

# Amplifying Education: A Case Study in Advancing Academic Centres at Norwich University

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## Abstract

Norwich University, the oldest private military college in the United States, aims to prepare future military and civilian leaders to navigate leadership and educational challenges successfully. One method of preparing leaders is through academic centres. Drawing on seven years of data from the John and Mary Frances Patton Peace and War Center and six years at the Center for Global Resilience and Security at Norwich University, this article shows how this task is accomplished by formally establishing research centres that exist outside of regular academic programming. The centres are uniquely positioned to understand the priorities of the US Reserve Officer Training Corps Cadet Command and the US Department of Defense to prepare future junior military leaders to be prepared for twenty-first-century security challenges. Particular attention is given to how experiential learning, leadership laboratories, and research have prepared cadets to be effective junior military leaders. For each core area, we apply Bloom's hierarchical models to maximise cognitive, affective, and sensory learning objectives. Examples are provided to elucidate the paradigm and outlined objectives further. The article concludes by highlighting the impact of centres across the Norwich community.

**Keywords:** Experiential Learning, Leadership, Academic Centres, Student Research, Norwich University

Relevant International Symposium of Military Academies (ISOMA) 2023 sub-themes:

- Academic programmes and the development of military knowledge and skills
- The reality and challenges of the quality of education in military academies: experiences and lessons learned

## Introduction

The role of a nation's military is constantly evolving. In the West, introspections and an accounting of failures – both professional and ethical – following World War II, the Korean and Vietnam wars, the Cold War, and the Global War on Terrorism catalysed education and training programmes in the American military.<sup>312</sup> As the theatres of engagement extended beyond air, water, and sea, to space and cyber, involving old and new threat actors with

information and artificial intelligence weaponised in innovative ways, modern military education has been forced to adapt. Junior military officers are a crucial component of national security. The Reserve Officers' Training Corps (ROTC) on college campuses has thus become a cornerstone of American military education. Today, many officers in the United States earn a commission through ROTC in all military branches of service from over 1 000 colleges. In fact, the ROTC has commissioned over 600 000 men and women in the Army alone. Senior military colleges (SMCs) in the United States have significantly shaped ROTC over the past century.<sup>1</sup> Norwich University was the first institution to pioneer this type of military education.

Norwich University is the oldest private military academy in the United States, with a heritage of practical education dating back to its founder in 1819, Captain Alden Partridge, a pragmatic educator who fell out with the staid administration at West Point.<sup>313</sup> Norwich University is a complex educational institution that offers a transformative educational experience for its campus-based undergraduate students and rigorous online programming for distance learners.<sup>2</sup> It is a nationally recognised, innovative<sup>314</sup> higher education institution and SMC, known for developing leaders for the military, government, and the private sector that have reached the highest levels in all sectors. As an accredited institution of higher learning, Norwich also draws on the guidance and best practices of organisations, such as the Association of American Colleges and Universities (AACU) and the Council on Undergraduate Research (CUR). Norwich develops leaders to design, build, maintain, and defend the United States to meet the needs of the US Department of Defense.

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- 1 The Reserve Officer Training Corps (ROTC) began with President Woodrow Wilson signing the *National Defense Act of 1919* to formalise this type of commission. Military training at a civilian institution however began in 1819 at Norwich University.
  - 2 At Norwich University, the “citizen-soldier” model of education, which was envisioned by Founding Father, Captain Alden Partridge, provided an innovative programme for military training while attending institutions of higher education. The nation benefited because of the dual advantage of having trained military leaders on notice as needed, while when not serving the students would be able to pursue civilian occupations. The Partridge prototype therefore led to the launch of several American academic institutions, which operated similarly. Two hundred years later, Norwich University celebrates its commitment to the Partridge approach to experiential learning by educating both Corps of Cadets, many of whom who are sponsored by the ROTC, and civilian students inside and outside of the classroom through high-impact practices. Besides Norwich, five other SMCs in the United States continue to play a key role in advancing leadership principles for the next century of the ROTC. Historically, the United States SMC system conceptualised and advanced ROTC. Support for SMCs is identified in 10 US Code § 2111a. The six colleges are Texas A&M University, Norwich University, the Virginia Military Institute, the Citadel, Virginia Polytechnic Institute and State University, and the University of North Georgia. They remain committed to producing educated citizen-soldiers of character that inspire others for a lifetime of commitment and service to the nation.

Each future junior military officer needs to go beyond the traditional classroom instruction in a specific domain, as well as beyond the specialised training offered in the service branch to which they belong. Each future officer must be a critical thinker, have tested leadership experiences, and be prepared to lead across multinational and cultural environments. Understanding how differences in academic experiences affect interpersonal interactions, social influence, leadership, problem-solving skills, and other social phenomena – both within and across groups – is essential in a complete military education. An example comes from the US Department of Defense and the ROTC Cadet Command who have directed that cultural competence be a strategic learning objective.<sup>315</sup> It is critical to design diverse academic experiences for our future military leaders to interact effectively with diverse ethnic and cultural backgrounds to become cross-culturally intelligent and agile to perform the complex range of missions it faces daily with multinational partners.<sup>316,317</sup>

The educational paradigm that involves preparing future leaders to seek solutions to complex global challenges and lead collaboratively across an interconnected world is however not as integrated into undergraduate military curricula as one might expect. Some programmes may have components of key skills, such as learning to build and foster strong partnerships, developing skills in operational planning, adapting to uncertainty, and maintaining communications in challenging situations. A systematic approach to ensuring access for all students is however lacking. As a key partner in helping military professionals gain proficiency across broad academic experiences, Norwich University is committed to advancing leadership and education across all these areas of competency. Specifically, Norwich University initiated Research Centers of Excellence to serve as sandboxes where complex global issues may be tackled in discipline-agnostic ways. These centres also train undergraduate students to become modern military professionals by addressing the various competencies discussed previously. Bloom's taxonomy serves as the guiding anchor to help students improve proficiency in each domain.

Bloom's taxonomy is a framework used in education to define and classify learning objectives into various levels of complexity and specificity. It was first proposed by Benjamin Bloom in 1956, and has since been revised and expanded by other researchers.<sup>318</sup> The framework is widely used by educators to design and assess learning objectives, and it has been applied to a variety of educational contexts, including higher education, K-12, and military education.

In this article, the focus is specifically on two Norwich Research Centers of Excellence, namely the Peace and War Center (PAWC) and the Center for Global Resilience and Security (CGRS). Both focus on critical issues related to national and international security, and help future junior military officers gain key skills that go beyond their disciplinary and service training using the Bloom's taxonomy framework. It is common for both military and civilian colleges to have research centres, such as the Combating Terrorism Center at West Point, the Adams Center for Military History at Virginia Military Institute, and the Sigur Center for Asian Studies at George Washington University. Nevertheless, the PAWC and CGRS at Norwich University have produced significantly meaningful outcomes, as detailed in the subsequent sections.

## **Norwich University Academic Centres: Background**

The mission of the Peace and War Center (PAWC) at Norwich University is to advance interdisciplinary knowledge for students, scholars, and practitioners on the relationship between peace and warfare at local, national, and global level. The mission of the PAWC relates to the strategic plan of the university in the areas of academic enhancement, leadership, service, internationalisation, and innovation. PAWC inspires educational enhancement and leadership development and advances a visible national reputation on issues related to peace and war.

The PAWC functions as a combination of think-tank and action organisation, much in the mould of Alden Partridge, the founder of Norwich University. His educational legacy is grounded in conceiving and doing; thus, serving academic enhancement and leadership development. To that end, war and peace are often understood simply in relation to the presence or absence of violence. The PAWC addresses the full panoply of issues related to the study of war and peace to encourage scholarship and leadership in all facets. The last several decades of research and experience illuminated the need that leaders and practitioners who engage across a broad array of issues are essential to developing ways to manage and ameliorate violence and peace.

The Center for Global Resilience and Security (CGRS) at Norwich University is an interdisciplinary research centre that seeks to promote global security and resilience through research, education, service, and outreach. Research at this centre focuses on the intersections of water, energy, infrastructure, and climate change using a national security lens, and integrating disciplines, such as engineering, science, mathematics, computing, the humanities, political science, international relations, and others. The research seeks to identify strategies to enhance resilience and mitigate risk. Through collaborations with academic institutions, government agencies, non-governmental organisations (NGOs), and private sector partners, CGRS seeks to inform policy and promote sustainable solutions to complex problems and global challenges.

The programming at CGRS ranges from local to global initiatives. On the local scale, the CGRS founded the Dog River Conservancy to develop curriculum and outreach models in support of regional land and water stewardship. CGRS also hosts the biennial Resilient Vermont conference, a forum that brings together community leaders, neighbours and groups that are working to strengthen the resilience of Vermont to climate change and other challenges.

### **Bloom's Taxonomy: Overview**

Bloom's taxonomy, outlined in Table 1 below, is comprised of six levels of cognitive complexity, arranged from lower- to higher-order thinking skills: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. These levels represent a hierarchy of learning objectives, with each level building upon the previous one. The taxonomy can be used to design and assess learning outcomes, as well as to evaluate and improve the quality of instruction. Several seminal studies have used Bloom's taxonomy in their research; thus, advancing how these learning objectives are incorporated effectively in educational settings. Two studies are highlighted here:

- Anderson and Krathwohl's (2001) *A Taxonomy for Learning* presents a comprehensive revision of the original taxonomy, which has become a widely used framework for educators to design and assess learning objectives.<sup>319</sup>
- Krathwohl's (2002) overview of the taxonomy, 'A Revision of Bloom's Taxonomy', provides a detailed account of the revision process and its implications for educators.<sup>320</sup>

Bloom's taxonomy has been applied to educating service members. In military education, the taxonomy has been used to develop leadership potential in cadets, enhance critical thinking and problem-solving skills, and assess learning outcomes in graduate military education.<sup>321</sup>

*Table 1: Bloom's taxonomy*

<p><b>Remember:</b> Retrieving, recognizing, and recalling knowledge from memory.</p>
<p><b>Understand:</b> Constructing meaning through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.</p>
<p><b>Apply:</b> Carrying out or using a procedure for executing or implementing.</p>
<p><b>Analyze:</b> Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.</p>
<p><b>Evaluate:</b> Making judgments based on metrics, criteria and/or standards through checking and evaluating.</p>
<p><b>Create:</b> Putting data together into a new pattern or structure through generating, planning, or producing.</p>

It is important to note some criticism<sup>322,323</sup> of Bloom's taxonomy where the hierarchical structure of learning is challenged, such as in the division of learning into lower and higher tiers. By using activities where students can naturally progress and even jump across levels, centres at Norwich University have maintained the essence of the taxonomy, while adapting it to the students' individual differences and learning styles.

## **PAWC and CGRS Activities and Bloom's Taxonomy**

The activities of the Peace and War Center and the Center for Global Resilience and Security can be correlated to various levels of Bloom's taxonomy (see Table 1). The programming at each centre is designed to help students recall or acquire as relevant:

- Knowledge of the historical, political, and cultural contexts across a broad spectrum of academic programming and experiences;
- Development and application of critical thinking skills;
- Analysis and evaluation of inputs, assumptions, variables, and uncertainties as they engage in complex problem solving; and
- Creation of new frameworks, prototypes, and partnerships.

Students may gain proficiencies in these levels and demonstrate these skills in different ways depending on their learning styles. These are usually identified through engagements with the staff, lecturers and mentors at the centre.

Table 2 highlights the activities at the centre with specific examples related to levels in Bloom’s taxonomy. The second column notes the highest Bloom’s taxonomy level students are expected to reach in each activity. This level is reached as a progression. For example, the highest progression students are expected to reach in the activity of “research” is *Create*. To achieve this level, students are expected to have or demonstrate proficiency across the levels of *Remember*, *Understand*, *Apply*, *Analyse*, and *Evaluate*. Based on this research, there are no centre activities that do not fit within the taxonomy; thus, reinforcing the validity and reliability of Bloom’s work.

Table 2: Centre activities and Bloom’s taxonomy

Centre Activity	Description	PAWC and CGRS examples **PAWC in bold **Joint – in italics
Research	Conducts interdisciplinary research on peace, war, and security issues, environmental security, climate change, resilience, including conflict resolution, peacekeeping, and military operations. Involves understanding subject matter, remembering key specifics, applying their understanding to analyse existing knowledge, evaluating its relevance and significance, and creating new knowledge through research.	<b>VPW</b> <sup>324</sup> <b>JPWS</b> <sup>325</sup> <b>NATO SPSP</b> <sup>326</sup> <b>Schultz Fellowship</b> , CGRS student fellows, senior research fellows, energy resilience, <i>Environmental Security Initiative</i>
Education	Provides educational programmes and resources on war and peace and on resilience and security. Involves remembering and understanding key concepts, theories, and practices. Students are also engaged in analysis to deepen their understanding of the subject matter.	<i>CGRS and PAWC Speakers Series</i> , energy resilience education, academic resilience collaborative (ARC) webinars, <sup>327</sup> Dog River Conservancy (DRC) <sup>328</sup>

Centre Activity	Description	PAWC and CGRS examples **PAWC in bold **Joint – in italics
Experiential learning	Creates environments where students can experience the information, concepts, or theory in an active real-world laboratory and go through the progression of understand, remember, apply, analyse, evaluate and create artefacts that demonstrate competency in new subject areas.	<b>Olmsted FSPAC, PAWC Fellows, DRC engagements IW Simulation, IFPSP<sup>329</sup> BISE<sup>330</sup> WBE initiative, NATO Simulation, Arctic Simulation</b>
Publications	Produces scholarly publications, including books, articles, and reports, on war and peace topics. Involves remembering and understanding existing knowledge, analysing, and evaluating its strengths and weaknesses, and creating new knowledge through research and writing.	<b>JPWS, NATO SPSP,<sup>331</sup> VPW, student article on WBE,<sup>332</sup> ISOMA article on ES, presentations at AEHS.</b>
Events	Hosts conferences, summits, and symposia on war and peace and resilience and security topics, bringing together scholars, practitioners, and policymakers to share knowledge and engage in discussion. Involves understanding and evaluating existing knowledge, generating new ideas and perspectives. These events create opportunities for dialogue and collaboration.	Resilient Vermont Conference, <b>Summit, MWS, speakers series, Germany Cyber Security Conference</b> , ESI event, AEHS, ARC series, EAN – Energy Futures Initiative working group, ES panel, SHMP working group, training for community resilience organisations, outreach through DRC and the First Lego League and in K-12 schools
Collaboration and networking	Engages with local, national, and international communities to share research findings, network, promote dialogue and understanding, and provide resources and expertise on war and peace as well as resilience and security.	<i>AEHS, Army War College<sup>333</sup></i> <b>IFPSP ISOMA<sup>334</sup> New England Consulate Generals, STRATCOM. Fulbright, EU, EAN, SHMP</b>

By participating in the activities at each centre noted in Table 2, students experience the progression of Bloom's levels depending on their individual starting points. The activities at the centre are designed to meet students where they are at, and to help them advance. Activities at both centres aim to provide students with foundational knowledge of content related to war and peace and to resilience, security and the environment (Bloom's *Remember*). This knowledge is offered in events, such as the annual Peace and War Summit and the Resilient Vermont Conference with opportunities to learn from leading scholars and practitioners in the field. Students are then encouraged to analyse and interpret complex issues in debriefs and after-action reviews of centre events and activities with peers, mentors, and teaching staff (Bloom's *Understand*). Students apply their understanding in multiple forms, for example by leading various operational aspects of the Olmsted Expedition, designing prototypes to sample wastewater to look for the SARS-CoV-2 in campus manholes, and conducting experiments in classrooms, laboratories, and the field (Bloom's *Apply*). Students then break down their data, experimental and research findings, notes and lessons, discussing and debating to make cohesive arguments (Bloom's *Analyze*). Once students have their arguments articulated, they evaluate their understanding and conclusions by comparing with known knowledge sets to advance the research (Bloom's *Evaluate*) and, finally, they implement the protocols, programmes, experiments, prototypes and other outcomes generating new knowledge, which they disseminate in various modalities and venues (Bloom's *Create*). While this is the traditional Bloom's progression, the activities at each centre are robustly designed and managed to adapt to students' learning styles and starting proficiencies, allowing them to jump around levels as previously noted.

As noted through the examples provided in Table 2, activities at both centres are designed to amplify students' academic experiences across the range of Bloom's taxonomy levels. In this section, further analysis will elucidate the integration of the taxonomy in the activities at the centre.

All students at both centres are required to engage in research. Examples of research are Paul Kostecki CGRS Fellows in Environmental Security, PAWC Richard S Schultz '60 Symposium Fellows, students engaged in the Arctic Triad competition, or the Olmsted Field Study. Each student involved in these activities must **remember** and **understand**. Students also absorb information as they attend various talks at the centre, symposia, summits and conferences, and reflect on their understanding and experience.

All students are also expected to **apply** their knowledge and memory of various centre activities to their academics and community engagement activities. For example, CGRS student fellows who became involved with the Dog River Conservancy learnt about land and water stewardship through a class or laboratory activity and then developed outreach models that were shared with the K-12 community. A specific example involves a physical model built in an environmental engineering classroom by a student group who learned about the oxygen sag curve that affects fish populations in the Dog River. The CGRS fellows demonstrated the model to local area high school learners and produced an explanation video to share with other environmental engineering professors who used it in their classrooms to explain the concept.



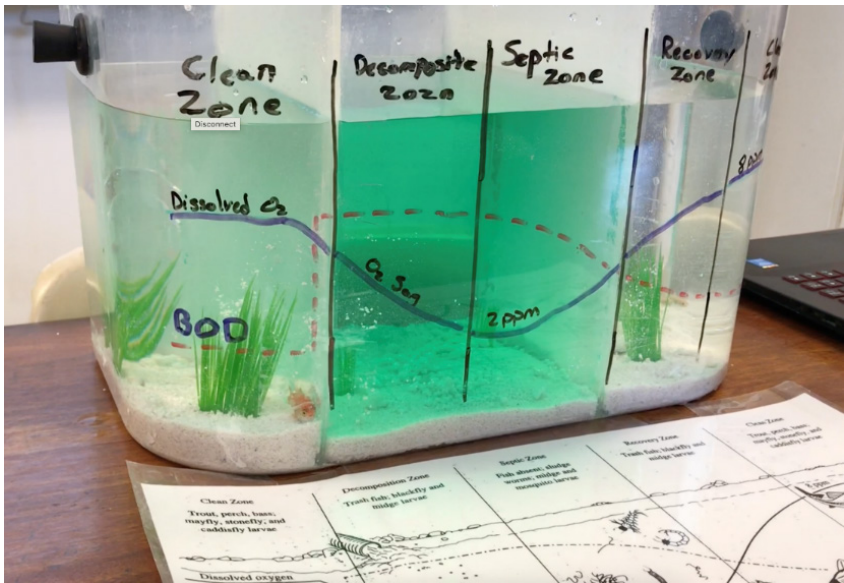


Figure 1. Students built a dissolved oxygen sag curve model to share with K-12 students taking classroom lessons into the community.

Students in research centres also **analyse** lessons learnt in various centre activities. Examples of such analysis include the PAWC Richard S Schultz '60 Symposium Fellows who work under the supervision of a faculty mentor and analyse literature and data sets to develop responses to their research questions and disseminate their findings during the annual Norwich University Military Writers' Symposium.

Student fellows are constantly **evaluating** various sources of information through centre experiences to make informed decisions and expand their education. Examples include students involved in the Olmsted Field Study, moderation duties at the Resilient Vermont conference, participating in Boston and Washington DC Policy weeks, or contributing to the Voices on Peace and War forum or other scholarly outputs. In each of these activities, students are required to evaluate the geography, politics, socio-economics and culture of a location they are visiting, evaluate writings of scholars from whom they are hearing in panels or whom they are moderating in presentations. The evaluation is often in areas of study that lie outside their academic majors, challenging them to learn about a new topic, speak to experts on a new subject matter, grapple with disciplinary contradictions, and form cohesive arguments that they articulate with clarity.

Finally, addressing Bloom's taxonomy level of *Create*, fellows in both centres are required to create new knowledge through research and new levels of understanding through reflections. For example, student fellows involved in the Academic Resilience

Collaborative summarised key ideas of webinars conducted virtually during the COVID-19 pandemic in English, and developed summaries in French, German, Spanish, and English. This effort evolved into a programme called “Language Ambassadors” where the centre highlights and programming were translated into multiple languages. Another example was CGRS student fellows involved in the wastewater-based epidemiology effort. Students built an affordable automatic sampler that could collect composite samples from campus manholes, and wrote about their design and implementation in an article that was published in an undergraduate research journal (see Figure 2).



*Figure 2. An automatic sampler designed and built by students to sample campus manholes for the SARS CoV-2 virus during the pandemic.*

Centre activities have had a networking effect, which fostered new activities. For instance, when the PAWC Director and Associate Director were developing the Boston Immersive Simulation Experience (BISE) in the summer of 2018, they visited Boston, and were introduced to a Norwich alumnus who worked in the Department of Public Health in Massachusetts. The alumnus, an environmental specialist, introduced the PAWC Director and Associate Director to several environmental scientists at the University of Massachusetts, Amherst. This network formulated the creation of a section of environmental security at a national conference in collaboration with CGRS. In addition, the Georgian acting ambassador was invited to serve as a keynote speaker at the 2022 Peace and War Summit to address Russian current events. During his visit to Norwich, the

ambassador extended his assistance should Norwich be interested in conducting a field study on peace and conflict in Georgia. This offer led the PAWC Director and Olmsted student fellows to visit Georgia for two weeks in May 2023 to interact with national policy and academic leaders in the country.

Moreover, a unique benefit of building the two research centres at Norwich University is to develop Centre Directors and Associate Directors as multi-layered, experienced, and effective leaders in the academic and policy community. Through the above-mentioned multiple and various centre activities, lecturers and staff associated with PAWC and CGRS have been able to gain academic, policy-relevant, and international experiences while creating a wide network with national and international military leaders, policymakers, scholars, and NGO activists around the world. Without such opportunities, they would have been solely focused on academic work at Norwich. Research centres can thus work as a great laboratory for both students, staff, and professors at military colleges.

In Table 3, some specific activities at the centre are briefly described with additional details, such as impact of the activity, and the tools used to assess the impact (additional details are included in the footnotes). Table 3 highlights how the centres unite various areas of study at Norwich, and provides an academic locus to encourage convergence of effort to generate new insights. This approach enables the centre to catalyse much on the many facets of war and peace and how they can be managed, in the first instance, and strengthened in the second. The centres pull all these efforts together to benefit students and teaching staff and to build upon an obvious strength for Norwich in a coherent and structured way. By creating integrated projects and research groups on campus and reaching out to collaborate with groups off-campus, the centres connect our disparate areas of work in a way that adds to the national and international dialogue on these topics more effectively and persuasively.

Table 3: Centre examples

Centre examples	Centre activity	Frequency and iterations	Description	Estimated impact	Evaluation methodology
Olmsted Field Study in Peace and Conflict (FSPAC)	Experiential learning	Annually since 2004	The purpose of the FSPAC is to enhance cross-cultural competencies, gain global knowledge and the necessary leadership skills for Norwich students who commission in US armed forces. Programme participants will socialise, learn, collaborate, and problem solve in an experiential learning environment.	About 100 students, annual Olmsted Foundation engagement, more than 900 Facebook followers, 200 Instagram followers, newsletter email open rate 50% of subscribers	Student reflections & short statements
<i>Journal of Peace and War Studies (JPWS)</i>	Research	Annually since 2018; 4 <sup>th</sup> edition	This is an annual peer-reviewed journal published by the John and Mary Frances Patton Peace & War Center at Norwich University. JPWS aims to promote and disseminate high-quality research on war and peace throughout the international academic community. It also aims to provide policymakers in the United States and many other countries with in-depth analyses of contemporary issues and policy alternatives.	More than 400 hard copies distributed, more than 800 Facebook followers, 200 Instagram followers	Google analytics, social media analytics, hard copies distributed
Wastewater-Based Epidemiology Initiative	Education	One-year project	In 2020, with a newsletter subscriber open rate of 50%, CGRS launched its first environmental health investigation. Norwich University developed a Wastewater-Based Epidemiology (WBE) Initiative, and joined a growing effort among colleges and universities across the United States to investigate the use of wastewater for early detection of the SARS-CoV-2 virus, which causes COVID-19.	State of Vermont, Norwich University community, Norwich University Student Scholarship Celebration, Engineering Convocation, and Vermont State Engineers Meeting	Research reports and presentations

Centre examples	Centre activity	Frequency and iterations	Description	Estimated impact	Evaluation methodology
Voices on Peace & War Forum	Publication	Bi-weekly since February 2021	The authors of this forum, Voices on Peace and War (VPW), explore domestic and global issues broadly tied to the theme of peace and war. VPW features subject matter experts and students who present their opinions and arguments on critical issues related to peace and war in the international community.	More than 800 Facebook followers, 200 Instagram followers, more than 6 000 unique webpage views over one year, email open rate 50% of subscribers	Google analytics, social media analytics, email analytics
Dog River Conservancy Initiative	Education	Multi-year project since 2018	The initiative serves as a model university-led conservancy that supports dialogue on environmental stewardship, embeds art and culture into scientific inquiry and discovery, and advances conservation using a student-centric approach.	Norwich University and local community members (6,000+ population), local K-12 curriculum	Research report outs and presentations, community engagement activities, teaching packets for K-12 educators
Military Writers' Symposium	Event	Annually since 1997	The only programme of its kind at an American university, the Norwich University Military Writers' Symposium convenes authors and experts in the fields of military history, intelligence, and current affairs to offer important perspectives on pressing global concerns.	More than 100 guest speakers, more than 800 Facebook followers, 200 Instagram followers, potential YouTube viewers 2.35k, campus and local community	Event registration data, after-action reporting
Resilient Vermont Conference	Event	Bi-annually	A conference for Vermonters seeking to engage with each other, their communities, and the state at large through meaningful and interdisciplinary discussions and problem solving. Join us for this one-day event as we look to the past to plan for our future.	More than 22 speakers from the Vermont Community, 100 attendees annually, potential YouTube viewers 2.35k	Event registration data, after-action reporting

Centre examples	Centre activity	Frequency and iterations	Description	Estimated impact	Evaluation methodology
Environmental Security Initiative (ESI)	Research	Multi-year project since 2018	The Environmental Security Initiative (ESI) is a keystone collaborative effort between the Norwich University Center for Global Resilience and Security (CGRS) and the John and Mary Frances Patton Peace & War Center (PAWC) with a mission to advance research in the intersecting areas of environmental degradation and national security.	Conference participation at the Association for Environmental Health and Sciences Foundation, Norwich community	Research reports and presentations
Energy Resilience and Security Initiative	Research	Multi-year project since 2018	CGRS considers energy resilience a core component of building community resilience. It is developing energy curricula for a range of learners, from undergraduate students to senior leaders in military and industry, to produce generational change.	Renewable Energy Vermont Conference, Energy Action Network, Vermont Energy Futures Initiative, Vermont's State Hazard Mitigation Planning steering committee, US Department of Defense	Research reports and presentations, working group hosting
Norwich Humanities Initiative	Education	Multi-year initiative	The Norwich Humanities Initiative demonstrates the value and impact of integrating humanities-centred approaches to research, teaching, and learning within science, technology, engineering, and mathematics (STEM) and professional fields.	More than 1 500 Norwich students	Course assessment, student grades
Peace and War Summit	Event	Annually since 2018	The Peace and War Summit at Norwich University examines significant international issues with an eye at recommending viable solutions.	More than 40 guest speakers, more than 800 Facebook followers, 200 Instagram followers, potential YouTube viewers 2.35k, campus and local community	Event registration data, after-action reporting, <i>Journal of Peace and War Studies</i>

<b>Centre examples</b>	<b>Centre activity</b>	<b>Frequency and iterations</b>	<b>Description</b>	<b>Estimated impact</b>	<b>Evaluation methodology</b>
Military Writers' Symposium Associates	Collaboration and networking	Multi-year	The Military Writers' Symposium Associates are an affinity group whose members seek to support the Norwich University Military Writers' Symposium and its corresponding year-round campus experience	More than 25 fellows	Annual meeting
CGRS fellows programme	Research, education, experiential learning	Multi-year fellowship programmes	Fellowship opportunities are available to students, faculty, and external subject matter experts to complete projects of inquiry	More than 50 fellows	Research reports and presentations
PAWC fellows programme	Research Education	Multi-year fellowship programmes	Fellowship opportunities are available to students, faculty, and external subject matter experts to complete projects of inquiry	More than 25 fellows	Research reports and presentations



Students affiliated with each centre take on leadership roles in activities promoted by the centre. Students attend conferences, for example, but also assist in planning and execution. Examples in Table 3 are the Norwich University Military Writers' Symposium, the Wastewater-Based Epidemiology Initiative, and the Olmsted Field Study in Peace and Conflict (FSPAC). Through various experiences, the centres enhance academics and the overall intellectual culture of the university and build leadership capacity. Students who work with the centres have input on the projects and, thus they gain valuable experience developing and completing projects themselves and honing analytical skills to assess, review and interpret complex problems. Student-affiliated work provides the foundation to help them succeed in their chosen careers and become leaders at various levels.

Table 3 illustrates how, over the past seven years, the PAWC has positioned itself to become a leader in shaping issues related to peace and war. The journal of the centre, the *Journal of Peace and War Studies*, a biweekly forum *Voices on Peace and War*, symposia, field studies, experiential learning projects, social media platforms, and speakers series disseminate information externally, and contribute to national and international debates. External partnerships are essential to bring expertise to campus, but also to extend the expertise and ongoing scholarship already at Norwich, and develop platforms by which information can be disseminated more widely.

Over the past six years, the Center for Global Resilience and Security has grown its network of students, teaching staff, and senior fellows. Table 3 provides examples of how students have benefited from guided research mentoring, leadership roles in event organisation and planning, shared the stage as panellists and moderators of conference sessions, and earned well-deserved fellowships and internships. Examples are:

- CGRS local and statewide programming successes developed and hosted an environmental security session at a national conference focused on environmental health and sciences, and created a student fellowship programme to advance environmental security.
- During the early months of the COVID-19 pandemic, CGRS also coordinated a cross-disciplinary team of students who investigated campus manholes to apply wastewater-based epidemiology as a pathway for early detection of the SARS-CoV-2 virus.

Teaching staff and senior fellows have been invaluable mentors to students and co-creators of new knowledge, processes, science, and models disseminated through written and oral presentations in multiple modalities and venues, to grow the fields of resilience and security.

In addition to its research and educational programmes, CGRS also offers consulting services to government agencies, NGOs, and private sector partners. For example, through the Environmental Security Initiative from 2019–2022 described in Table 3, CGRS supported the Norwich University Applied Research Institutes (NUARI) in its contract with the US Army Engineer Research and Development Center (ERDC) and Cold Regions Research and Engineering Laboratory (CRREL) to develop an energy-resilience research track to include issues of cybersecurity.



## Conclusion

While applying Bloom's taxonomy, this article has addressed how successful experiential learning, leadership laboratories, and research activities, initiated by the two research centres at Norwich University, have helped cadets to be effective junior military leaders. Nevertheless, it would be necessary to acknowledge that such academic centres have certainly faced their own challenges. Among those challenges have been acquiring adequate finances to support the centres and their long-term sustainment, providing release time for teaching staff from teaching courses to lead and maintain the centres, addressing the potential for competition against other academic entities, and handling some bureaucratic culture to be resistant to new approaches. Although dealing with such challenges requires wisdom and patience, the multi-dimensional advantages that the research centres have brought are remarkably precious.

By creating academic research centres, Norwich University has developed a sandbox where teaching staff, students, and community members with intersecting interests can come together and amplify educational opportunities and activities. All centre efforts integrate Bloom's taxonomy principles to ensure that undergraduate students experience a gradual progression of their educational experience. The centres have embedded avenues for students to ask questions, explore by themselves or with mentors, participate and lead, visit new places, debate with scholars, work directly in communities, reflect on their experiences, mentor their peers, gain fellowships and internships, and explore future career opportunities.

The centres intend to build a confident next generation that can both lead and follow. This is done by centre programming and activities that amplify classic educational experiences, leadership opportunities, and traditional curricular models. These centres at Norwich University challenge traditional paradigms by breaking educational silos by having students work across academic disciplines and with multi-faceted teams.

The centres promote academic enhancement via critical thought for innovative leaders accustomed to pairing theoretical concepts associated with Bloom's taxonomy via hands-on experience. These leaders will be prepared to grapple intellectually and practically with the topics of war and peace in all their dimensions. Whether Norwich graduates enter the military or civilian world after graduation, they will be confronted with challenges ranging from counterterrorism to cybersecurity to cognitive warfare to climate change. Because of the impact of globalisation and international connections, there is scarcely a career path in the world today that is not fundamentally affected by the dynamics of war and peace.

The success of the Peace and War Center and the Center for Global Resilience and Security can be measured by their impact on both the Norwich University community and the wider world. Both centres have had a significant influence on Norwich University cadets and civilian students, providing them with unique opportunities to engage with real-world issues and develop skills that are critical to their future careers. The centres have also contributed to recognition of the university as a leading institution in the areas of resilience, understanding conflict, and environmental security. The PAWC and the

CGRS are testaments to the importance of multidisciplinary and experiential approaches to address complex global challenges. The vision is that the outcomes of centre activities will continue to be felt in the years to come both in the academic world and in the field of policymaking.

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## ENDNOTES

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