[9] cadets, left to their own devices and not receiving conspicuous instruction in intercultural competence, are likely to have no gains in intercultural competence over the duration of their service academy experience. The GCP and other studies advocate[10] that "interventions in learning" are needed in order to facilitate increases in intercultural competence, or what this paper refers to as intentional intercultural competence training.[11]

For this research, intercultural competence training has been developed from the body of "intercultural competence literature" and the body of "study abroad literature" as described in the article by Lemmons and Mobley.[12]

In general, the intercultural competence training course uses experiential learning techniques to teach students about culture, views on culture (e.g., ethnocentrism, polarization, minimization, acceptance, large versus small culture),[13] personal world views (plausibility structures),[14] how to personally reconcile two opposing cultural views (cognitive dissonance),[15] understanding a culture through various means such as reading cultural landscapes, using a cultural "lens,"[16] personal cultural resolution, [17] the pitfalls and dangers of cultural identity crisis (ethnorelativism), and applied traveling techniques (e.g., how to dress, apps/technology, basic language skills). Students are asked to complete a series of tasks as they relate to each of the various aspects above, most of which include some sort of experiential learning activity such as participant observation, repeat photography, and/or journaling.

To provide a specific example, Section 4 of the intercultural competence training course is titled "How to See." Students are taught a reflexivity technique through a repeat photography exercise. In the exercise, students are given an historical photograph (typically a location on or in close proximity to campus) and are asked to find the location and take a photograph of their own from the same vantage point. Through a series of prompts, the students answer questions about culture, what the original photographer's intent might have been, and what has changed between the photos. Student responses are then shared in class. As the responses are read in class, students begin to understand that there are different interpretations to the photograph. But how? Aren't photographs a depiction of reality taken at a moment in time? At this point, we enter into a discussion on how our interpretation of reality is actually influenced by a "cultural lens," or what the students understand as bias. The reflexivity aspect comes when students are asked to journal about what aspects of their

identity/culture influences the way that they "see." And if this bias influences the way that they interpret a photograph, might it also influence the way that they see the "other" while traveling abroad, or even others on campus? This section of the course is then reinforced by having students identify and journal about three cultural activities that they can participate in over the duration of the course. The students journal in a specific technique that forces them to realize value judgements made during the activity, and to validate those judgments with a cultural insider in order to help them understand the mental process that they undertake when experiencing something culturally foreign. Once the premise of "seeing" is established, Section 5 then goes on to teach techniques which can be used to understand the "other" rather than project a bias of understanding on the "other."

The difficulty of conducting research on and developing a course in intercultural competence training is that no singular discipline focuses on intercultural competence; rather, various disciplines are involved with the process. Therefore, research articles, data, and findings about intercultural competence are scattered across the continuum of academic disciplines, in hundreds of journals, making it very difficult to develop a congruent body of thought. The author of the article developed the body of work through cobbling myriad theories, data, and findings together from various disciplines. Although the intercultural competence training course spans across the gamut of disciplines, it is based primarily on findings and theories in human/cultural geography, cultural anthropology, sociology, psychology, medical sciences, and business/management.

In order to judge the scalability of this course and to understand the effect that different durations/intensity of intentional intercultural competence training has on students, for this study, training courses varied in length from 40 lessons down to 8 lessons. Intensity was measured by the number of times the course meets, with 40 times being the most intensive, 20 times intermediate, and 8 times being the least. The three courses received the same breadth of information regardless of intensity. The longer the course/higher the intensity, the more depth of information/intervention used in the course, as cultural learning is difficult to internalize and requires repetition and practice.

In terms of assessing intercultural competence, there are dozens if not hundreds of assessment tools. Deciding on which instrument to use is a difficult task as many of the assessment tools cost. Deardorff's 2009 edited book on intercultural competence creates an exhaustive list of all the possible instruments that might be used to assess global mindsets, intercultural competence, cultural sensitivity, and global mindedness.[18] Using this list to compare recommended assessment tools for the purpose of this study there remained a handful of assessments that aligned. Of these tools none have been validated more rigorously or published on as often as the IDI. However, like the other tools, the IDI costs money per assessment, which can be prohibitive if using year over year for large sample groups.

Methods

The original research was designed to take place over the course of two years in order to have a robust sample size, and the ability to demonstrate repeatability year over year. However, due to COVID-19 travel restrictions in 2020 and 2021, all study abroad trips were canceled and associated courses, such as intercultural competence training courses that were designed to prepare students to study abroad, were canceled. Consequently, the 2019 data set is the only one used in this paper. The research design used a total of six groups, a 40-lesson group (40a), a 40-lesson control group (40b), a 20-lesson group (20a), a 20-lesson control group (20b), an 8-lesson group (8a), and an 8-lesson control group (8b), all taught during the spring 2019 semester. Each group took a pre-course IDI assessment before the course started, and a post-course IDI assessment immediately upon finishing the course. The groups are described in detail here:

Group 40a (n 23): 40 lessons, 53 minutes each (a semester-long 3-credit course). Students enrolled in the spring semester 2019 cultural training geography special topics course (GEO 495, taught by the author). Students received intentional intercultural competence training over the course of 40 lessons.

Group 40b (n 20): Students enrolled in the spring semester GEO 310 cartography course. The students received no intentional intercultural competence training and served as the control group against group 40a.

Group 20a (n 23): 20 lessons, 53 minutes each (a one-credit, half-semester course). Students were enrolled into this course if they were selected for a 2019 fall semester Cadet Semester Study Abroad Program (CSSAP) to a civilian university. Students received intentional intercultural competence training over 20 lessons.

Group 20b (n 7): These students serve as a good control group against 20a because students in this group were selected for a 2019 fall semester Cadet Semester Exchange Abroad Program(CSEAP) to a military university. These students received no intentional intercultural competence training.

Group 8a (n 17): 8 lessons, 53 minutes each. Students were enrolled into this course if they were selected for a 2019 summer three-week Cadet Summer Language Immersion Program (CSLIP) to Munich, Germany (n 9) or Morocco (n 8, half of the Moroccan group). Students received intentional intercultural competence training over 8 lessons.

Group 8b (n 16): Students were enrolled into this course if they were selected for a 2019 summer three-week study-abroad program (CSLIP) to Berlin, Germany (n 9) or Morocco (n 8, other half of the Moroccan group). These students serve as a good control group against 8a because they received all of the same training (except for the intentional intercultural competence training) as group 8a because they were going on the same or almost similar trip.

Quantitative Methods

As described above, students were assessed via the administration of the IDI at the beginning of their intercultural competence course (pre-), and at the end of their course (post-). The IDI is the "gold" standard for related research—it has been used in over 100 published articles on the subject and, through these studies, has been proven the most reliable and widely used tool to measure intercultural competence. Pre-, and post- scores will be statistically evaluated using a Paired Sample T-Test and the Wilcoxon Signed Ranks test to measure the effects of the "interventions" on students' intercultural competence. The Paired Sample T-Test is the traditional statistical method used for measuring significance between pre- and post- scores and has been used in measuring changes in IDI scores (Keefe [2008][19] Janeiro [2009])[20] in the past, which is why it is used as a method for this research; however, the Paired Sample T-Test assumes that the participants being tested are representative of the general population upon which inferences are being made. In other words, this study would have needed a simple random sample from the population being studied (all USAFA students engaged in a study abroad program in this particular year) and a representative *n* of the students body for a control group in order to effectively use the Paired Sample T-Test. Since this is a small sample pilot study, the participants are not statistically representative of the population upon which inferences are being made and, therefore, there is a need to use non-parametric statistical methods in order to effectively measure for statistically significant changes between pre- and post- IDI scores. Thus, in conjunction with the traditional method of the Paired Sample T-Test, the non-parametric equivalent—the Wilcoxon Signed Ranks Test—is used, which measures for statistical significance despite the small sample size.

The IDI is a 50-question survey, taking roughly 30 minutes to complete, that quantifies the extent to which a person is culturally competent and culturally sensitive. The "IDI measures intercultural competence on a 'cultural continuum.' The cultural continuum describes a set of knowledge/attitude/skill sets or orientations toward cultural difference and commonality that are arrayed along a continuum from the more monocultural mindsets of Denial and Polarization through the transitional orientation of Minimization to the intercultural or global mindsets of Acceptance and Adaptation. The capability of deeply shifting cultural perspective and bridging behavior across cultural differences is most fully achieved when one maintains an Adaptation perspective."[21]

Five IDI sample questions (below) are provided in an article by Hammer[22] and are answered on a 5-point Likert scale ranging from strongly disagree to strongly agree:

1. People from our culture are less tolerant compared to people from other cultures.
2. People from our culture are lazier than people from other cultures.
3. Our common humanity deserves more attention than culture difference.
4. Human behavior worldwide should be governed by natural and universal ideas of right and wrong.
5. I evaluate situations in my own culture based on my experiences and knowledge of other cultures.

Qualitative Methods

On the last day of instruction for 40a, 20a, and 8a groups, students participated in a 15-minute end-of-course unstructured focus group where they were asked to provide feedback about the course. The instructor provided no prompts, and only took notes on the students' comments. Notes were compiled across the courses and analyzed for themes using content analysis.

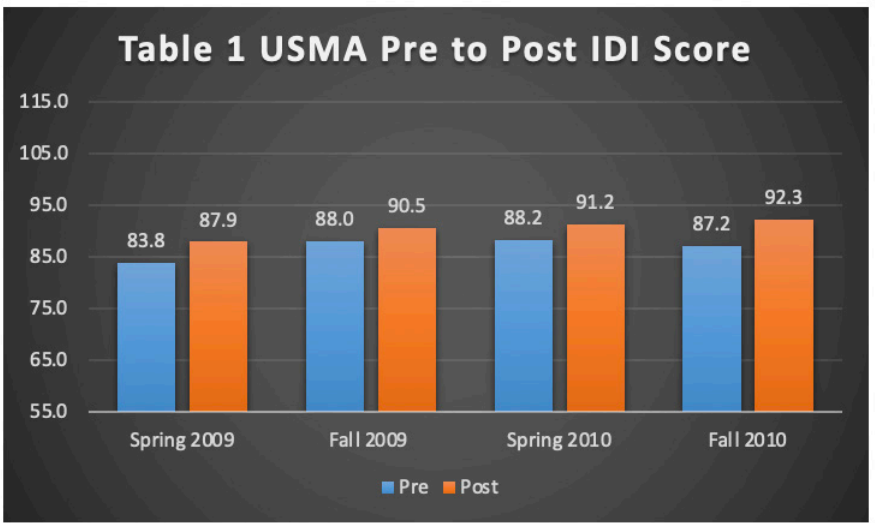
Limitations

Students selected to participate in this study had cause to want to learn the material, as they were preparing to participate in a study abroad program. This self-selection bias may influence results and results may not be the same if the course were taught to a simple-random sample chosen from the student body.

Another limiting factor is the fact that this research design relies solely on the IDI upon which to determine the effectiveness of the course. There may be other outcomes that would not be measured by the IDI, and it is hoped that the focus groups may focus attention on potential future research avenues for such research.

Results

First, to provide some context about IDI scores, USMA runs semester-long study abroad programs similar to those run by USAFA. USMA uses the IDI to measure cadet changes in intercultural competence pre-study abroad and post-study abroad. USMA, in 2013, published results of data collected over the course of four semesters.[23] On average, USMA students participating in a semester-long study abroad program increased 3.68 points on the IDI pre- to post- (see Table 1). These results provide a reference point with which to understand the average increase of students' cultural competence when students are left to their "own devices," receiving no intentional intercultural competence training pre-study abroad.



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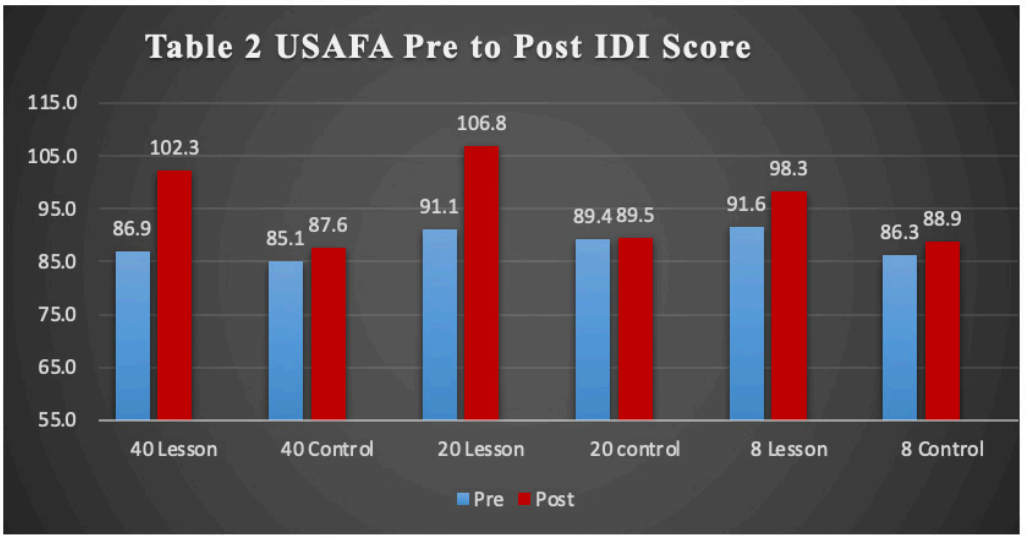
Students at USAFA in Group 40a had an average pre-course score of 86.91, and an average post-course score of 102.26, an increase of 15.35. Group 40b, serving as the control group to Group 40a had an average pre- score of 85.05, and an average post- score of 87.64, an increase of 2.59.

Group 20a had an average pre-course score of 91.12, and an average post-course score of 106.80, an increase of 15.68. Group 20b, serving as the control group to Group 20a had an average pre- score of 89.37, and an average post- score of 89.46, an increase of 0.9.

Group 8a had an average pre-course score of 91.56, and an average post-course score of 98.31, an increase of 6.75. Group 8b, serving as the control group to Group 8a had an average pre- score of 86.32, and an average post- score of 88.87, an increase of 2.55.



Using the statistical analysis of the Paired Sample T-Test and the Wilcoxon Signed Ranks test, group 40a, 20a, and 8a measured with a p value <.001 on both tests. All three groups that received intentional intercultural competence training had statistically significant increases in their intercultural competence pre- to post-. The three control groups had no significant change as all measured within the standard error of measurement for the IDI which is 3.66.

Qualitative Results

Content analysis of the end-of-course unstructured focus groups provided an unexpected result. Of the 63 students that participated, 38 students either explicitly commented on or agreed with comments made by other students, stating that the lessons learned in course helped them understand the need for empathy and perspective taking which they believe increased their empathetic leadership skills. Students commented that

they now had a better understanding of how to incorporate empathetic leadership skills and the importance of this approach in their respective squadrons.

Another important aspect that came up in the qualitative responses that the majority of students agreed with was that students felt the material was important to learn for their overall military careers, that they were intrinsically motivated to learn, with one student commenting, "I internalized this material because I felt it is important to our careers outside of the academy, for when we are stationed in foreign countries, or working with various cultures during mission assignments, much more than other classes at the academy."[24]

Conclusion

This research project began by identifying three needs: (1) what intercultural competence outcomes are being achieved, if any, (2) the effects of intentional intercultural competence training, and (3) whether or not training can or even should be scaled to the entire cadet wing.

First, what intercultural competence outcomes are being achieved at a U.S. service academy? The ideal research would assess students from their freshman year to their senior year. This pilot study had a small sample size and only assessed students during the course of a semester, half semester, and 8 lessons. Despite the severe limitations, the findings still give an insight as to what might be the case across the student body—that they measure no significant gains in intercultural competence, as was demonstrated by the three control groups. This shows, coupled with the findings of the Georgetown Consortium Project that students do not tend to increase in intercultural competence when left to their own devices, that intentional intercultural competence training is merited.

The second aspect of this paper aimed to measure the effects of intentional intercultural competence training on cadets. The students that received intercultural competence training increased dramatically in intercultural competence as measured by the IDI. Such double-digit increases as were seen in groups 40a and 20a have never been published on before. These findings are truly remarkable and much higher than comparative studies. Through qualitative responses we also conclude that intercultural competence training may have a positive impact on leadership skills, increasing cadets' ability to use empathetic leadership, and a greater ability to work with others from diverse cultures and backgrounds.

Third, this paper sought to understand the effects of scaling intercultural competence training, and whether or not it is suitable and/or necessary to be taught to the entire student body. This study found that purposeful intercultural competence training, as conducted by the author, has a significant impact on students' intercultural competence, showing that although the 20-lesson content is compressed from the 40-lesson content, the students were able to extrapolate similar outcomes in intercultural competence. Thus, 20-lesson intercultural competence training can be as effective as 40-lesson intercultural competence training. The 8-lesson group demonstrates that as content is further compressed and the

amount of time to understand these concepts limited, that intercultural competence goes down concomitantly. Still, the 8-lesson group increased by 6.75, which is statistically significant and almost double that of USMA's semester-long study abroad intercultural competence increase. Therefore, intercultural competence training is scalable, with greatest effects sustained at the 20-lesson level, but still significant effects at the 8-lesson level. This makes intercultural training courses an efficient and effective option at the 8-lesson level.

Should intercultural competence courses be taught to the entire student body? The literature states, and this study suggests, with limited data, that students are not likely to increase their intercultural competence through the academy curriculum. Not because the curriculum is poor, but because intercultural competence increase requires purposeful instruction. In subsequent research conducted on study abroad programs, it has been shown that cadets continue to increase in intercultural competence after having had the 20- or 8-lesson course. Focus group feedback suggests that students were able to use the tools and methods learned in the course while on their study abroad and consequently were able to increase their ability to interact with the host culture leading to even greater increases in intercultural competence.

Despite the selection bias limitations of this research that used only students who were probably already interested in the topic of intercultural competence, this data suggests that as students learn intercultural competence methods, they might be able to continue to implement these methods across their academy courses and leadership experiences. In other words, the service academy curriculum may not provide conspicuous instruction on intercultural competence, but after taking a course in intercultural competence, students may be provided the tools to identify akin information across the curriculum and their experiences to further develop their intercultural competence.

If U.S. service academies have and value intercultural competence as an academy outcome, and as much as an 8-lesson course can increase cadets' intercultural competence significantly, along with potential increases in empathetic leadership skills, then academies should consider purposeful instruction in intercultural competence in order to meet not only the institutional learning outcome but an outcome that may be a tremendous benefit to the twenty-first-century soldier.

Future Research

This research project is part of a greater research endeavor that seeks to understand not only the effects of an intentional intercultural competence training course, but the effects of the course on students participating in a subsequent study abroad program. Groups 20a, 20b, 8a, and 8b were assessed for a third time upon the return from their respective study abroad programs. Results demonstrated that students not only retained their intercultural competence but also continued to increase their intercultural competence score through the duration of their study abroad program. Once COVID-19 travel restrictions are lifted

and study abroad programs re-commence, a repeated study will be conducted to measure this phenomenon year over year. Due to these astounding results the author is now working with the U.S. Air Force International Affairs Office (SAF/IA) to develop an 8-lesson online course for Foreign Area Officers (FAO) to take before they do their in-region host country training. Research will be conducted on the effectiveness of an online course, and the effect that the training has on FAOs post- in-region host country training.

Kelly Lemmons, Ph.D., is an assistant professor at the United States Air Force Academy in Colorado Springs, Colorado. He received his bachelor's degree from Brigham Young University, his master's degree from the University of Massachusetts, and his Ph.D. from Texas A&M University. He currently is conducting research within cultural geography, foreign area studies, and cultural immersion programs, with past publications on the topics of "Overcoming the Hurdle of Short-term Study Abroad by Preparing Students to Have Meaningful Cultural Experiences," "Culture and the Path of Least Resistance," and "Using Repeat Photography to Overcome Cultural Hurdles." He also is currently conducting research with the U.S. Air Force to develop online cultural training courses for FAOs.

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Studies on Leadership: Research, Development, and Practice, based on evidence at Agulhas Negras Military Academy

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Abstract: This paper aims to present the approaches, scientific research, and practices, based on evidence, of the measurement and development of leadership during the military superior training course of the Brazilian Army's military training line. The Agulhas Negras Military Academy (AMAN) is the higher education institution that trains the combatant career officers. In their five years of training at a boarding school, the cadets are subjected to a teaching program aimed at developing the leadership of the future military officer. Research and leadership approaches seek to better understand some of the main variables that support the development of the future leader. In this study, four tools that contribute to the observation and development of leadership are presented: (1) Macroprocess of leadership development—set of training practices and routines; (2) System of observation, development and attitudinal evaluation—referring to transversal competences (soft skills); (3) Analysis of work networks—based on sociometric analysis that allows a better understanding, in graphic form, of the social forces of the groups and the emergence of leadership; and (4) Psychological variables (self-esteem, self-efficacy, coping, locus of control and mindfulness) that are related to the leadership and are strategic for the cadet's self-knowledge. One concludes that the scientific research of the studied variables contributes to a better understanding of the leadership phenomenon, becoming a useful tool for the context of higher education in other military contexts.

Keywords: Leadership; Brazilian Army; Agulhas Negras Military Academy; Transversal Competences; Network Analysis; Psychological Variables.

Introduction

The Agulhas Negras Military Academy (AMAN) is the only educational institution that trains the career combat officers of the Brazilian Army basic branches (Infantry, Cavalry, Artillery, Signal Corps, and Engineering), the Quartermaster and the Ordnance. Its cadets, in addition to military training, receive university education throughout the course, enabling them to hold a bachelor's degree in military science.[1]

The course takes place during a five-year period, with the first year being taken at the Preparatory School for Army Cadets (EsPCEx), located in the city of Campinas-SP and the following four years at AMAN, all in boarding school. Currently, the academy has a total of 1,681 cadets (each training class has about 420 cadets, approximately 10 percent of whom are female).

AMAN aims to reconcile, in a balanced and simultaneous way, academic education (scientific and humanistic basis) with military education (technical and professional knowledge). The academic year for the four years of the course has an average of 1,669 hours of general curricular activities, of which 784 hours (47 percent) are dedicated only

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to military activities (theoretical and practical). These can normally last from one to five days and are mostly given at the academy's own premises and in its field of instruction (25 square miles in length).

Considered the Army's "School of Leaders," AMAN plans and streamlines activities that aim to assist the future officer, both in the learning process and in his vocational orientation.[2] The academy finds in its Psychopedagogic Section a tool for monitoring cadets, which helps them to understand their potential, capacities, and opportunities for improvement, aiming at the development of attitudes and values, as well as favoring the continuous progress of the cognitive, attitudinal, and psychomotor areas.[11]

The Psychopedagogic Section is responsible for contributing so that the teaching contains: the understanding of the cadets in relation to the fundamental precepts of the Armed Forces (discipline and hierarchy), as well as the cult of historical figures and the values of the Army,[12] and the development of the military spirit (ethos), the feeling of duty and its character, all aiming at the development of leadership.

Among the activities conducted by AMAN that aim to improve the leadership of its cadets, four tools stand out: (1) Macro leadership development process; (2) System of observation, development, and attitudinal evaluation; (3) Network analysis; and (4) Psychological variables as it can be seen in Figure 1, below:

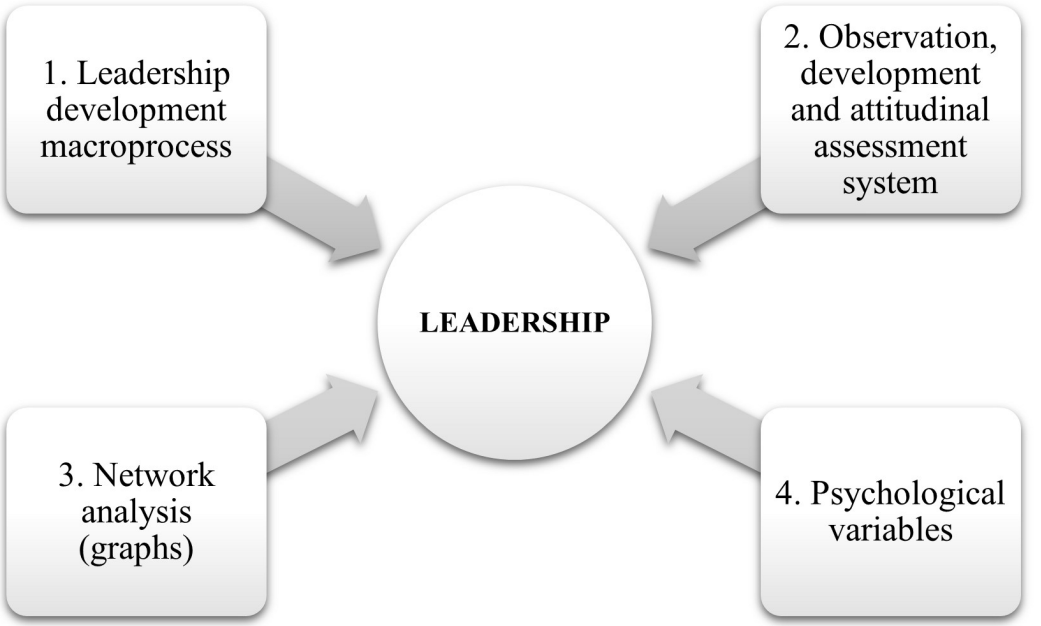

Figure 1. Tools for leadership development

Leadership Development Macroprocess

Military leadership is an instrument for commanders to move their men and women through their professional competence and personal effort, and not only through the imposition of rules and regulations.[5] Traditionally, the topic has been widely studied in military contexts6 and because it is a complex, fascinating and controversial issue,[7] the systematization of the educational process to support leadership development requires an elaborate process from AMAN.

AMAN has developed, over time, a curricular routine with a series of activities aimed at the development of leadership. Some of these actions will be presented in this topic, which can be categorized as a "leadership development macroprocess," which proposes to favor the integration of activities, systematic and unsystematic, which generate inputs and outputs of information and stimuli, and thus provide observation, the development and conscious and intentional assessment of leadership in the military academic context. In summary, the ten macroprocess tools can be categorized and presented as follows:

Tool no. 1 (T1) - Officer serving at AMAN:

Considered the main tool of macroprocess. Officers who serve in AMAN as instructors and teachers must be good examples and role models to be emulated and exert, directly or indirectly, influence in the formation of the cadet.8 Currently, around 200 officers in the Corps of Cadets and 120 in the teaching division serve at the academy, for an effective 1,681 cadets, which points to the ratio of one officer to five cadets in direct daily contact.

T2 - Academic Subjects:

Taught by the teaching division, academic subjects consist of more than twenty different university subjects that make up the curriculum for the bachelor's degree in military sciences. In addition to the general culture, which helps in the formation of robust and integrative thinking for future officers, these disciplines aim to internalize the values and attitudes necessary for the leader in the cadets.[9] Some examples of subjects taught are military law, law, languages, statistics, cybernetics, and psychology.

T3 - Military Instruction:

Conducted by the Corps of Cadets, this instruction consists of a set of theoretical and practical disciplines, developed during day and night instruction times, which aim to prepare cadets specifically for the military profession. Through combat simulation, these disciplines provide cadets with support for solving military problems. Maneuvers, military techniques, special instruction, shooting and physical education are examples of these subjects.

T4 - Cadet Command Capacity Development:

Throughout the course, cadets regularly participate in situations in which they are required to assume command-related functions. Examples are scale services, organizers

of student associations, assistant officers, commanders of small fractions of cadets, both in academic routine and in military exercises, etc. In these situations, the cadets acquire and develop the social-emotional skills necessary for the exercise of command, being evaluated and guided by their commanding officers.

T5 - Development of the Cadet's Military Identity:

Throughout the course, and especially when in command functions, especially during military instructions, the cadet is systematically observed by his superiors, and his actions are subject to feedback, both verbal and immediate, as well as those that are registered disciplinarily. These guidelines aim at consciously internalizing and structuring values consistent with the requirements of military life, especially those relating to command and leadership in combat.

T6 - Influence Groups:

To accompany the educational process, the learning and adjustment of cadets, periodic meetings are held that seek to propose interdisciplinary solutions. These meetings, called "influence groups," are composed of teachers, instructors, teaching support professionals, such as doctors and psychopedagogic professionals, who are in frequent contact with the cadets and, within their sphere of assignment, can act in the educational process. These meetings seek to anticipate possible issues that may hinder or prevent the teaching-learning process from occurring fully.

T7 - Military Leadership Discipline:

Regarding specifically to formal leadership education, AMAN has a Leadership Section, which has developed a teaching manual that provides cadets with theoretical support. At the same time, this section advises other sectors of the academy on the subject and conducts around 56 hours of theoretical and practical instruction with the cadets.

T8 - Communication Project:

When exercising command functions, together with their peers and in front of more modern cadets hierarchically, cadets practice oral and bodily expression, providing opportunities to improve their skills in the use of narrative and argumentative language, through which their team members will interpret their messages with respect and trust.

T-9 - Interpersonal Competence Development Project:

Throughout the course, cadets are observed by superiors and peers, and their actions are the target of feedback, both immediate and verbal (unsystematic) and those that generate some type of record and disciplinary consequences (systematic). In addition to the command functions already mentioned, the daily interaction in accommodation, classrooms, cafeterias, etc., can be highlighted.

T10 - Observation, development, and attitudinal assessment system:

The attitudinal area is fundamental for the training of cadets, i.e., future military leaders, in AMAN. Great effort has been made to materialize the records of attitudes on objective bases, creating a database through which descriptive and inferential analyzes of this phenomenon can be made. These analyzes indicate that the system of observation, development and attitudinal assessment has been confirmed as a predictor of desirable skills in cadets, such as leadership, as can be seen in detail in the next topic of this article.

Thus, it is concluded that the leadership development macroprocess consolidates the AMAN curricular process and allows the teaching of leadership theory, associated with the experience of academic and military routines. In this environment in which the cadet lives with their instructors, teachers, and peers, the macroprocess presents the young student with useful tools for exercising leadership.

Observation, Development, and Evaluation of Attitudes System

AMAN, since 2012, has started to implement teaching by skills.[10] Thus, in addition to technical skills (hard skills) traditionally taught and valued over the centuries, such as academic and military subjects, transversal skills (soft skills) such as attitudes, moral capabilities, and values. Thus, the AMAN curriculum document (Professional Profile) also includes soft skills.[11]

The academy has implemented its own system of observation, development, and evaluation of soft skills.[12] This process is measured and favors the cadet's self-knowledge, serving as one of the bases for the exercise of leadership, a fact corroborated by an extensive literature, which links leadership in organizations with behaviors and attitudes,[13] as well as the series of studies that have been developed at AMAN since 2012.[14]

Students are observed by the instructors, teachers, and other companions during curricular activities. The observations are launched in their own internal systems, such as the Cadets and Students Conceptualization Module (evaluation). The development takes place all the time in activities such as classes, instructions, physical activities, scale services, group work, exercises in the field, sports competitions, etc., as well as in extracurricular activities, such as living together in the accommodation, social interaction in academic unions, during releases, layoffs, and recesses.

The assessment takes place in a holistic and integrating way, seeking to measure the development of military identity throughout the course, synthesizing in grades (degrees) the cadet's performance, integrating the meritocracy process, and providing subsidies for decisions, from a complete picture of the students' attitudinal profile. In this sense, the act of evaluating transversal competences contributes to the detection of possible difficulties in the attitudinal development, favoring the orientation and correction of attitudes.[15]

As for the type, the assessment is divided into self-assessment, lateral assessment, and vertical assessment. The first is carried out by the cadet himself and has a formative character (does not generate a grade). The second is carried out by the platoon companions, and the third is centralized by a commission of instructors, who are the immediate commanders of the cadet and who have daily contact and monitoring (platoon and subunit commander).

The evaluation by the cadet's platoon mates generates the Lateral Concept Note (LCN) and the evaluation by the instructors generates the Vertical Concept Note (VCN). Both assessments (vertical and lateral) are carried out on an 11-point Likert scale. These grades are added to the other grades from the academic and military disciplines and impact the cadet's classification in the course. If any cadet does not obtain an average of five in the vertical or lateral evaluation, he will be disapproved, and his situation will be submitted to the teaching council.[16]

AMAN's summative attitudinal assessment is focused on the group of nineteen attitudes in the Professional Profile (curriculum document): Self-denial, Adaptability, Self-confidence, Comradeship, Combativeness, Cooperation, Decision, Dedication, Intellectual Discipline, Discretion, Emotional Balance, Honesty, Initiative, Loyalty, Organization, Persistence, Responsibility, Rusticity, and Sociability.[17]

It is noteworthy that these nineteen attitudes indicate the desired attitudinal profile for the cadet. The development, observation, and evaluation of these nineteen attitudes favor the formation of the military identity desired by AMAN, and it is understood that these attitudes, when well internalized, will allow future Brazilian Army officers to fully exercise their positions, in order to who can deal with the challenges that the profession will certainly present them throughout their careers.[18]

To illustrate the importance of the process of observation, development, and evaluation of attitudes and their relationship with the leadership phenomenon, a study was carried out with 417 cadets from the same training class. The military was asked which are the ones that most show leadership in the scope of the peers, with the votes added up. Then, these data were correlated with the degrees of attitude assessment: vertical concept, lateral concept, and self-assessment. Table 1 shows Pearson's correlations between these variables.

Variables	1.	2.	3.	4.
1. Leadership realized by peers	1	-	-	-
2. Vertical Concept	0,29**	1	-	-
3. Lateral Concept	0,30**	0,42**	1	-
4. Self-Assessment	0,17**	0,25**	0,27**	1

Table 1. Pearson's correlations between the leadership realized and attitudinal assessment variables

These results are statistically designed and aimed at producing attitudinal content for the leadership development process at AMAN.

Network Analysis (Graphs)

Sociometry and analysis tools for work networks greatly contribute to the understanding of characteristics that favor the phenomenon of the emergence of leaders in different contexts, especially the military. Through sociometry, it is possible to survey and measure the social forces within groups and, through the use of work networks, it is possible to graphically indicate who the leaders of the groups are, the compositions of the subgroups, the isolated individuals, those that exert greater or lesser influence on the group, etc.[19]

Sociometric and other network analysis tools contribute greatly to the understanding of characteristics that favor the phenomenon of the emergence of leaders in different contexts, especially the military. Sociometric analysis consists of an advanced and orderly technique of the tendency to measure and describe the dynamics of the groups, determining the position of everyone in the group in which he exercises a defined role, including those of leadership.[20]

In the network analysis methodology, individuals can be represented by nodes and the processes of choosing directional or bidirectional edges, which help in detecting the emergence of leaders. The graphical presentation (graph) can also show the levels of affinity, from the distance between the nodes. This procedure is used not only to verify the behavior of groups in organizations,[20] but also for semantic or psychometric analysis.[21]

To illustrate the use of this tool in helping to understand the emergence of the phenomenon of leadership, Figure 2 presents an example of network analysis resulting from a sociometric test carried out with a cadet platoon.

The work network in Figure 2 was composed based on the perceptions of leadership within the group with thirty-four members. It can be partially concluded in a first analysis of the data obtained in the figure that platoon has five subgroups. The "purple" subgroup has the largest strength (eleven cadets), is the most central and comprises three very chosen cadets "B," "U," and "D." The "light green" subgroup has the second largest number (eight cadets) and showed a tendency to move away from the platoon as a whole, with the "Y" cadet standing out in this subgroup. The other subgroups in order of importance are "orange" (with emphasis on cadet "M"), "blue" and "dark green." It is concluded that cadets "B," "D," "M," and "U" received many of the total votes, including from members of other subgroups, which suggests the ability to lead with peers.

With this information, the commanding officer of the cadet platoon was able to better understand the internal social forces of his subordinates and acted to intentionally integrate the cadets of the "light green" subgroup with the others. In addition, the officer

was better able to employ the "B," "D," "M," and "U" cadets for those missions in which leadership competence was most required, such as cadets in command roles in military instructions practices.

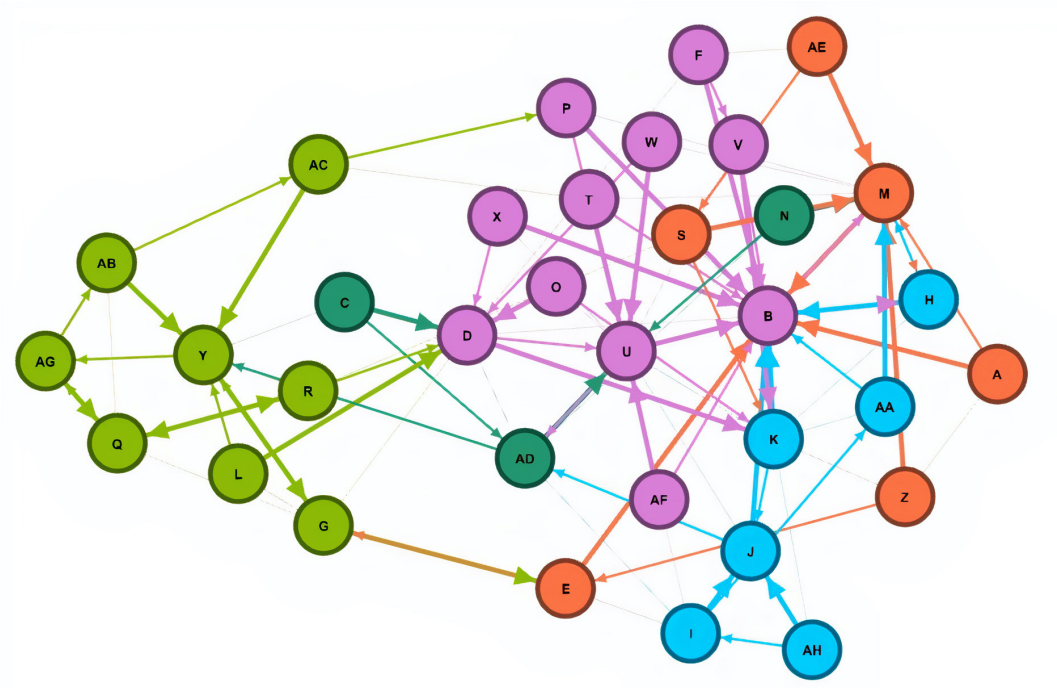

Figure 2. Example of network analysis (leadership)

Psychological Variables

Scientific research on psychological variables and their relationship with the leadership phenomenon is a constant activity of the Psychopedagogic Section. These variables allow better interventions to be made with cadets, offering them tools so that they can develop skills that ensure their ability to lead.[22]

As a result of almost a decade of research on the subject, among the psychological variables studied, it was found that some are considered as more relevant or central, as predictors of adaptability to military higher education and the leadership development process, which are: (1) self-esteem; (2) self-efficacy; (3) coping; (4) locus of control; and (5) mindfulness.[23] This section will present a brief definition of each variable and, at the end, the results of a comparative study with the leadership.

(1) Self-esteem:

Self-esteem can be understood as the degree to which the qualities and characteristics contained in the concept of self (self-concept) are perceived as positive. It reflects the

subject's physical self-image and his view of his own achievements, capacities and values.[24] The more positive the perception of these qualities and characteristics is, the greater the self-esteem. A reasonably high degree of self-esteem is considered an important component of mental health.

Considered an important predictor of favorable results, both in adolescence and in adulthood, it has a direct relationship with occupational success and academic performance. This phenomenon has been researched at AMAN and the results indicate its importance for school success.[25]

(2) Self-efficacy:

It refers to the subject's belief about the ability to successfully perform some activity. The understanding of the construct refers to the Social Cognitive Theory, whose doctrinal essence attributes to the person the profile of the agent of their development process. As an agent, the individual intentionally influences the processes, changing the circumstances of life and himself.[26]

In this perspective, people have control of the action; are self-organized, self-reflective, creative, proactive, and self-controlled; and are not dependent on environmental influences.[27] This is a study with favorable results at AMAN and has a correlation with the development of leadership in the military educational process.

(3) Coping:

Coping strategies can be understood as the set of cognitive and behavioral strategies developed by the subject to deal with the internal and external demands of the person-environment relationship, which are assessed as excessive, and the emotional reactions caused by these demands.[28] Coping can be evaluated from different dimensions, being considered in this study: (1) Control is related to emotion, behavior, avoiding hasty action; (2) Conversion is associated with social and behavioral withdrawal, and the individual can take refuge in the imaginary and in the dream; (3) Social distraction seeks to carry out activities with the help and support of others; (4) Social support is the desire or need for help through collective work or asking for advice; and (5) Refusal is the denial of the adverse situation or denying that there is a problem.[29]

Research results indicate that cadets have been making greater use of strategies that are positive from the point of view of facing the challenges they encounter. Coping strategies can be hierarchical, considering the degree to which they are desirable in the military training environment: control strategies, followed by social support, social distraction, and withdrawal, form this logical sequence.[30]

(4) Locus of control:

The locus of control refers to the basic motivation of people in relation to guidelines and perceptions about how much control they have in the different situations of their lives.[31] Thus, the person can perceive himself as controlling events or as being controlled by factors external to it.[32] Some individuals believe that they own their own destiny, while others perceive themselves as a product of chance, thinking that everything that happens to them is the result of factors that are out of their control. The first type tends to have the "internal control locus" and the second the "locus of external control."[33] Externality is not necessarily bad or undesirable, when at low levels; however, a high degree of externality is associated with difficulties to face the natural challenges of life, which in military contexts is a factor that deserves attention as well, because there was a difference between people who believe in the power of others over themselves and people who perceive the world as unpredictable and uncontrollable. In this way, there are three dimensions of control: I (internality), P (other powerful externalities) and C (chance externalities).[34]

Internal individuals (high internality) tend to be more successful at work and more satisfied with it. They actively seek information before making a decision, are more motivated to achieve, and strive more to gain control over their environment. Thus, this group performs better in more sophisticated tasks and executive functions, which require initiative and processing of complex information, as is the case of the cadet.[35]

(5) Mindfulness:

Mindfulness refers to being present in what is happening, without preconceptions or judgments.[36] Mindfulness is much more than paying attention. It is a way of training the mind, heart, and body to be fully present in life. It is both a practice and a way of life.[37]

The benefits of mindfulness have led organizations to help their employees manage stress, increase emotional intelligence, and develop leadership potential.38 In the military context, this phenomenon has been studied and practiced in the armed forces, as in the U.S. Army[39] and the U.S. Marines.[40] In the Brazilian Army's academy, the theme has been explored with encouraging initial results.[41]

In order to present how these variables are related to leadership, in the case of the formation of AMAN, an empirical study was carried out with 417 cadets from the same training class. Initially, the participants underwent the sociometric test, indicating the companions who, in their perceptions, most evidenced leadership in the context of peers. Then, all responded to the scales of the psychological variables presented,[42] on a 5-point Likert scale. For the analysis, respondents were divided into two groups: (a) those who received at least one vote (236); and (b) those who did not receive votes (181). Finally, the averages of the scores received were compared between those who did not receive votes and the subgroup composed of the first decile of those who received votes (24), using the student test for independent samples. The results indicated that, according to this research, there is a difference between the averages of the groups ($p < 0.001$), as can be seen in Table 2:

Variables	First leadership decile	Participants who didn't get any votes
1. Self-esteem	4,42	4,08
2. Self-efficacy	3,85	3,65
3. Coping (control)	4,27	4,02
4. Coping (social support)	3,20	3,35
5. Coping (refusal)	2,15	2,31
6. Coping (social distraction)	2,63	3,04
7. *Locus* of control (I)	3,53	3,51
8. *Locus* of control (P)	2,00	2,29
9. *Locus* of control (C)	2,09	2,43
10. Mindfulness	3,47	3,39

Table 2. Differences in the average score obtained between those who did not receive votes and the first decile of those who did

Conclusion

This paper aimed to present some of the practices carried out during military training at AMAN that had as purpose the cadet leadership development, based on evidence, being categorized in four dimensions: (1) Leadership development macroprocess; (2) System of observation, development, and attitudinal evaluation; (3) Network analysis; and (4) Psychological variables. The leadership development macroprocess illustrates how consolidation of the curriculum, over more than two hundred years, made it possible for the teaching of leadership theory, together with the experience of academic and military routines, in a context in which the cadet lives with instructors, teachers, and peers, offering young people useful tools for exercising leadership.

The system of observation, development, and attitudinal evaluation in the course allows cadets not only to learn technical skills, but also to access an education focused on transversal skills, such as values and attitudes, considered essential for the future military officer. The use of sociometric and the network analysis allows teachers and students to better understand, with graphic support, how the social forces related to the emergence of leadership take place, facilitating their interventions. Finally, the study of some of the psychological variables allows instructors and teachers the best knowledge of cadets, and students, self-knowledge and self-development. It is hoped that the practices presented here can serve as a support and reference for studies and interventions aimed at the development of leadership in other military academies.

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George Hamilton de Souza Pinto has a degree in physical education as well as a master's degree in psychology from UFRRJ - Research Line in Psychosocial and Collective Processes (2015-2017). He is a doctoral student in psychology at UFRJ. He holds a major in sociology and a bachelor's in military science from AMAN (1993). He has a professional master's degree in military science (2000-2001). He has a specialization in psychopedagogy (2007). He served as head of the Psychopedagogic Section of the Academics Division at AMAN (2017-2019). He has an interest in the development and measurement of the attitudinal field. He conducts research relating to psychological variables linked to the skills needed by professionals in different contexts.

Marcos Aguiar de Souza is a doctor of psychology and currently serves as a full-time professor at the Federal University of Rio de Janeiro. He is interested in social information and its consequences for phenomena such as data collection and analysis techniques, construction, and validation of measurement instruments, as well as in organizational psychology and studies related to health and well-being in military and public security contexts, development leadership and the consequences of the fragility of norms in organizational contexts for the health and quality of life of the worker, namely in relation to bureaucracy and anomie.

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Increase of Officer Cadets' Competences by Internationalization

Harald Gell

Abstract: In 2008, all 27 European Union Ministers of Defence issued a mandate for a so-called Military Erasmus Implementation Group, which would consist of education experts from all European Union basic officer education institutions, in order to increase interoperability among the European armed forces, to harmonize the European basic officer education, and thus, to promote a European Security and Defence Culture among the future military leaders.

The Implementation Group (IG) started its work in 2009 by developing exchange possibilities for officer cadets while ensuring these will not have disadvantages for their studies. Fifteen lines of developments were implemented reaching from regulations on how to recognize learning outcomes achieved abroad, via possibilities on how to finance the activities, to elaborations of common modules and international semesters for the different services. The IG's activities were not accepted unopposed by some military decision makers. This criticism was the reason for a scientific research study by the IG chairman to identify if there are benefits for officer cadets caused by international activities, in particular, if there is an increase of competences possible? If the outcomes of the study show that the exchange is a success, this will prove the criticism wrong. The research study had three avenues of approach: comparing metabolic data, grades and analyzing evaluation reports of exchange activities. In total, some 42,000 officer cadets' data were compared by analyzing situations before and after mobility periods. The results of this research study are presented in excerpts in the present article.

Keywords: Cadet; Competences; EMILYO[1]; European Union; Internationalization; Stress Management.

Initial Situation: The European Union's Strategic Approach

In December 2003, the European Union (EU) adopted the European Security Strategy (ESS) as a reaction to security threats and challenges.[2] The main topics of relevance were terrorism, proliferation of weapons of mass destruction, regional conflicts, state failure, and organized crime. After a period of five years, the EU evaluated the implemented measures and created a report on the implementation of the ESS.[3] Three new threats were added—cyber security, energy security, and climate change—and it was clearly stated that managing these threats and challenges require broad measures including military and civilian actions. A concept was developed that was named "comprehensive approach,"[4] meaning that starting from the decision-making process, all potential stakeholders involved should be integrated into the sequence of events.

Within the report on the implementation of the ESS, the role of the military was described as being a part of crisis management. To prepare future officers of the armed forces for their duty after graduation within an international (European) environment, the necessity for a common education at basic officer education level was stressed within this document.

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Finally, at the end of 2008, all 27 EU Ministers of Defence approved a document that can be seen as the "founding paper," and as the mandate for the Military Erasmus Implementation Group, with the official name "European initiative for the exchange of young officers inspired by Erasmus."[5, 6]

An Implementation Group (IG) was established and given the task to develop measures to create international exchanges for officer cadets and young officers during their initial training phase, in order to reinforce the ability of the European armed forces to work together and to increase their interoperability. Thus, the future military leaders should be convinced concerning the need for a European Security and Defence Culture.

Initial Situation: The Military Erasmus Implementation Group

The IG is a voluntary configuration of almost all EU basic officer education institutions,[7] consisting of education experts, with assistance from the European Security and Defence College (ESDC).[8] The following figure 1 and corresponding table 1 illustrate the member institutions of the IG.

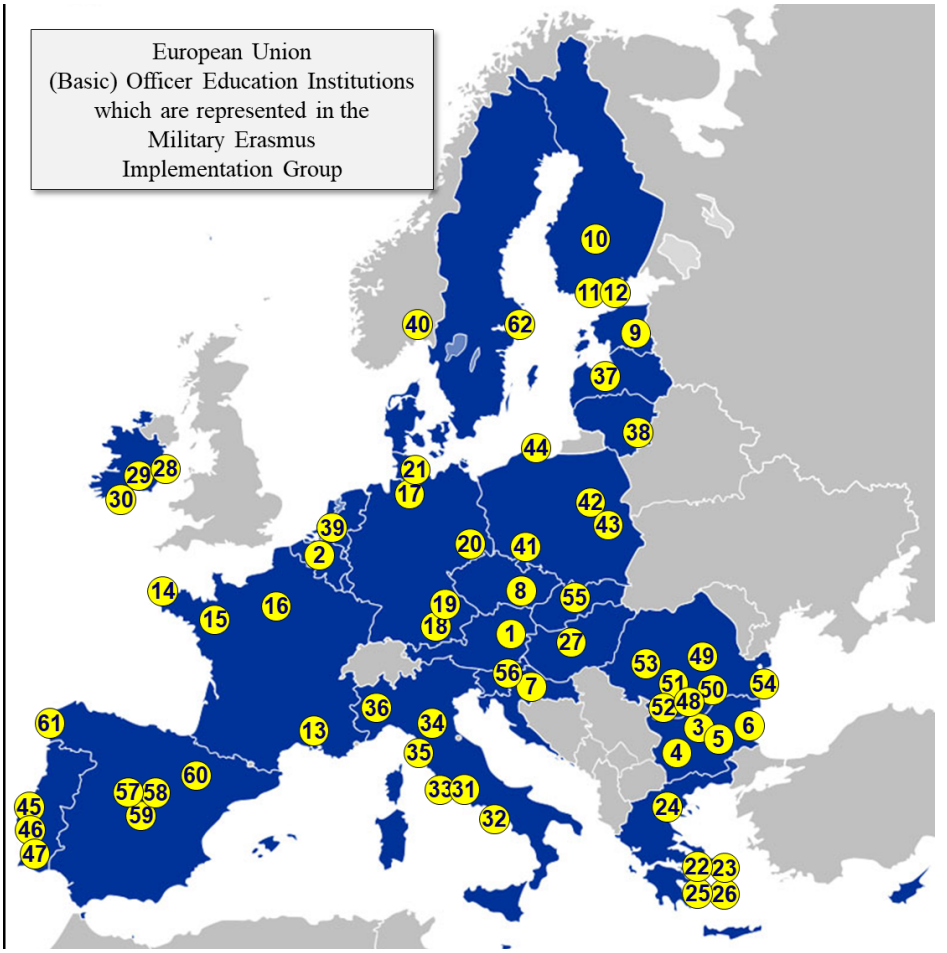

Figure 1: EU basic officer education institutions represented in the IG[9]

No.	Country	Institution
1	Austria	Theresan Military Academy
2	Belgium	Royal Military Academy Brussels
3	Bulgaria	"Georgi Benkovski" Air Force Academy Dolna Mitropolia
4	Bulgaria	National Defence College "G. S. Rakovski" Sofia
5	Bulgaria	National Military University Veliko Tarnovo
6	Bulgaria	Nikola Vaptsarov Naval Academy Varna
7	Croatia	University of Zagreb / Croatian Defence Academy Zagreb
8	Czech Republic	University of Defence Brno
9	Estonia	Estonian Military Academy Tartu
10	Finland	Air Force Academy Tikkakoski
11	Finland	National Defence University Helsinki
12	Finland	Naval Academy Helsinki
13	France	École de l'Air Salon-de-Provence
14	France	École Navale Brest
15	France	Écoles de Saint Cyr Coëtquidan
16	France	Gendarmerie Officers' College Malakoff
17	Germany	Helmut Schmidt University Hamburg
18	Germany	Medical Academy of the Bundeswehr Munich
19	Germany	Officers' Air Force School Fürstenfeldbruck
20	Germany	Officers' Lan Forces School Dresden
21	Germany	Officers' Naval School Flensburg-Mürwik
22	Greece	Hellenic Air Force Academy Athens
23	Greece	Hellenic Army Academy Athens
24	Greece	Hellenic Military Academy of Combat Support Officers Thessaloniki
25	Greece	Hellenic Military Nursing Academy Athens
26	Greece	Hellenic Naval Academy Piraeus
27	Hungary	National University of Public Service Budapest
28	Ireland	Air Corps College Dublin
29	Ireland	Cadet School Military College Co. Kildare
30	Ireland	Naval College Cork
31	Italy	Academy of the Economic and Financial Police Rome

No.	Country	Institution
32	Italy	Air Force Academy Pozzuoli
33	Italy	Carabinieri Officers College Rome
34	Italy	Military Academy Modena
35	Italy	University of Pisa / Italian Naval Academy Livorno
36	Italy	University of Turin / School of Applied Military Studies Turin
37	Latvia	National Defence Academy of Latvia Riga
38	Lithuania	Military Academy of Lithuania Vilnius
39	Netherlands	Netherlands Defence Academy Breda
40	Norway	Norwegian Defense University College Oslo
41	Poland	Military University of Land Forces Wroclaw
42	Poland	Military University of Technology Warsaw
43	Poland	Polish Air Force University Deblin
44	Poland	Polish Naval Academy Gdynia
45	Portugal	Air Force Academy Pêro Pinheiro
46	Portugal	Military Academy Lisbon
47	Portugal	Naval Academy Almada
48	Romania	"Alexandru Ioan Cuza" Police Academy Bucharest
49	Romania	Henri Coanda Air Force Academy Brasov
50	Romania	Medical Military Institute Bucharest
51	Romania	Military Technical University "Ferdinand I" Bucharest
52	Romania	National Defense University "Carol I" Bucharest
53	Romania	Nicolae Balcescu Land Forces Academy Sibiu
54	Romania	Romanian Naval Academy "Mircea cel Batran" Constanta
55	Slovakia	Armed Forces Academy Liptovský Mikuláš
56	Slovenia	Military Schools Centre Maribor
57	Spain	Air Force Officers Academy San Javier
58	Spain	Central Defence Academy Madrid
59	Spain	Guardia Civil Officer Academy Aranjuez
60	Spain	Military Academy Zaragoza
61	Spain	Naval Academy Pontevedra
62	Sweden	Swedish Defence University Stockholm

Table 1: EU basic officer education institutions represented in the IG[10]

Initial Situation: Elaborations of the Military Erasmus Implementation Group

In February 2009, the IG met for the first time in order to find a way for accomplishing the aim of the EU Ministers of Defence. Since then, the IG has met on a quarterly basis and the IG chairman stressed the need for merging existing programs, such as the civilian Erasmus and other funding, which are not financed by any of the basic officer education

institutions' military budgets, with the goals of the initiative. In the meanwhile, as of June 2021, the IG held its fiftieth meeting and defined specific fields to elaborate on. These fields were named "Lines of Development" (LoDs), each of them with a specific purpose, most of them with an expert as chairperson, according to table 2 hereinafter.

LoD No.	LoD name	LoD description
1	System of Equivalences	Within different basic officer education systems different education parts are belonging to either the academic or to the vocational education. This LoD describes how to transfer a non-academic education into academic points for the European Credit Transfer and Accumulation System (ECTS) and vice versa.
2	Development of Competences	The adopted document describes, which competences an officer cadet should have – using common descriptors according to the European Qualification Framework (EQF). All the education descriptions use these descriptors. In doing so, mutual recognition is facilitated.
3	Development of E-Learning	Elaborations for e-learning/distance-learning.
4	Create an IT-Platform	A platform is needed to share useful documents, latest news, and education offers of EU Member States (www.emilyo.eu).
5	(Legal) Framework	Exchanges of students and lecturers may cause administrative and legal problems. How to deal with these matters is described in this adopted document. The institutions just have to use it to facilitate exchanges.
6	National Implementation of the Program	National authorities and responsible persons concerning exchanges should know about the initiative to support it. There are different avenues of approach to fulfil this communication flow, e.g., Emilyo homepage, Wikipedia pages, or briefings during high-level conferences.
7	Financing the Initiative	Exchanges request additional costs. There are possibilities to be supported by existing exchange programs, such as the civilian ERASMUS+ program. This LoD identifies these possibilities for external funding and provides the information to all persons being responsible for exchanges.
8	Common Modules	The content of a common module is seen as to be important for all European officer cadets—either for all services or for a single service. After being adopted by the IG, the common modules shall be integrated into the national curricula. In doing so – step by step—the European curricula are harmonized.
9	Future Projects	Permanently, there are new European Union projects appearing, which the IG may benefit from. This LoD concentrates on possible use and implementation of new projects.
10	Gender Mainstreaming	Each officer cadet needs to know why women should serve in the armed forces, based on the UNSCR 1325 (women, peace and security) and the EU Council conclusions. LoD 10 organizes activities to achieve these goals.
11	International Naval Semester	This LoD develops an international semester for the naval forces, with a similar approach as the already developed international semester for land forces.
12	International Air Force Semester	This LoD develops an international semester for the air forces, with a similar approach as the already developed international semester for land forces.
13	International Technical Semester	This LoD develops an international semester for the military technical institutions, with a similar approach as the already developed international semester for land forces.
14	Research & Development	This LoD identifies research and development projects that are elaborated by more EU institutions for the benefit of all intuitions.
15	International Medical Semester	This LoD develops an international semester for the military medical institutions, with a similar approach as the already developed international semester for land forces.

Table 2: The IG's Lines of Development (LoDs) with their specific purpose[11]
These LoDs are not directly associated with to the research results that are described in the following chapters. The LoDs' main goal is to pave the way for the exchanges to facilitate them.[12]

Other projects of the IG are high-level conferences, working conferences, developments of joint programs, or publishing scientific papers.

At present time, in compliance with the mandate, the IG is able to organize some 100 exchange activities annually, among them some 25 international semesters, comprising some 60,000 training days for some 2,100 officer cadets and civilian students of the security field.[13] Even the High Representative and Vice President (HR/VP) of the European Union for the Common Foreign and Security Policy (CFSP), Federica Mogherini, stated in 2018 that "…Military Erasmus has become an essential resource for our military personnel, and thousands of military Officers have benefited from the program […] today, our Common Security and Defence Policy already reaps the benefits of Military Erasmus on the theatres of operations, with young leaders trained to work together. We see the practical benefits of a common military culture."[14]

Figure 2: Officer cadets from Croatia, Austria and France during an IG exchange[15]

The ideal avenue of approach to fulfil the IG's mandate would be to involve 100 percent of all European officer cadets into exchange activities. However, the EU basic officer education institutions have to take into consideration some specific pre-conditions for national accreditation of national higher education. Currently, only Austria and France included into their national curriculum an entire semester abroad; all the other European institutions have to find their national options to contribute to the IG's goals. One possibility is the so-called "internationalization at home," which is basically organizing international

modules for the national officer cadets at the national institution, involving international lecturers and officer cadets.

In opposition to the IG's achievements of the last years, some military decision-makers criticized the program because of the need for financial investments, increased administration, language difficulties,[16] and difficulties for the recognition of learning outcomes. This criticism caused the author's motivation to start a research project concerning the potential benefits of international exchanges for officer cadets. Excerpts of this research project are introduced in the next chapter.

Exchange Research Study: Pre-Studies and Explanation of Stress Measurements

For a period of about one decade the author used a specific approach of analyzing the blood of probands to identify their resilience. With the so-called clinical stress assessment method (CSA method) some 11 metabolic blood parameters can be identified, automatically analyzed and interpreted. This CSA method was invented by university professor Sepp Porta, who is an Austrian endocrinologist.

To understand the measurements, first it has to be explained: "What is stress?" According to prestigious stress researchers, "…stress is the individual's reaction of the body onto a certain mental and/or physical burden."[17]

The reactions of the body and the frame of stress are illustrated in figure 3.

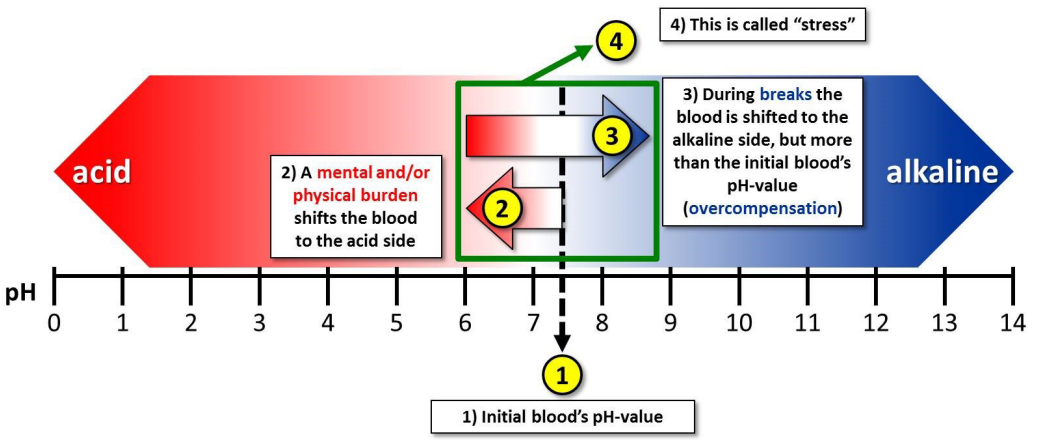

Figure 3. Pictorial explanation of stress[18]

For a better understanding of figure 3, an example is mentioned hereinafter:

- The blood's pH-value of a body in a state of rest is 7.4.
- A person undergoes a physical sports training—for example, a run. Because of the physical burden, in particular because of the release of carbon-dioxide (CO2) from the cells into the blood, the blood becomes more acidic.
- A more acidic blood transports less oxygen. That is why the body wants to get rid of the CO2.
- To get rid of the CO2, the body reacts with faster breathing and with the release of Base Excess (BE) and Hydrogen Carbonate (HCO3) to force the blood to become more alkaline. This process can be clearly measured with the available instruments.
- After the run, while taking a break, the blood turns more and more back to a pH-value of 7.4; however, the process does not stop there. It turns more alkaline than 7.4 to prepare the body for a next similar burden. This is called overcompensation or in simple words, "training."

Stress researches call all these pH-values' shifts and secretion of chemicals to control the pH-value "stress."

The author used the CSA method and required specific military leadership tasks from officer cadets by analyzing the blood with a device from the intensive medicine to identify how burdened they were because of the task.

Figure 4: The technical equipment to measure the blood's metabolic data, the so-called Nova Biomedical Phox-M device[19]

For a proper calculation of the results, the officer cadets had to undergo standardized sport activities before and after the leadership task, because prior charges could falsify the results and with the integration of the sport results into the calculations, any distortion could be eliminated. As an example, the following figure 5 demonstrates one of the 11 metabolic data—in this case, lactate—and how it was compared with the achieved results. In this case, even predictions about future results could be made.

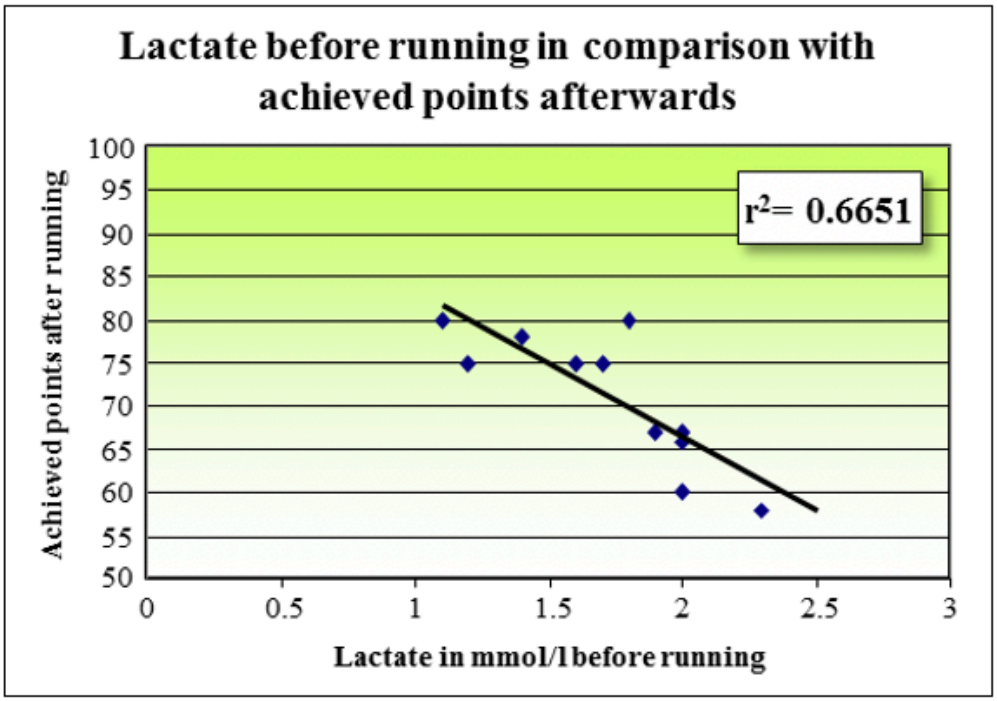

Figure 5: Lactate before running compared with achieved points afterwards[20]

Based on the stress measurements of hundreds of officer cadets, the following main points could be identified:

- stress can be measured accurately;
- how burdened an officer cadet is because of a specific task, can be measured;
- how much the officer cadet's body prepares for a future burden during low intensive phases, can be measured;
- how often and with which sequence specific tasks should be trained to decrease an individual burden, can be measured; and
- how electrolytes play a vital role for the individual intensity of a burden; in particular the lack of magnesium has a negative effect.

Originally, all the experiments with the analyses of the officer cadets' blood had the intent of providing additional information for the selection of future leaders and to pass to them proposals for a more effective and efficient education. More accidentally than by purpose, the direction of the research shifted to identifying the potential benefits for officer cadets concerning international exchanges. Based on a huge officer cadets' metabolism database, data from cadets who spent a semester abroad were compared with data from those ones who did not go abroad. Blood data of officer cadets that went on the mobility exchange in comparison with non-mobility officer cadets, measured before their stay abroad, showed no significant differences; that is why hereinafter only the comparison after the mobility period is described. The results of this comparison as well as other additional comparisons are described in the next chapter.

Exchange Research Study: Research Study to Identify Benefits of International Exchanges

To guarantee a high quality of the research project, it was embedded into the highest possible academic process, the habilitation proceeding. A look from different angles with different research methods onto the exchanges should avoid criticism. The three main research pillars are introduced within the sub-chapters hereinafter.[21]

Pillar 1: Comparisons of Metabolic Data

During the research projects, a check system was developed that objectively quantifies the amount of mental arousal, determined by a change in metabolic blood parameters.[22] The simple rationale consists of the knowledge that adrenaline-increase proportionally influences parameters of breathing, such as:

- pCO2 decrease and pO2 increase;[23]
- buffer potential, this may be considered as compensatory power;
- lactate and glucose changes, characterizing the state of carbohydrate metabolism;
- changes of blood electrolytes like calcium (Ca), potassium (K), magnesium (Mg) and sodium (Na), all of them are shifted in and out of body tissues in proportion to the intensity of mental loads.

The changing inter-relationships between the above mentioned parameters are measurable and quantifiable instruments not only for a mental load but also for the individual stress capability; or, in other words, mental arousals trigger adrenaline secretion, and adrenaline increases impact upon metabolic parameters—that is why the precise quantity of mental arousals is detectable from the change of those metabolic parameters.[24] Adrenaline has a biological half-life of about one to three minutes, that is why an accurate measurement just of the adrenaline secretion's consequences can be measured.

Based on the argument above, it can be deduced that, if the mental arousals of mobility students are lower than of non-mobility students, the mobility students increased their personal development, as such, during their stay abroad—or, in particular, they increased their resilience.

For this experiment the basal data were taken. Concerning the results, all parameter means of mobility officer cadets and non-mobility officer cadets were calculated and compared to each other. When taking the blood from an individual, according to the ethical rules of the World Medical Association (WMA), only the results' means are allowed to be published to assure anonymity. No further information about the individual can be retrieved. For the research study, the resilience of a group of officer cadets as such should be determined; the calculations using these means for the respective group were conducted to fulfil all pre-conditions.

The summarized results are shown in the following table 3; significant parameters' deviations are highlighted in yellow, and significant correlations with the pH-value are highlighted with red figures. The table's abbreviations are explained below the table.

Mobility Cadets	pH	pCO_2	BE	HCO_3	pO_2	O_2sat	Na	Ca	Mg	K	BG
Unit	value	mmHg	mmol/l	mmol/l	mmHg	%	mmol/l	mmol/l	mmol/l	mmol/l	mg/dl
Mean	7.423	35.175	-1.475	23.188	71.213	94.300	144.425	1.115	0.504	4.528	103.125
SD	0.027	2.909	1.798	1.656	6.546	1.872	2.456	0.076	0.028	0.242	7.492
SEM	0.009	1.029	0.636	0.585	2.315	0.662	0.868	0.027	0.010	0.086	2.649
Non-mobility Cadets	pH	pCO_2	BE	HCO_3	pO_2	O_2sat	Na	Ca	Mg	K	BG
Unit	value	mmHg	mmol/l	mmol/l	mmHg	%	mmol/l	mmol/l	mmol/l	mmol/l	mg/dl
Mean	7.411	34.770	-2.550	22.270	73.450	94.660	143.760	1.055	0.501	2.992	104.500
SD	0.017	2.577	1.059	1.140	6.332	1.388	1.165	0.031	0.025	0.267	15.565
SEM	0.006	0.911	0.374	0.403	2.239	0.491	0.412	0.011	0.009	0.094	5.503

Table 3: Metabolic basal-data of mobility and non-mobility officer cadets after a mobility period[25]

- Standard Deviation (SD) is a measure that is used to quantify the amount of variation or dispersion of a set of data values.
- Standard Error of Mean (SEM) is the standard deviation of the sample mean's estimate of a population mean.
- Potential of Hydrogen (pH) is a scale used to specify the acidity or basicity of an aqueous solution. It is logarithmic and inversely indicates the concentration of hydrogen ions in the solution.
- pCO2 is the partial pressure of carbon dioxide; pO2 is the partial pressure of oxygen.
- Base Excess (BE) expresses the amount of acid or alkaline that is necessary to restore an acid alkaline balance according to the normal pH-value of the body.
- Hydrogen Carbonate (HCO3) acts in bodies as blood buffer system to restore an acid alkaline balance.
- Oxygen Saturation (O2sat) is a relative measure of the amount of oxygen that is dissolved or carried in a given medium.
- Blood Glucose (BG) is the amount of glucose, or sugar, present in the blood and is the primary source of energy for the body's cells.
- Millimeter of Mercury (mmHg) is a unit to express the blood pressure or other body fluids.
- A Mole is a unit of measurement for the amount of a substance. It describes as many atoms as there are in 12 grams of pure carbon. As a figure it expresses 6.022 x 1023 parts. A millimole per liter (mmol/l) expresses the thousandth part of it within 1 liter.

Interpretation of the Most Important Results:

- Non-mobility officer cadets have significant lower Base Excess (BE), Calcium (Ca) and Potassium (K), which indicates their increased basal-metabolism.
- Non-mobility officer cadets need for the same pH-value a double increased exhalation, which is an evidence for mental infuriation.
- Mobility officer cadets have a 65 percent better saturation of Oxygen (O2). They profit from a better O2-supply to the heart, brain, and muscles.

As a conclusion of the calculations and interpretations of officer cadets' metabolic data it can be stated that mobility students, after their mobility period, benefit from their better oxygen transfer in comparison with non-mobility students.

As a consequence, going abroad for longer periods increases mobility students' personal development because the chances to manage challenges better and their resilience are increased.[26]

The calculations based on the blood analyses were made a few weeks after the return of the mobility officer cadets from a semester abroad. The exact reason for an increased resilience during the semester abroad could not be identified, but since all mobility officers cadets who returned from different countries—France, Germany, and the United States of America—had a very similar hemogram. The reason for their increased resilience in comparison with the hemograms of non-mobility officer cadets must have had origins in the semester abroad.

It could not be clearly identified if the increase of resilience is based on different training programs, different surroundings, or different cultures, and could not seriously be measured. The fact remains that, before mobilities, the resilience of all officer cadets was identified with no significant differences. However, after the mobility period, the mobility officer cadets´ resilience was increased after having returned from different countries or even different continents if compared to the resilience of those ones who did not go abroad.

Each physical or psychological burden causes the body to perform a so-called overcompensation, meaning, the body develops certain resilience for similar future burdens. The time spam of the increased resilience of mobility officer cadets after having returned from a semester abroad could not be measured because one semester after their return they graduated and were not available for post-study measurements. It can only be assumed that the duration of their overcompensation lasts similar to the duration of any other physical or mental training, which is: overall duration of burden equals overall duration of better resilience.

Pillar 2: Comparisons of Grades

During the Austrian basic officer education each and every absolved education module is to be evaluated and officer cadets receive grades from 1 to 5. In this education system, a grade expresses not only a special knowledge, but also the achieved skills and competences that are listed in each single module description.

The author took all grades of six graduated classes, which represent some 360 officer cadets and some 25,000 grades. Then he eliminated those grades, which could falsify the results. These were grades when the officer cadets were educated in different groups, such as different language groups or grades of the different branch education.

At the end, some 18,500 grades remained. The means of all mobility students were compared to the non-mobility ones by calculating the differences before and after the mobility periods. A mobility period represents an entire semester abroad. The results were astonishing:[27]

- Mobility officer cadets of all classes achieved after their mobility periods always better grades than the rest of the class.
- Mobility officer cadets, depending on the year of graduation, had between 15.3 percent and 80 percent better results after the mobility period in comparison to the non-mobility officer cadets. The results of all classes are listed hereinafter in table 4. The lower the number, the better are the results because "1" is the best grade.

	entire class			mobility students	
gradu-ation	best mean	worst mean	difference	difference of mobility students' mean after mobility period	percentage of better grades of mobility students
2010	1.67	2.48	0.81	-0.24	-29.41
2011	1.64	2.46	0.82	-0.32	-39.16
2012	1.61	2.66	1.04	-0.84	-80.00
2013	1.95	2.68	0.73	-0.32	-44.09
2014	1.92	2.64	0.72	-0.11	-15.26
2015	2.00	3.03	1.03	-0.17	-16.13

Table 4: Difference of mobility and non-mobility officer cadets' grades[28]

- By comparing all grades' means, all officer cadets had better grades toward the end of education but calculating the means of all officer cadets after the mobility period, the mobility officer cadets could achieve a twice better increase of grades in comparison to the non-mobility officer cadets. Since better grades express better achieved learning outcomes, it can be deduced that going abroad, as such, increases the officer cadets' competences because competences are the most important part of a grade.

The exact reason for better grades of mobility officer cadets after their return could not be identified, which is similar to the measurements of metabolic data. However, the results of all grades before and after their mobility in comparison with all non-mobility officer cadets show that they must have encountered a positive effect onto their learning outcomes. Figure 6 illustrates this positive effect on the example of one class.

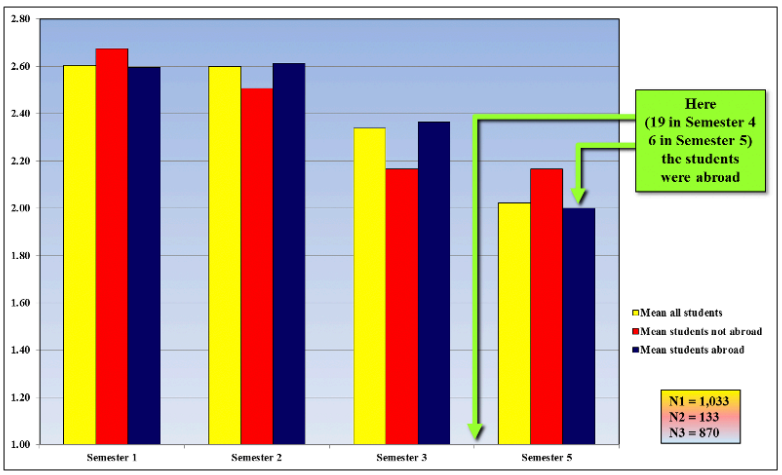

Figure 6: Development of grades before and after mobility periods of one class[29]

Interpretation of figure 6:

- The smaller the pillar, the better is the grade.
- Mobility officer cadets were selected at random (for explanations, see endnote 27).
- All officer cadets achieved better grades toward the end of their education.
- Comparing the respective semesters, mobility officer cadets performed sometimes a bit better before their mobility period, sometimes worse in comparison to the non-mobility officer cadets.
- After the mobility period, when studying in the same class the same topics with their non-mobility colleagues, all mobility officer cadets could achieve better grades in comparison to the non-mobility officer cadets. The calculation of means was used to create an overall picture. Looking at each individual, it can be stated that not a single mobility officer cadet stood outside of this picture.

As a conclusion, it can be stated that going abroad for a semester had a positive effect onto the skills and competences of officer cadets.[30]

Pillar 3: Analyses of External Evaluation Reports

According to the elaborations of the Military Erasmus Implementation Group, the Austrian Theresan Military Academy implemented some 17 EU common modules (CMs) into the national curriculum. The spearhead of these common modules is the one-week CM on Common Security and Defence Policy (CSDP), which was externally evaluated by an expert from the European Security and Defence College (ESDC) several times.[31] National and international officer cadets participated in each of these CMs.

Figure 7: Officer cadets from Poland, Hungary, Romania and Austria during a CM on CSDP[32]

Out of the above mentioned evaluation reports with some 23,000 data, the author merged the overlapping outcomes of seven reports, different modules that may have the same results, to identify generally valid results. The purpose was to detect if short international events also may have positive results onto the officer cadets.

The following figure 8 highlights the difference between two common modules with the exact same contents. One module was conducted with Austrian officer cadets exclusively; the other module was conducted one week later mixed with Austrian cadets and with officer cadets from abroad.

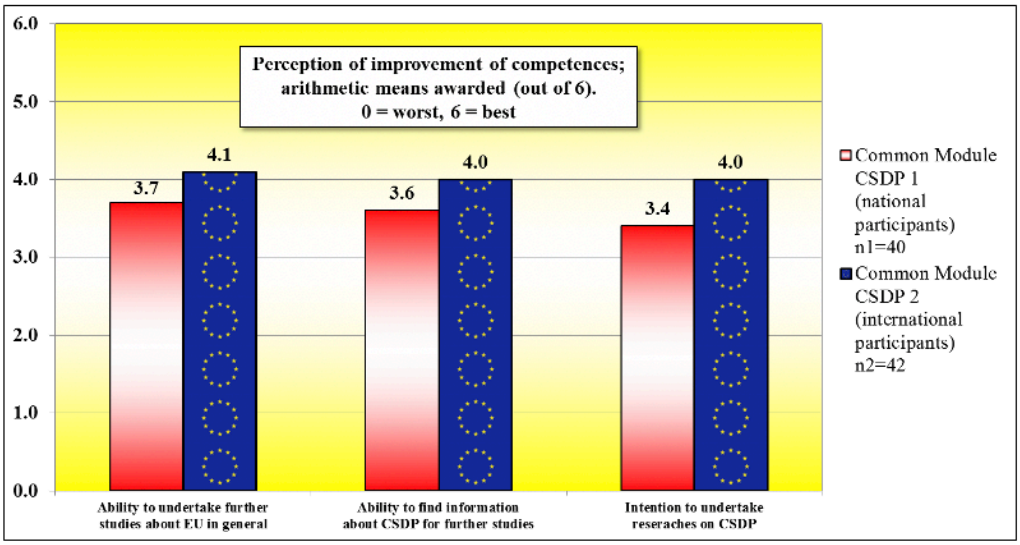

Figure 8: Comparison of two CMs on CSDP concerning the development of competences[33]

The overlapping results of all evaluation reports were as follows:[34]

- Because of the interaction, the participation of different academic levels, bachelor, master, and Ph.D., increases the learning outcomes.
- Increased interactions among the officer cadets increase the learning outcomes. A "teacher-centered teaching" alone is counterproductive.
- Increased international participation increases the learning outcomes.
- Even one-week modules improve English skills.
- The most important factor is the international presence—the more international presence is available, the better are the learning outcomes.

As a conclusion, it can be stated that even one-week modules increase skills and competences of officer cadets. The most important factors are the international presence and the interaction among the officer cadets and teachers, illustrated in figure 8.

Conclusions and Way Ahead

The European Union Military Erasmus Implementation Group (IG) organizes a lot of activities to fulfill the mandate issued by the Ministers of Defence in 2008, which is to promote a European Security and Defence Culture. With the research project described in the present article, on a topic that has scientifically been uncontradicted until up to now, the author provided evidence that international exchanges have a positive effect onto the officer cadets' personal developments, and that mobility periods increase their competences. These results prove the criticism wrong.

A European Security and Defence Culture can be achieved by officer cadets' exchange activities. Security threats and challenges differ from one EU country to the other. An exchange program on a European level increases the awareness of future military officers.

Because of the SARS-CoV-2-situation, physical exchanges decreased tremendously starting from March 2020. When this situation is managed, hopefully soon, the exchange figures as of before the crisis should be reached again.

New projects, such as new lines of development or new research projects, will be implemented in the Military Erasmus Implementation Group's list of work in order to provide the best pre-conditions to educate our future military leaders.

Colonel and Associated Professor Harald Gell, Ph.D., MSc, MSD, MBA, has been the EU Military Erasmus Implementation Group's chairman since 2015. He is also head of the International Office and senior lecturer at the Austrian Theresan Military Academy. He combined in 105 publications, 21 scholar books, several module descriptions, and 75 international conference-presentations on findings of stress research projects with international exchanges to propose effective and efficient increasing of military leadership skills and competences. With his habilitation proceeding in military management he provided evidence that international exchanges have positive effects on the personal development of officer cadets. His mission and operation experience stems from serving on a security operation during the Slovenian War of Independence, and deployments for disaster relief and border security, as well as serving as EU team leader in Bosnia and Croatia, and as Chief Operations Officer in Syria to some 300 activities in EU countries, Canada, Ukraine and the United States. He is a member of scientific boards in Austria, Croatia, Czech Republic, Hungary, Romania, and Poland. The author would like to thank the Norwich University for the opportunity to participate in the seventh International Symposium of Military Academies (ISOMA) conference and share the experiences with other fellow travelers.

Endnotes

1. EMILYO is an acronym that stands for (E)xchange of (MIL)itary (Y)oung (O)fficers.
2. Council of the European Union, *European Security Strategy – A Secure Europe in a Better World* (Brussels: DGF-Communication/Publications, 2003), Passim; https://www.consilium.europa.eu/media/30823/qc7809568enc.pdf.
3. Council of the European Union, *Report on the Implementation of the European Security Strategy – Providing Security in a Changing World*, Document S407/08 (Brussels, 2008), Passim; https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/reports/104630.pdf.
4. Remark by the author: With the updated EU strategy—the so-called "Global Strategy" as of 2016—the term "comprehensive approach" was changed to "integrated approach."
5. Council of the European Union, *2903rd meeting of the Council – General Affairs and External Relations. Council Decision*, Document 15396/08 (Brussels, 2008), 5.
6. Remark with the author: The official name is "European initiative for the exchange of young officers inspired by Erasmus." Other – shorter names – for the same initiative are "Military Erasmus," "Erasmus Militaire," "EMLYO (Exchange of MILitary Young Officers," or just, in short, "the Initiative."
7. Remark by the author: Three countries of the EU do not have their own basic officer education institutions: Cyprus, Luxembourg and Malta. Denmark also is not represented, as this country has an exception in the Treaty of Lisbon concerning the European Security and Defence Policy. Norway, as a non-EU Member State, is represented as an associated member.
8. Harald Gell, *Increase of Students' personal Development by Internationalisation* (habilitation thesis, Brno, 2015), 29-30.
9. Figure 1 created by the author. Basic EU map taken and re-shaped from URL: https://upload.wikimedia.org/wikipedia/commons/4/41/European_Union_main_map.svg, accessed April 4, 2021.
10. Table 1 created by the author.
11. Table 2 created by the author.
12. Harald Gell and Sylvain Paile-Calvo, "The European initiative for the exchange of young officers inspired by Erasmus (EMILYO)," in *The European Security and Defence College and its contribution to the Common Security and Defence Culture – A 15 year journey*, ed., Ilias Katsagounos (Luxembourg: Publication Office of the European Union, 2020), 71-80.
13. Remark with the author: These steadily increasing figures were interrupted because of the SARS-CoV-2 situation in March 2020.

14. Harald Gell, Sylvain Paile-Calvo, and Symeon Zambas, *European Education and Training for Young Officers – European Initiative for the Exchange of Young Officers, inspired by Erasmus*, 2nd edition (Vienna: Armed Forces Printing Centre, 2018), 11.
15. Figure 2 created by the Theresan Military Academy.
16. Remark of the author: There are 24 official languages recognized within the EU. Most used working languages are English, French, and German.
17. Sepp Porta and Michael Hlatky, *Understand Stress – defeat Burnout* (Vienna: Publishing Company of Medical Doctors, 2009), 15; and Hans Selye, The Stress of Life (New York: McGraw-Hill, 1978), 61, 472.
18. Harald Gell, "Increase in military leadership skills and competences of future leaders through stress research findings," *Journal of Science of the Military Academy of Land Forces* (2016), 27; doi:10.5604/17318157.1226130.
19. Picture taken by the author.
20. Gell, *Increase of Students' personal Development*, 52.
21. Gell, Paile-Calvo, and Zambas, *European Education and Training for Young Officers,* 21.
22. Norbert Pamminger, Sepp Porta, and Harald Gell, "Jobs with mostly mental workload may lead to difficulties in oxygen and magnesium liberation into tissues – a staff health survey," *Trace Elements and Electrolytes* (2015), 1-7.
23. Remark of the author: pCO_2 is the partial pressure of carbon dioxide; pO_2 is the partial pressure of oxygen.
24. Gell, Paile-Calvo, and Zambas, *European Education and Training for Young Officers*, 24.
25. Ibid, 25.
26. Gell, *Increase of Students' personal Development*, 66-72.
27. Remark by the author: The officer cadets who were sent abroad were selected at random. They were not selected because they were the best ones. At the time of comparing the grades for the research study, according to the curriculum during these days, not all Austrian officer cadets had to spend a semester abroad. Officer cadets were selected according to their willingness, and since more officer cadets volunteered than study places were available, they were chosen by lot. The advantage of this selection is that for the comparison of grades before and after mobilities and for the comparison of grades between mobility and non-mobility officer cadets the validity of results was increased. Later, starting with the year 2014, more and more places for studying abroad were available because of the elaborations of the IG and it was necessary that some officer cadets had to be ordered to go abroad. Since the first results of the research study were available during these days, those officer cadets were ordered to go abroad who had worse grades. With the curriculum of 2017, that is also valid nowadays, 100 percent of the officer cadets have to spend one semester and an internship of six weeks abroad.

28. Gell, *Increase of Students' personal Development*, 64.
29. Figure 6 created by the author.
30. Gell, *Increase of Students' personal Development*, 55-65.
31. Remark by the author: This expert was Dr. Sylvain Paile-Calvo; his evaluation reports are available on the Emilyo homepage at http://www.emilyo.eu/node/1023.
32. Figure 7 created by the Theresan Military Academy.
33. Figure 8 created by the author.
34. Gell, *Increase of Students' personal Development*, 35-44.

Converting COVID-19 Disruption into Joint Military Education and Training: The Australian Defence Force Academy's Military Education and Training in the Pre-COVID-19 and COVID-19 Environments

Peter James Leavy, Shevahn Telfser, and Jeffrey Howard

Abstract: The Australian Defence Force (ADF) has for many years recognised the importance of generating future leaders in an environment that builds an intellectual edge. A coordinated joint-Service education and training strategy is the foundation principle by which the ADF has set about to achieve this outcome. The COVID-19 pandemic has disrupted many aspects of society including the Australian education system, challenging traditional behaviours and assumptions on learning and teaching pedagogy. The education sector has scrambled to create a degree of continuity in the learning pathway during 2020 with rapid adaptation to new technologies and the implementation of practices that were not considered suitable for mainstream education previously. A significant disruption to the Australian Defence Force Academy (ADFA) military and academic education programs was an undeniable impact of the COVID-19 pandemic. While disruptive, the 2020 pandemic created opportunities to reimagine the military educational and training environment in a way that is future focused and potentially more resilient to volatility. The ADFA Charter requires that Australian Defence Force midshipmen and officer cadets, and other international partners, receive a balanced and liberal university education within a military context. In the unique joint-Service and multinational military context of the ADFA, the potential for future capability deficiencies due to disruption during 2020 have been mitigated through the rapid adoption of virtual environments. Studying the experiences of ADFAs military and trainee officers (TO) from 2010 to 2020, this paper explores military education and training pre-COVID-19 and COVID-19 environments. The objective is to examine the needs, tools, and initiatives that may serve as change agents for the future military education and training landscape.

Keywords: Military Capability; ADFA Military Education; Pandemic Disruption; COVID-19; Pedagogy; Progression and Graduation Rates.

Introduction

The Australian Defence Force (ADF) recognises the importance of generating future leaders in an environment that builds an intellectual edge. The ADF Joint Professional Military Education (JPME) framework is a coordinated education and training strategy established to achieve this outcome. The Australian Defence Force Academy (ADFA) provides the ab-initio training component of the JPME through a combination of joint military education and training (JMET), and university education. ADFA is the primary pathway for joint military trained, degree-qualified entry into the ADF. Annually, ADFA educates and trains approximately 1,000 midshipmen and officer cadets, collectively referred to as trainee officers (TO), concurrently completing full-time undergraduate

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programs and initial military training. COVID-19 had the potential to disrupt the education and training objectives of ADFA, forcing the rapid and reactive exploration of alternative means to ensure the achievement of the required outcomes for the ADF.

The ADFA Charter requires that TO receive a balanced and liberal university education within a military context. Graduates are expected to have positively developed their character, leadership, and professionalism in an environment where they have built a cohort of joint-Service, multinational peers, who will grow and mature together through their careers. Peer networks span service, year of enlistment, employment categories, and domestic and international cohorts. These networks are highly valued in terms of ADFA outcomes, underpinning the ADF doctrinal approach to joint warfare through education and training pedagogy.

Historically, TO experience a concurrent military and university program delivered on-site at ADFA that relies upon a traditional approach to education and training in a full residential environment with two semesters from February to June and then July to November. Undergraduate degree awards are delivered in partnership with an accredited Australian university in the discipline areas of business, humanities, science, and engineering. During the academic semesters, approximately 80 percent of the daily routine for TO focusses on university study. The remaining 20 percent of semester time is dedicated to military activities including leadership, physical training, and ceremonial drill. Pre-COVID-19, there was limited use of online or blended pedagogy in either military and university programs with the mode of delivery for the JMET and university courses in a traditional face-to-face context using a combination of lectures, tutorials, and practicums.

The COVID-19 pandemic disrupted many aspects of society, including the Australian education system, challenging traditional behaviours and assumptions on learning and teaching pedagogy. Conventional pedagogical principles, often carried over from the industrialisation of education during the twentieth century, have been tested during 2020. The education sector scrambled to create a degree of continuity in the learning pathway during 2020 with rapid adaptation to new technologies and the implementation of practices that were not considered suitable for mainstream education previously. As a result, change has encouraged the emergence of new and novel education and training attitudes in the military largely driven out of a necessity to focus on the required outcomes rather than an adherence to historical custom and practice. Enforced creativity in the educational approach at ADFA required modifications to the structure of delivery and redesign of assessments, challenging academic and military staff, and TO.

The transition away from traditional military pedagogy at ADFA during the COVID-19 pandemic aimed to maintain TO progression and graduation rates, a critical requirement in meeting ADF capability need. The ADF workforce pipeline is not resilient enough to survive a personnel deficit associated with a pandemic-enforced training suspension. Graduation from ADFA requires the successful completion of the three-year integrated program of

military education and training in conjunction with university undergraduate studies. In an attempt to maintain TO progression during the pandemic, ADFA rapidly deployed technology-enabled learning using a combination of synchronous and asynchronous virtual environments to maintain essential training and education during periods of enforced lockdown and restrictions on physical gatherings. While these technologies have been the core business for distance and open-learning providers, the blended pedagogy was largely untested at ADFA, or more broadly in an Australian military learning context.

Many commentators have highlighted the complexity of the disruption of COVID-19 to the learning environments, making it difficult to identify a singular cause-and-effect relationship in investigating the impact on education. The evolving nature of the pandemic and its influence on broader societal expectations and behaviors suggests that the impacts will continue beyond the coming months and years. This paper is selective in its examination of the disruption caused by COVID-19 through the impact on TO progression and graduation rates. The current and continuing impacts of disruption on education outcomes at ADFA will be restricted to an analysis of TO progression graduation rates combined with survey data obtained from students and staff during annual program evaluations.

The 2020 Context

The 2020 Year 1 intake began in January, consistent with the normal ADFA intake procedure: TO arrive at ADFA and complete four weeks of intensive military education and training using a traditional face-to-face delivery mode. This is the platform under which ADFA structures the JMET program for TO for the duration of their time at ADFA. Concurrent to the induction of new TO, returning Year 2 and 3 TO complete an intensive JMET period during January with a focus on development of military leadership attributes.

At the conclusion of the intensive 2020 JMET period, TO commenced their academic program in February under a standard pre-COVID-19 calendar. The typical daily routine for TO at the beginning of 2020 followed the normal face-to-face delivery of two hours of JMET between 8 and 10 a.m., followed by up to eight hours of university lectures, laboratory sessions, and tutorials. On occasion, additional JMET periods were scheduled after 6 p.m. for visits to ADFA by senior defense leaders and guest lecturers.

Disruption to the TO program began on March 13, three weeks into the 2020 academic program, as a result of the hard lockdown restrictions imposed in Australia by federal and state governments. Although each state and territory had different responses to the COVID-19 pandemic, in practical terms, there were strong similarities in the application of restrictions. Hard lockdown mandated stay-at-home orders, requiring closure of office environments, education facilities, and public spaces. The hard lockdown restrictions impacted ADFA for a period of two months requiring significant modifications to JMET, university, and social activities of TO. While not required by government, full restrictions

to education activities at ADFA extended for the duration of semester one and partial restrictions during semester two.

The nature of the pandemic required rapid modifications to the pedagogical approach within JMET and the university. Accommodating the restrictions of social distancing became the highest priority intervention for ADFA to maintain the integrity of the training and education programs. While the adaptations in semester one were reactive to meet TO immediate learning needs, as the pandemic extended into semester two, more strategic decision-making on interventions emerged. Significant reprioritization of resources into areas of infrastructure, personnel, and educational redesign were required to support the interventions and adjustments associated with the modified delivery of education.

Methodology

The analysis covers two periods, pre-COVID-19 (2010-2019) and COVID-19 (2020). Pre-COVID-19, ADFA used the Defense Training Model (DTM) to analyse, design, develop, implement, and evaluate military education and training pedagogy. Using this formal and strategic approach, the ADF is able to identify the specific and complex capability attributes of a joint officer and ensure they are embedded into the education and training program. Particular attention focusses on the individual graduate behaviours and attributes as identified by external reviews, including by the Australian Sex Discrimination Commissioner, in addition to the skills required to meet the emerging operational and technological requirements.[1] The DTM informed the development of the ADFA military training during the pre-COVID-19 period, coinciding with a nomenclature change from Academy Military Education and Training (AMET) to JMET as shown in Table 1.

For the second period in this analysis, COVID-19 spanned the 2020 academic year. The JMET program was not due for a major review during 2020 under the rolling DTM evaluation schedule. Changes in the design and implementation of the JMET program that occurred in 2020 were the result of conditions imposed by federal and state governments, and by the ADF in response to the emerging pandemic. Face-to-face education activities at ADFA ceased for both military and university in March 2020. Jurisdictional direction required ADFA to modify and transition programs within a one-week period in order to minimise learning disruption. Due to the heavy reliance on residential programs at ADFA, a number of changes to the educational program required immediate implementation, including the transition to alternative learning modes from face-to-face learning in classrooms, lecture theatres, and laboratories.

The analysis in this paper was inclusive of all TO at ADFA between 2010 and 2020. The individual impact of Service was not considered a variable of analysis in this paper. For analytical purposes, the data is presented as Cohort Intake Year (CIY). The progression data was sourced from personnel records and survey data by the ADFA military evaluation unit. The qualitative student experience surveys used in this paper are also attributed to CIY. The CIY of 2018 are the ADFA graduates in 2020 and their survey results in 2020 analyse their experience during their third year of study.

Cohort Intake Year	Year 1 (Total TO)	Year 2 (Total TO)	Year 3 (Total TO)
2010	AMET (330)	AMET (279)	AMET (254)
2011	AMET (363)	AMET (309)	AMET (245)
2012	AMET (327)	AMET (283)	AMET (245)
2013	AMET (340)	AMET (280)	AMET (247)
2014	AMET (370)	AMET (293)	JMET Pre-COVID-19 (260)
2015	AMET (332)	JMET Pre-COVID-19 (292)	JMET Pre-COVID-19 (263)
2016	JMET Pre-COVID-19 (336)	JMET Pre-COVID-19 (264)	JMET Pre-COVID-19 (243)
2017	JMET Pre-COVID-19 (322)	JMET Pre-COVID-19 (289)	JMET Pre-COVID-19 (267)
2018	JMET Pre-COVID-19 (336)	JMET Pre-COVID-19 (328)	JMET- COVID-19 (317)
2019	JMET Pre-COVID-19 (378)	JMET COVID-19 (338)	JMET COVID-19 (335)
2020	JMET COVID-19 (378)	JMET COVID-19 (362)	(JMET COVID-19) (not available)

Table 1. Military training program for cohort year groups 2010-2020. Bracketed numbers indicate headcount at the commencement of the period.

Progression rates provide a tool by which educational achievement can be measured between cohorts. Higher progression rates are considered to be positively correlated to greater effectiveness of the education program. The ADFA progression rate is measured using:

- Within year – Number of TO successfully completing a year/number of TO in cohort at commencement of that year.
- To graduation – Number of graduating TO in an intake cohort/number of TO in intake cohort at commencement at ADFA. Progression rates to graduation will be a cumulative of progression rate over the duration of their program.

Progression rate, expressed as a percentage rather than absolute numbers, normalizes the influence of the size of the individual cohort year, allowing comparison and analysis across the period. Annual surveys are routinely provided to all ADFA TO at the conclusion of the academic year. The survey results are expressed as a percentage of the cohort, indicating a favourable or positive agreement for a variety of qualitative measurements relating learning experience. The data analysed in this paper, uses Year 3 surveys from the 2012, 2014, and 2018 CIY. The three data sets generated provide two pre-COVID-19 and one COVID-19 periods for the comparative analysis.

Statistical analysis is not used on the data set as only a single COVID-19 data set is available at the time of this writing.

Results

Graduation rates. The average graduation rate during the pre-COVID-19 period (CIY 2010-2017) was 75 percent (Figure 1). While having variation, evidence suggests an improvement in graduation rates in the pre-COVID-19 period increasing from 77 percent in CIY 2010 to 80 percent in the CIY 2017. There are three clear aberrations from the upward trend with graduations in CIY 2011, 2014, and 2016 (68 percent, 70 percent, and 75 percent respectively) which are well below the trend of improving graduation rates in the pre-COVID-19 period. The graduation rate of CIY 2018 completing ADFA in 2020 during the COVID-19 pandemic was 87 percent. This exceeded previous graduation rates in the pre-COVID-19 cohorts from 2010 to 2017.

Progression rates. The average progression rate for Year 1, Year 2, and Year 3 during the pre-COVID-19 period (CIY 2010-2017) was 93 percent, 84 percent, and 76 percent respectively (Figure 1). Similar to the graduation trend, progression rates gradually increased in the pre-COVID-19 period with two clear aberrations from the upward trend in the CIY 2011 during Year 3 (70 percent), and the CIY 2014 during Year 2 (71 percent). The progression rate for Year 1 (CIY 2020), Year 2 (CIY 2019), and Year 3 (CIY 2018) in 2020 during the COVID-19 pandemic was 94 percent, 90 percent, and 87 percent respectively. This exceeded previous progression rates in the pre-COVID-19 cohorts from 2010 to 2017.

While variations exist over the 10-year period, average graduation and progression rates have increased. The exception observed in CIY 2011 Year 3 progression is attributed to an incident of serious misconduct in 2011 resulting in a Supreme Court trial in 2013. Sensitive internal data from CIY 2010 supports the attribution of the issues with progression to this event. A second significant event occurred in 2015 reducing CIY 2014 Year 2 progression by approximately 14 percent. The decline was associated with a serious motor vehicle incident in which multiple TOs sustained significant injuries leading to medical discharges. While the CIY 2016 had a lower progression in both Year 1 and Year 2, the cumulative effect negatively impacting graduation from ADFA, TO were retained in the ADF by transferring to non-degree qualified workforces. Despite the TO not graduating ADFA, their retention in the ADF reduced the impact on workforce capability.

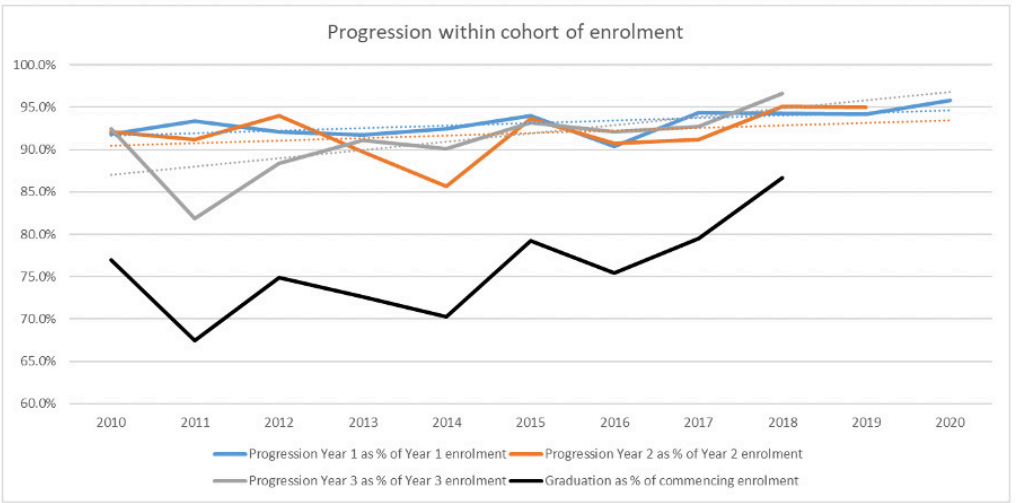

Figure 1. Progression rate within cohort intake year (CIY). Progression rate based on number of TO successfully completing the year of study compared to the number commencing the year. Graduation rate based on the number of TO graduating compared to the initial cohort intake.

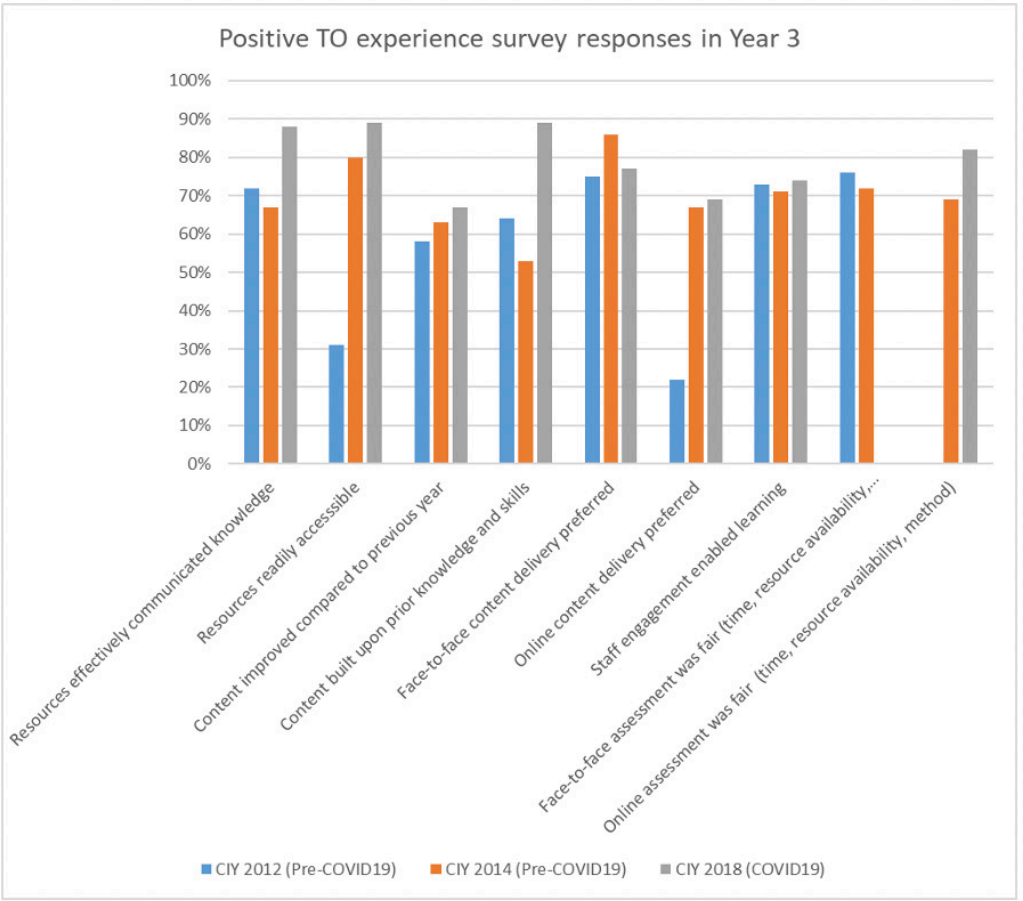

Figure 2. Positive student survey responses by cohort intake year(CIY) taken in Year 3. The positive response is based on the survey respondent agreeing to the question posed. Survey respondents were required to agree or disagree, no options for a non definitive response were provided. Face-to-face and online assessments were not undertaken in 2014 and 2020 (CIY 2012 and 2018) respectively.

Survey results. Return rates for Year 3 TO surveys were 41 percent, 76 percent, and 73 percent for CIY 2012, 2014, and 2018 respectively. TO reported minimal differences in pre-COVID-19 and COVID-19 experiences in relation to content, staff engagement, and face-to-face and online assessment. Responses to resources effectively communicated knowledge and content built upon prior knowledge and skills suggest the COVID-19 adjustments positively impacted the TO experience. Poor TO experience in CIY 2012 was evident in resources readily accessible (less than 31 percent expressed a positive experience) and online content delivery preferred (less than 22 percent expressed a positive experience). Both CIY 2014 and CIY 2018 expressed a marked improvement in TO satisfaction for both in resources readily accessible and online content delivery preferred compared to CIY 2012 (average 85 percent and 68 percent respectively). Little difference in the TO experience

in these two fields exists between the CIY 2014 and CIY 2018. TO responses indicate a reduction in preference for face-to-face content delivery between CIY 2014 and CIY 2018 (86 percent and 77 percent respectively).

Discussion

The ADF relies on ADFA for the annual supply of joint military-trained, degree-qualified junior officers. The services specify the supply requirement at commencement of ADFA by recruiting the number of personnel needed to fulfil forecast ADF capability needs, historical graduation rates inform Service recruitment into ADFA. The recruitment pathway commences up to four years prior to workforce entry, with Services assuming ADFA will deliver at or above historical performance. One of the key influences to meet the Services' expectation of ADFA is maintaining progression through JMET and university programs within each CIY. Failing to meet graduation projections creates a persistent workforce capability deficit with an enduring impact on Services as affected cohorts progress through the workforce capability lifecycle.

To address issues associated with low graduation rates observed prior to 2014, ADFA undertook a review of the military education program (AMET). Concluding in 2015, the review utilized information from TO surveys and Service consultation, with the outcomes resulting in the creation and implementation of JMET in January 2016. A key finding of the review recommended the increased use of online learning within the JMET program.

The introduction of restrictions on gatherings, which in the initial phases of the COVID-19 response included education, shifted delivery of JMET and university programs online. As a full residential campus, the pandemic fundamentally changed the operation of ADFA and had the potential to be a major disruption. Postponement of programs at ADFA would create the enduring workforce capability impacts previously mentioned. To avoid the disruptive influence of the pandemic on capability output, ADFA rapidly changed its learning structure, delivery, and assessment, as well as practicum and pastoral activities, to an online mode.

With little previous experience of online delivery nor the time to deliberately plan through the DTM methodology, ADFA used the existing learning management platform in a reactive, rather than pre-planned, approach to record lectures and upload instructions for tutorials. The delivery and materials that emerged from this period were unsophisticated, and represented a recording of a traditional ADFA classroom rather than a specifically designed, non-residential learning activity. Assessment scheduling and rubrics designed around a heavy residential support framework were not optimized for online delivery nor accommodating for a period of disrupted learning, and they required continual modification throughout 2020. This approach is similar to that documented as a sector response in the Tertiary Education Quality and Standards Agency (TEQSA) summary of the impacts of the pandemic within Australian higher education sector.[3] Some elements

of JMET—for example, physical training, weapons handling, and ceremonial drill—could not be accommodated within the online environment, resulting in their suspension from delivery in the initial COVID-19 response. The ongoing uncertainty around lockdowns forced a decision not to return to a full residential model in semester two of 2020 (July to November). As a result, ADFA developed asynchronous and tailored online learning materials in combination with alternate means to enable practicum activities.

CIY 2012 survey responses during their third year of study were critical of ADFA progress in the online space with the survey participant comments indicating dissatisfaction with access to learning materials and online content delivery (Figure 2). ADFA considered the dissatisfaction expressed in the surveys was related to information and communication technology (ICT) infrastructure supporting the learning content, rather than with the learning materials. As an outcome in 2014-2015, ADFA extended the use of the ADF online learning platform, Australian Defence Education Learning Environment (ADELE), improving content access. Limited specific online teaching materials were developed, as the primary focus was accessibility of supporting resources such as readings and assessment submissions. Survey responses from CIY 2014 signal this intervention was successful with a notable improvement in positive responses to the implementation of ADELE as a learning platform, with indications that the online content delivery was preferred in a greater proportion of the TO. Of note, prior to 2020 ADELE was not a primary teaching tool, remaining a repository for learning materials and a tool for assessment submissions.

The COVID-19 restrictions in 2020 required a directed shift to ADELE as the primary teaching tool required for online learning. The enforced interventions included the development of synchronous and asynchronous online teaching, collaborative online workshops, and modifications to assessments to accommodate the removal of face-to-face activities. ADFA experience at the commencement of the pandemic was consistent with that observed across the higher education sector with Nick Saunders, Chief Commissioner of TEQSA, noting the enormous undertaking required for the rapid adoption of online learning.[4]

While earlier investment had prioritized development of ADELE, the extensive approach to online teaching was a new experience for ADFA staff and TO. Being untested prior to implementation, online teaching had the potential to significantly disrupt capability outputs and experiences of ADFA staff and TO. The potential for disruption associated with rapid move to online education in response to COVID-19 has been noted in other studies.[5] Early indications at ADFA observed in progression and graduation rates during 2020 suggests the anticipated disruption did not cause a decline in capability outputs over this period. ADFA graduation and progression in all three cohorts was maintained or slightly improved during 2020 (Figure 1). Comparison of progression and graduation rates with the Australian sector cannot be undertaken at this time due to the public availability of such data; publications have focused on the impact to the student experience.

TEQSA indicated concerns from students around the rapid transition to online learning, particularly associated with reduced interaction with lecturers and peers, the impact of IT, and the difficulty in transitioning some fields of study.[6] The report found a "large proportion of respondents … did not like the experience of online learning and did not wish to ever experience it again."[7] This is contrary the TO experience at ADFA with reported benefits associated with the transition to online learning during 2020, as reflected in the evaluation surveys at Figure 2. Small improvements were reported in satisfaction for learning material access, knowledge communication, and assessment formats. A more substantial response was noted in the TO perception that content delivered online during the pandemic built upon prior knowledge and skills. Interestingly, the only survey metric showing a decline in 2020 was face-to-face content delivery was preferred. With only three weeks of face-to-face delivery at the beginning of 2020, this result is difficult to substantiate.

The positive student experience observed at ADFA may be expected as a response to the highly supported educational environment provided by the military context. Throughout 2020, ADFA TO retained secure employment, a strong peer network, ready access to welfare support, relatively small class sizes, and intensive tuition support. Students in the broader Australian university sector experienced greater external stressors interacting with their education through uncertain employment and social support systems.[8]

In addition to the external pressures experienced by Australian university students due to enforced restrictions, TEQSA suggested that students across the sector were dissatisfied with staff engagement, insufficient peer interactions, and online workload.[9] Contrasting with the TEQSA report, the CIY 2018 survey results indicated TO satisfaction with staff engagement remained at pre-COVID-19 levels (Figure 2). This may have been indicative of ADFA staff having a combination of leadership experience and military skills instructor (MSI) qualifications. The unique combination of academic and pastoral skills in ADFA staff may have contributed to students remaining satisfied during the rapid transition from face-to-face to online learning activities. While a small decline in satisfaction with face-to-face content delivery was observed, positive responses were associated with resources and technologies, effective communication of knowledge, and building on prior knowledge and skills implemented in 2020 (Figure 2). This is notable, as the CIY 2018 had experienced two years of face-to-face teaching pre-COVID-19. These observations suggest the maintenance of a highly supported learning environment at ADFA positively influenced student experience, and in doing so contributed to protecting capability output. High-level support that was possible at ADFA is unlikely to have been available throughout the Australian higher education sector, particularly where intensified academic workloads were associated with a transition online as highlighted by Allen et. al.[10]

In conjunction with a move to online delivery, the majority of Australian higher education institutions either shut down or restricted access to campuses, resulting in students becoming non-residential as well as a subsequent deterioration of physical peer support networks. To prevent the transmission of COVID-19 into ADFA, the ADF

restricted incoming and outgoing movements at ADFA while maintaining the integrity of the peer networks in a residential context. In addition to maintaining the TO peer network, staff retained a physical presence at ADFA enabling a continuity of welfare support which may not have been possible across other higher education institutions. The maintenance of pastoral care by military staff served two critical needs, primarily to ensure the welfare of TO, but also to prevent mental health problems from disrupting capability through poor progression and graduation. Anecdotal evidence from ADFA psychologists during 2020 suggests the interventions used for both pastoral care and academic support were effective with the number and types of presentations consistent with previous years.

Effectiveness of assessment in an online environment continues to be widely discussed with the broad scale move to online learning.[11] Transitioning from face-to-face to online learning required ADFA to rationalize the assessments focusing on critical elements of JMET that required an understanding of individual TO performance. This principle was similar to that indicated by Davidson and Tsakissiris, in developing new and different criteria when evaluating success.[12] Acknowledging that some assessment methods are more vulnerable to academic misconduct than others, the primary focus for ADFA was to assess individual attainment of capability in relation to the defined learning outcomes.[13] Prior to 2020, JMET used a combination of lengthy essay-style individual assessments combined with end-of-semester group presentations. During COVID-19, JMET assessments were modified to regular short-answer individual submissions using ADELE. Although not conclusive, Figure 2 indicates TO were positively receptive to the fairness of the online assessment methods implemented in 2020.

Recognising the disruption to learning and assessment resulting from COVID-19 restrictions, JMET marking rubrics and feedback were amended to encourage TO reflection on performance rather than just achieving a grade. Using rubrics in this manner facilitated learning in TO, and had the benefit of enhancing the skills and knowledge of staff through qualitative measures of teaching effectiveness.[14] The impact of effective feedback in the learning experience is not unique to online learning with Hattie and Timperley highlighting the positive impact that can be gained through targeted feedback focusing not only on justifying a grade but also contributing to the learning experience.[15] Disentangling the relationship between feedback and grades enabled staff to better understand the learning journey and maintaining the unique purposes of assessment through effective feedback.[16] TEQSA observed during the COVID-19 pandemic, there was a need for staff development in online pedagogy, with research here indicating that assessment type and arrangements are an issue.[17]

Conclusion

The rapid and unplanned transition to online learning during 2020 was disruptive to the ADFA education and training environment and had the potential to impact capability output. The interventions implemented by ADFA to mitigate the disruption of COVID-19

allowed for the continuation of the JMET, with minimal negative impact on capability as observed in the progression rate to graduation and student experience. While the initial response to the COVID-19 pandemic focused on protecting the capability output associated with progression and graduation, as the pandemic extended in duration, greater emphasis was placed on the student experience in order to instill a positive attitude toward life-long learning.

Positive responses in progression and graduation rates and student experience suggest the interventions put in place to alleviate the potential impact of COVID-19 were successful in protecting the critical output requirement for ADFA. With student experience influencing engagement in learning, and therefore success, the interventions associated with maintaining staff engagement, positive peer networks, resource accessibility, increasing sophistication in the use of the online learning platform, and maintaining sustainable workloads may have been critical to keeping ADFA progression and graduation rates from declining. In the face of positive outcomes over this period, the challenge to the ADF will be identifying those that have ongoing benefit to education in the joint context of ADFA.

Given the nature of the pandemic, many of the adjustments made to the ADFA program were reactionary. Zacharias and Brett highlight the connection with the achievement of education objectives and a strategic approach to enabling life-long learning through the collection of information, evaluation of stories and statistics, and analysis of evidence-based consequences.[18] Capitalizing on the observations associated with the ADFA response to COVID-19 and the resulting pedagogical changes that emerged during 2020 provides an opportunity to future-proof military education and training in line with the requirements of the JPME. The identification and implementation of COVID-19 initiatives linked to sustainable learning improvements will be central to facilitating a progressive but considered approach enabling benefits to future ADF workforce capability.

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Crafting Diverse, Inclusive, and Decolonized Military Leaders: Reflections on Decolonizing Professional Military Education

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Abstract: Decolonizing as a project and practice has generated renewed attention since the global Black Lives Matter protests' demand for a far-reaching engagement with the structural racism prevalent within society. Civil-military relations have not been untouched by this. While calls to decolonize higher education (HE) are not new (Bhambra, Gebrial, and Nişancıoğlu, 2018), such calls have not yet found resonance in the professional military education (PME) domain. This is an important gap as military education institutions, similar to western universities, are key sites where "colonialism—and colonial knowledge in particular—is produced, consecrated, institutionalized and naturalized" (Bhambra, Gebrial, and Nişancıoğlu, 2018). In this paper we provide a rationale for the importance of decolonizing PME as well as the benefits for decolonizing teaching and learning in a PME setting by drawing on existing attempts developed to decolonize HE institutions. Though building on these, our decolonizing rationale links issues identified in relation to HE to the specific sensitivities of PME. Our argument unfolds as follows. First, we outline how we understand the process of decolonizing and how it relates to PME. Second, we explain how the armed forces benefit from decolonizing PME. Third, we look at two avenues in need of decolonizing: the curriculum and the educator. In our conclusions we reflect on the importance of decolonization for creating truly diverse and inclusive forces and its significance in crafting effective military leaders for the twenty-first century.

KeyWords: Decolonization; Professional Military Education; Racism; Leadership; Organizational Change.

Introduction

Decolonizing as a project and practice has generated renewed attention since the global Black Lives Matter (BLM) protests brought a range of inequalities and "the reality of racial disparities in the act of living into sharp relief,"[1] leading to the demand for a far-reaching engagement with the structural racism prevalent within society. Civil-military relations have not been untouched by this. The U.S. Army unveiled an initiative to promote diversity and inclusivity in the forces,[2] and General David Petraeus recently reflected in The Atlantic on his own military experience, legacies of systemic racism, and debates over symbols glorifying the Confederacy, arguing that "[t]he way we resolve these issues will define our national identity for this century and beyond."[3] While aspects such as the names of institutions or the replacement of statues have extensively been discussed within this debate, the importance of decolonizing professional military education (PME) has so far escaped attention. While calls to decolonize higher education (HE) are not new,[4] such calls have not yet found resonance in the PME domain. This is an important gap as military education institutions, like western universities, are key sites where "colonialism—and colonial knowledge in particular—is produced, consecrated, institutionalized and naturalized."[5]

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In this article we aim at providing an opening for addressing this gap by outlining a rationale for the importance of decolonizing PME as well as the benefits for decolonizing teaching and learning in a PME setting. We do so by drawing on existing attempts developed to decolonize HE institutions.[6] However, as decolonizing teaching and learning "is not something that can be prescribed in advance,"[7] we are not aiming to provide a "how-to-guide," but rather focus on linking issues identified in relation to decolonizing HE to the specific sensitivities of PME. As such, this article aims to function as a conversation starter on a so far neglected topic within PME. To do so we raise two aspects deserving special attention: the curriculum and the educator. Drawing on our long-standing experience in delivering PME at various international military and security institutions, we argue that decolonizing will support the armed forces' self-understanding and increase its operational awareness, ultimately strengthening the ties with the very societies that the armed forces have sworn to defend and serve.

The analysis unfolds as follows. First, we outline how we understand the process of decolonizing and how it relates to PME. Second, we provide evidence of the importance of decolonizing PME by showing the positive effects such an endeavor has on the armed forces, military effectiveness, and civil-military relations. Third, and departing from this, we look at two probable pathways from which such a process of decolonizing can start: curriculum and educator. In our conclusion, we outline the importance of decolonization for creating truly diverse and inclusive forces as well as its significance in crafting effective military leaders for the twenty-first century.

What is Decolonization?

Decolonization is a contested concept involving "a multitude of definitions, interpretations, aims and strategies."[8] Initially, decolonization referred to the process that led to the undoing of colonial rule over subordinate peoples and territories. Some scholars, most notably Tuck and Yang, therefore insist that "decolonisation is not a metaphor" and "decolonisation" must therefore refer to the repatriation of indigenous life and land.[9] But "to argue that decolonisation must refer solely to the repatriation of settled land is to overlook other forms of colonialism."[10] Colonialism goes very much beyond the specific historical materiality of western conquest and subjugation; rather, it involves the very ways in which the modern world has been constituted and hierarchically ordered in ways that still shape the present. Knowledge has been central to this process of ordering. As "colonisation is more than physical,"[11] in that it determines whose knowledge is privileged, decolonizing is also about confronting how European imperialism, colonialism, inequality, and racism shape and have shaped sciences, philosophies, societies, and our modern world in general.

Despite a multiplicity of perspectives on decolonizing, we argue that PME needs to be most concerned about two central aspects, both relating to the link between colonialism and knowledge, or, in Nandy's words, colonialism which "colonizes minds."[12] First, decolonizing is about "unsettling," which involves "denaturalizing and historicizing the

colonial present—that is, the ways that colonial relations continue to organize everyday contemporary life."[13] This entails developing an understanding of how colonialism has only ended formally and to engage with its profound contemporary legacies. Second, the center of the process of decolonizing is not erasure but, in the words of Chilisa, "recovery and discovery."[14] As such, what decolonization calls for is the "[r]ecognition of various forms of knowledge and knowing."[15] This entails a strong awareness of the power-knowledge relations at play in the ways in which our understanding of reality is produced and the ability to acknowledge those forms of knowledge that have been excluded or marginalised. These two dimensions are directly relevant to PME's central aim: imparting knowledge and fostering the ability to engaging critically and flexibly with contemporary realities by drawing on a multiplicity of perspectives.

Despite these two key dimensions, however, it is important to note that "there is no single way to approach decolonization; and different communities require different support, strategies, and conversations."[16] As such, decolonizing PME can mean many things and cannot be achieved without effort. Decolonizing requires a sustained and serious commitment within the organization, a determination to challenge received wisdom, and most importantly, need not be understood as a "one-off" exercise. As Tuhiwai Smith reminds us "[d]ecolonization is a process which engages with imperialism and colonialism at multiple levels."[17] Decolonization therefore needs to be understood as a process that is riddled with starts and stops, addressing aspects at different levels before proceeding further. In this sense, the process of decolonizing challenges the very linear logics informing western ideas of progress, instead embracing a much more non-linear and fragmented instantiation. Yet, when done seriously and continuously, decolonizing PME can become a powerful signal of the armed forces' intent to no longer ignore its colonial past, to be conscious of legacies of systemic racism, and to show efforts of making changes.

Why The Need for Decolonizing PME?

Prior to outlining two key pillars from where a decolonizing approach to PME can depart, it is important to consider why it is important to decolonize PME and what benefits it yields. Three key dimensions stick out. The first concerns the military organization itself, especially its relation to "diversity, equity and inclusion," which, in the words of Lieutenant General Gary Brito of the U.S. Army, needs to become "an integrated part of how we do business in the Army."[18] As King has recently argued in an analysis of the British Army, decolonizing will help "to integrate racial and ethnic minorities more effectively"[19] so that the armed forces more closely reflect the diversity of British society. Yet, he notes, while the British Army's efforts seem "sincere," existing elements within current "British military culture," such as its institutional structure and existing discriminatory social practices, impede such efforts.[20] As PME is directly engaged with developing knowledge and understanding, it can be a crucial tool for challenging and transforming cultural and structural obstacles toward effective anti-racist and anti-discriminatory practices within the organization. The effects cannot be underestimated as

"more inclusive organizations are better able to attract and retain talent."[21]

The second dimension speaks more broadly to military effectiveness, where PME is widely regarded as an important factor to improve such.[22] In the words of Holder and Murray, "the history of military innovation and effectiveness in the last century suggests a correlation between battlefield performance and how seriously military institutions regarded officer education."[23] Decolonizing PME becomes especially pertinent for the armed forces' need to work effectively within multinational settings. Such operations require complex interoperability. And here, effective interoperability, which is seen as crucial in enhancing legitimacy,[24] has a crucial "cultural" dimension[25] and, as "cultural variables" in multinational coalitions, "can affect mission outcomes."[26] The problem of "cultural interoperability" not only matters at the political-strategic level but also invests the tactical level, as often "tactical units bear the brunt of interoperability demands."[27] From this perspective, it is essential that PME teaches military personnel of all ranks how to relate to and work with partner nations by being aware of possible intercultural frictions as well as their own positionality with regards to existing historical and contemporary colonial legacies.

The third dimension concerns the centrality of civil/military relations in democratic settings. Broadly, decolonization is linked to processes of democratization, specifically in its potential to challenge structural barriers to substantial equality and access to social, political, and economic rights. As the armed forces are key institutions within democratic states, they cannot be excluded from the societal debate on decolonizing. This becomes even more pertinent when armed forces face the risk of being called to directly intervene in these, as, for example, in the case of former U.S. president Donald Trump threatening to deploy U.S. military personnel in a response to the anti-racist protests that followed the killing of George Floyd.[28] Such actions raise questions on the boundaries of executive power as well as the function and limits of the armed forces in the domestic space. PME's engagement with questions of race, structural inequalities, discrimination, and their historical legacies are thus central in fostering a democratic spirit within the forces so as to contribute to the health of democracy.

The above considerations offer evidence of two aspects. First, decolonization plays a crucial role in the armed forces' ability to fulfil its role, both domestic and abroad;[29] and second, PME is a crucial component in this process via its direct link to knowledge, understanding, and ultimately the culture of the organization. In what follows we consider some initial aspects from which a decolonization strategy for PME can depart.

Curriculum: A first point of entrance is the curriculum, as curricula development has always been and continues to be a key concern for educators.[30] The recent moves toward decolonizing the curriculum can be seen as a continuation of the 1990s focus on an "inclusive curriculum"[31] and began to acquire greater force in the early 2010s precipitated by the Malaysian conference on "decolonizing the University"[32] and the Rhodes Must Fall movement originating

at the University of Cape Town and subsequently mirrored at the University of Oxford.[33] Key learning points pertaining to PME can be drawn from these wider efforts made in HE.

First, curricula in PME should look out for the worldviews these enable. This means questioning the identity and location of writers, and what they write, and how. Sabaratnam captures this issue: "Would we find it acceptable if the writings and teachings on the situation of women and gender relations were done almost exclusively by men? How would this influence the kinds of perspectives presented?"[34] This point refers to the broader issue of positionality, questioning how the author's specific role, identity, and relations influence the process of knowledge production.[35] PME should therefore pay specific attention to positionality in teaching. For example, in studying conflicts, conflict management, and stabilization, it is essential to consider the different knowledges produced by actors from "outside" the conflict and those of local stakeholders living within conflict-affected communities.[36] With regards to the latter, Mwambari invites us to reflect on which local knowledge is included and which excluded, stressing the importance of capturing the knowledge of marginalized voices, such as local translators.[37]

Second, decolonizing the curriculum needs to engage with the lack of representation of underrepresented groups. The content of the PME curriculum in great parts reflects and maintains a "West is Best" perspective that represents a white, western intellectual tradition as a universal form of knowledge. Decolonizing the PME curriculum therefore necessitates acknowledging a multiplicity of perspectives and multi-centric knowledges that asks students and instructors to extend their knowledge beyond white authors and non-white token figures such as Sun Tzu and Kautilya, who themselves are mainly read through Eurocentric eyes. Due to this, non-western perspectives are kept marginal, serving "commodified representations of the other,"[38] rather than aiding the learning process by challenging the normative categories through which we understand and construct reality. This is an especially important consideration as decolonizing the curricula must not be reduced to "adding" non-western authors and perspectives while subtracting "western" ones. It is about opening our frames of references to alternative voices and viewpoints beyond Eurocentric biases. Indeed, today's so-called "wicked"[39] problems cannot be solved by relying on one perspective or one method of investigation, requiring instead a plurality of theories and methods.

Third, what perspectives and experiences do our readings exclude? In the field of security, for example, the global south's perspective on world events has largely been marginalized. We see this clearly in discussions of World War II, where "racial and colonial dimensions, including the roles played by black troops in the United States and colonial troops in Britain"[40] are greatly ignored. Indeed, when it comes to war in general, we rarely focus on accounts of war from non-western perspectives. When done, however, it has often been with a focus on "weaponizing cultural knowledge" or understanding the enemy better. Both attempts have been affected by strong orientalist tendencies,[41] which extend beyond the domain of war and can also be observed in "operations other than

war." These low-intensity interventions tend to be framed in the global north/west as forms of development work, conflict prevention, or humanitarian aid, with little attention to non-western, underprivileged voices. Instead, a decolonizing approach passes through questioning the very idea of the "west" and its constitution. This requires a sustained engagement with the "west" not as a fixed and reified entity but rather as a category of thought which has always been subject to change.[42] From this point of view, decolonization is, therefore, foremost a process of immanent critique that grapples with the constitution of what we consider the "west." As such, decolonizing the curriculum "isn't simply about removing some content from the curriculum and replacing it with new content—it's about considering multiple perspectives and making space to think carefully about what we value."[43] Moreover, decolonizing needs to question the primacy of the western-centric narrative, which purports the west as the sole producer of universalizing principles from which normative superiority is then derived. For example, Grovogui shows how the very idea of universal human rights is not an exclusively western creation, as non-Europeans have put forward "multiple formulations of ethics that sought to ennoble human existence through enforceable standards akin to human rights" which are "coeval to western practices and institutions."[44]

A decolonized curriculum, therefore, requires a dislocation of knowledge, a questioning of authors, locations, and positionalities, as well as an appreciation of marginalized voices.

Educators: Educators themselves provide a further point of entrance for thinking about decolonizing PME, as decolonization must "necessarily, involve an explicit exercise of the decolonising of ourselves because self-decolonisation is a necessary foundation for collective decolonisation."[45] And here self-reflection becomes a key aspect as it provides educators with the opportunity to become more aware of their implicit "West is Best" bias toward western theories, methodologies, and practices.[46] That these still dominate PME is no surprise given PME institutions' historical legacy tied to colonialism. Becoming more self-reflexive allows educators to realize how they themselves are implicated in the very system they attempt to transform.[47] A way to achieve this is self-location, by which educators become aware of their own positionality, the limits of their knowledge, and the inequalities and injustices which form part of their everyday experiences.

Furthermore, as Grioux points out, it is imperative that educators understand "how difference is constructed through various representations and practices that name, legitimate, marginalize, and exclude the cultural capital and voices of various groups" and that "a pedagogy of difference needs to address the important question of how the representations and practices of difference are actively learned, internalized, challenged, or transformed."[48] For educators this means understanding relations of power and other dynamics within the classroom that enable some voices and silence others.

As such, PME must embrace a very different function if compared to military training. While both contribute to forming military professionals, the latter is a structured top-down

approach, providing instruction and best practices. It is a form of knowledge that affords limited variation from accepted standards; simply put, assembling a rifle will have fixed procedures that must be instructed, learned, and reproduced. Education can have a much less hierarchical and one-directional formulation. Here, the space for alternative ways of imparting and producing knowledge can be explored. For example, storytelling can be a powerful tool for facilitating new openings. This is especially useful in teaching a multinational environment characterized by a multiplicity of backgrounds and experiences. Drawing from our own experience, in teaching the effectiveness, legality, and ethics of drone strikes it is often crucial to manage a delicate interaction between UK cadets with abstract knowledge of this issue, and international cadets that might have direct experience with this issue. In this context, the use of storytelling becomes an effective teaching method to facilitate classroom discussions on this sensitive issue and to challenge pre-conceived ideas. By sharing their personal stories, students are no longer passive consumers of knowledge, as is often the case in the highly hierarchical structures of the armed forces, but become producers of knowledge themselves. Educators can invite students to become such by creating a dialogical environment in which normalized understandings can be upset through the encounter with intimate experiences. The effective use of storytelling, however, requires the educator to develop a familiarity with this pedagogical tool, as well as an attention to the sensitivities involved in sharing intimate stories. A recent piece by McDowell and Cook outlining what they call "storytelling thinking" offers some important actionable steps to develop such skills.[49]

Thus, a key challenge for educators is to develop within students and themselves an open-mindedness toward reflecting on their own positionality and assumptions. This is specifically important for white students and educators that find themselves implicated in perpetuating white supremacy despite their best intentions. As Trepczynski notes, there are "thousands of white people who consider themselves aware of the pain racism can cause, and who could never imagine themselves inflicting it—but then do."[50] The role of the educator in decolonizing the student body is therefore in no way designed to make students feel guilty, but to instill an awareness for this issue and to foster a spirit of self-reflexivity. But as pointed out above, this needs to be accompanied by an introspective move by educators themselves, as this provides the ground for passing on such forms of self-reflexivity to the student body.

Conclusion

This article made the argument for decolonizing PME. We first outlined how we understand decolonizing and related it to the specific sensitivities of PME. We then showed the beneficial effects decolonizing PME can have on the military, its operational effectiveness, and wider civil-military relations, before ending with two suggested avenues (the curriculum and the educator) from which an approach to decolonizing PME can depart. Our suggested avenues are by far not the only paths, but we see these as two central pillars. Furthermore, both aspects can be immediately addressed, as educators can begin questioning their own positionality, the way they teach, and integrate additional perspectives into their curricula. Other aspects can follow, first the student body but also

dimensions such as a decolonization of architectures and symbolic structures. Future research could engage with these aspects, but also, more importantly, begin developing actionable steps for the implementation of a decolonization strategy. Here attempts made in HE could function as an inspiration and offer guidance,[51] as can the increasing scholarly work on the subject.[52] Regarding the latter, Tran's TRAAC model (Teaching Approach; Relationship; Activity and Assessment; Content) might provide fruitful actionable steps due to its guided questions, which allow educators to not only "explore core aspects of teaching and learning including the design process, implementation of activities, and the interaction between staff and students," but also to "reflect on their own position and perspectives, as well as those which they have incorporated into their teaching."[53]

"Decolonizing PME" is thus a multifaceted process that necessitates a sustained and continuous effort, making it important to reminding ourselves that it is not a "one-off" exercise. Understanding the history of colonialism, its existing structural legacies, and its relation to prevailing forms of structural racism to tackle conscious and unconscious biases as well as structural disadvantages within the military is, of course, difficult. Cultural traditions and entrenched social structures often take time to embrace new lines of thinking and convincing individuals of the benefits of decolonizing PME beyond aspects of "military effectiveness" will not be easy—indeed, calling for future research on best practices of how to do so—as it necessitates a delicate balance that avoids reaffirming established cultural and social structures. As such, it cannot be expected that PME institutions will find perfect fixes. But it is important to take steps toward unpacking the impact of colonization on the military if we are serious about valuing diversity and making the armed forces more reflective of contemporary society. Although western militaries have been making significant steps in this direction, valuing for example diversity within ranks, both in terms of gender and ethnic background,[54] efforts to create armies which are more diverse and therefore truly representative of society are bound to fall short without efforts to decolonize.

The shift in consciousness decolonizing PME can instigate will also have direct effects on the development of leadership skills that positively impact the work on issues of equity, diversity, and social justice. Indeed, as Getlaf and Osborne have shown, leaders conscious of decolonial approaches are more prone to value respect for differences, inclusiveness, equity, and social justice, and are furthermore using their influence to enact these values within their organizations.[55] This can have highly positive effects on the workforce by increasing diversity, which will positively contribute to address issues of recruitment and retention. Additionally, such leaders would move away from established paradigms and draw on global and intercultural perspectives to find novel solutions to the complex problems twenty-first century leaders face. Last, decolonized leaders will increase military effectiveness in multinational settings due to an increased understanding of their own positionality and the acknowledgment of non-Eurocentric forms of knowledge.

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Disclaimer: The authors are listed in alphabetical order and contributed equally to this work. The views expressed in this work are entirely their own and do not necessarily reflect the views of the British Army or the UK's Ministry of Defence.

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