Weekly Media Report –Nov. 17-23, 2020

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SGL:

1. Ambassador Harris Discusses U.S./ROK Alliance, Statesmanship During NPS Virtual Lecture

(Navy.mil 20 Nov 20)
(NPS.edu 20 Nov 20) … Mass Communication Specialist 2nd Class Tom Tonthat

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EDUCATION:

2. COVID Drives Navy Training to Innovate

(National Defense Magazine 19 Nov 20) … Edward Lundquist

Restricted movement of personnel caused by the COVID-19 pandemic is prompting the Navy to take innovative approaches to providing course instruction… The Warfare Innovation Continuum Workshop at the Naval Postgraduate School in Monterey this year held a hybrid in person-virtual event.

According to Professor Jeff Kline, the WIC workshop brings together a mix of faculty and students with the field, fleet, academia and industry.

3. NPS, Open Robotics Hosting Virtual Ocean Robotics Challenge

(Navy.mil 19 Nov 20)
(NPS.edu 19 Nov 20) … Mass Communication Specialist 3rd Class James Norket

The Naval Postgraduate School (NPS) has once again partnered with the robotics research and development company Open Robotics to host a virtual competition on autonomy with the 2020 Virtual Ocean Robotics Challenge (VORC). An international, university-level competition, VORC is designed for both Navy professionals and STEM-students to evaluate the fundamental capabilities of autonomy and maritime robotic technologies.

RESEARCH:

4. Manning Still Matters: A Fleet Perspective

(USNI 16 Nov 20) … MCPO Paul Kingsbury, US Navy (ret.)

It has now been three years since the *Comprehensive Review of Surface Force Incidents* was conducted to find root causes underlying ship mishaps in the Western Pacific. One area identified was the impact of manning shortfalls across the fleet. In spite of the fact that the Department of Defense has had its largest budget in years, funding shortfalls that underlie all challenges to man the Navy to minimum requirements do not appear close to resolution by Navy leadership anytime soon. Today, the Navy still has thousands of gaps at sea in operational fleet units.

Beyond powerful anecdotes and personal conversations with the fleet chief petty officer (CPO) mess, there is research to support the Navy's ongoing failures to man the fleet and correlations between manning and performance. A *USNI Blog* piece titled "Manning Matters" and three **Naval Postgraduate School studies** present this research, and all provide specific details which support this thesis. Also, the *Comprehensive Review* explained that "with respect to watch team performance, resilience, and operational safety, there is strong Defense Equal Opportunity Management Institute (DEOMI) survey evidence that forward deployed operational readiness overall is affected by fatigue and stress." Coincidentally, suicide rates have consistently increased over the past several years. Real-world case studies support the idea that manning gaps induce risk to mission and risk to force—there was a gapped quartermaster chief billet on board the USS *Fitzgerald* and several cross decks to the USS *John S. McCain* prior to those collisions. Increasing gaps at sea, extended work days at sea and in-port, and the quality of work and life for fleet sailors are all connected whether Navy leaders are willing to admit this or not. This story needs to be routinely and strongly told on behalf of fleet sailors bearing the brunt of these decisions.

5. Monterey's NPS Leads Planning for Next War

(Monterey Herald 20 Nov 20) … Dennis Taylor

Planning for a long, sustained war 15 years into our future brought some of the best technological, strategic and military minds together at a recent virtual Naval Postgraduate School workshop.

6. Naval Postgraduate School Workshop Explores Emerging Technologies

(Inside Defense 24 Nov 20) … Aidan Quigley

The Naval Postgraduate School hosted a September workshop that explored how emerging technologies could shape a 2035 global conflict.

FACULTY:

7. Computing Pioneer Leads NPS into the Cognitive Era

(NPS.edu 17 Nov 20) … Matthew Schehl

It has been said that technology advances at an extraordinary speed … What, then, would be said about a mind that has been innovating in the field of technology, always a step ahead, for more than half a century?

Such has been the career of Dr. Peter Denning, Distinguished Professor of Computer Science at the Naval Postgraduate School (NPS) who even today after a 50-year career of thoughtful and remarkable achievements in the field computing stands at the beginning of his latest effort for the university. As a creator and first chair of the Consortium for Intelligent Systems Education and Research (CISER), Denning and his NPS colleagues have developed a collaborative effort to advance intelligent systems capabilities in the Navy.

8. Revamping Wargaming Education for the U.S. Department of Defense

(CIMSEC 17 Nov 20) … **Jeff Appleget, NPS Operations Research Senior Lecturer; Jeff Kline, NPS Operations Research Professor of Practice; & Rob Burks, NPS Defense Analysis Associate Professor**

The U.S. Department of Defense has failed to educate generations of military officers on the skills of wargaming. Wargaming creates the environment in which uniformed leaders practice decision-making against an active, thinking adversary. Wargaming is also required by the Department of Defense's planning process to create sound and executable plans, is inherent to designing new doctrine and operational concepts, and is a vital element in the cycle of research.

9. AU Holds Webinar on Post-US Election Scenarios

(The News 19 Nov 20)

Islamabad : Faculty of Aerospace Sciences and Strategic Studies (FASSS) at Air University, organised an international webinar on 'Post US Elections: Forecasting Global and Regional Security Environment.'… Dr. Nazir Hussain, dean of Social Sciences Quaid-i-Azam University Islamabad offered his views on the future of Middle-East and Iran's Joint Comprehensive Plan of Action (JCPOA). He said that there is unlikely to be a drastic change in the US policies towards the region, but there is a likelihood of a renegotiation of the Iran nuclear deal. **Brigadier (r) Feroz Hassan Khan from the Naval Postgraduate School, Monterey**, US shared his perspective on the future of arms control as the issue is likely to gain more traction under the Biden's Administration.

ALUMNI:

10. CHDS Alumni Assume Leadership Positions at the International Association of Chiefs of Police

(CHDS.us 18 Nov 20)

The Naval Postgraduate School's Center for Homeland Defense and Security (CHDS) is proud to announce that three alumni have been sworn-in to the International Association of Chiefs of Police (IACP) Executive Board: Chief Cynthia Renaud (Ret.), Santa Monica Police Department in California; Chief Dwight Henninger, Vail Police Department in Colorado; and Chief Kristen Ziman, Aurora Police Department in Illinois.

11. Former Astronaut Recounts How He Reached for the Stars

(NAS Patuxent River Tester 19 Nov 20) … Emily Funderburk

An 8-year-old boy built a rocket ship out of a cardboard box, dreaming he could fly to the moon.

That boy was Dr. John Herrington, a Naval Postgraduate School alumnus, who grew up to become the first American Indian (Chickasaw tribe) NASA astronaut, flying to space with STS-113 Endeavor in 2002. Herrington, a retired Navy commander and graduate of the Naval Test Pilot School (TPS) here, shared his story at NAVAIR's national virtual American Indian Alaskan Native Heritage Month event Nov. 5.

12. Morehead State Alumnus DeMoss Promoted to Rear Admiral in U.S. Navy

(Morehead State University 20 Nov 20)

Trent DeMoss, a Naval Postgraduate School alumnus, was promoted to the rank of rear admiral lower half earlier this year, and subsequently assumed command of Commander, Fleet Readiness Centers (COMFRC), under Naval Air Systems Command (NAVAIR), in Patuxent River, Maryland.

13. The Chief's Desk – Nov. 20th

(Signals 20 Nov 20) … Chief Scott Freitag

In my opinion, the Fire Service does not do a good enough job preparing our personnel to communicate effectively. Honestly, I don't think we spend enough time on the topic for anyone in the Fire Service whether in Operations or Non-Operations. A person's ability to communicate has a direct impact on their level of credibility. Whether written, verbal, or non-verbal the way you communicate sends a message about who and what you are to others around you.

As part of the **Executive Leaders Program through the Naval Post Graduate School**, I was introduced to Allen Weiner Ph.D. His firm, Communication Development Associates, focuses on helping leaders develop or hone their communication skills. I just finished reading his book *So Smart **But**…: How Intelligent People Lose Credibility – and How They Can Get it Back.*

14. Pomona-born Astronaut Makes History as 1st African American to Join Extended Mission on Space Station

(KTLA 22 Nov 20) … Kristina Bravo

A Southern California native made history this week as the first Black astronaut to work at the International Space Station as a long-term crew member.

Victor Glover, a Naval Postgraduate School alumnus, who was born in Pomona and graduated from Ontario High School in 1994, arrived at the NASA outpost on Tuesday as part of SpaceX's second crew launch. The 44-year-old Navy commander and pilot is the only space rookie of the four-member crew, who's staying at the station for six months.

NPS ANNUAL REPORT:

The latest NPS Annual Report and summary has been posted to the NPS website. This edition emphasizes aspects of our mission that we want NPS stakeholders to understand better, and provides a baseline of updated messaging with supporting facts to reference in your communications.

UPCOMING NEWS & EVENTS:

November 26: Thanksgiving
December 18: Fall Quarter Graduation

SGL:

Ambassador Harris Discusses U.S./ROK Alliance, Statesmanship During NPS Virtual Lecture

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U.S. Ambassador Harry Harris, lauded leader and diplomat, who became the first Asian American to hold four-star rank in the U.S. Navy and is the former commander of U.S. Pacific Command (PACOM), spoke virtually to students, staff and faculty of the Naval Postgraduate School (NPS) about the U.S./Korea Alliance and about his experiences transcending from military service into statesmanship during NPS' latest virtual Secretary of the Navy Guest Lecture (SGL), held Nov. 17.

While his lecture, titled, "Critical Allies: The U.S. / Republic of Korea Alliance," explored the many dimensions of the relationship and history of the two countries, the question and answer session afterward focused on contrasting his experiences in the Department of Defense and the State Department, with NPS students – the military's future leaders – asking the questions.

"Whether you wear the uniform or the suit of a diplomat, alliances are an integral part of U.S. foreign policy," said Harris to open the lecture. "The U.S./ROK Alliance is dynamic and we have built a multi-dimensional partnership reinforced by shared values, shared concerns and shared economic interest. It's lasted generations and will continue to thrive for generations to come as long as we together nurture it, resource it, and remain committed to it."

While recently commemorating the 70th anniversary of the start of the Korean War in June, Harris, born in Japan and raised in Tennessee and Florida, reflected on how the U.S./ROK alliance was forged in battle and would become the lynchpin for stability and security of east Asia.

"Our relationship has grown to encompass many dimensions including trade, people to people ties, and cooperation across a broad range of disciplines," said Harris. "In addition to our shared history of a blood-forged alliance, the U.S. and ROK continue to develop a strategic partnership supporting our shared interests, objectives, and values in this region and beyond."

Harris then reflected on when he was the USPACOM Commander (now USINDOPACOM) describing his concerns of the Indo-Pacific's security environment and how they compared to his concerns today as an ambassador.

"When I was USPACOM Commander, I thought about the proliferation of weapons of mass destruction, an assertive China, a resurgent Russia, as well as the [Democratic People's Republic of Korea] unresolved history, natural disasters and hazards, and the increasing importance of space and cyber as well as the accelerating rates of change," said Harris. "Taking a look at what I think about every day in Korea, not much has changed."

In addition to talking about the strengthening the defense of the Indo-Pacific against mutual threats, Harris talked about Korea's innovations and benchmark policies in combatting the COVID-19 pandemic, in which the Korean government's measures to contain the spread of COVID-19 has become a global model for other countries to follow.

"As a recent example of the U.S./ROK partnership, [Korea] has demonstrated the firsthand advantages of partnering in science and technology with an innovative nation," Harris stated. "Koreans, Americans, and the rest of the world for that matter have all directly benefited from the ROK's successful response to COVID-19. Korean companies, sister cities, and provinces have shown great generosity in the early months of the pandemic."

Harris listed several Korean-based companies that assisted Korea and the U.S. with COVID-19 relief whether via money donations, providing vehicles for emergency responders, or shifting its usual production model to manufacturing protective face shields.

"There are many more South Korean companies that are proactively contributing to the health and well-being of the American communities in which they live and operate," continued Harris. "We maintain close contact with partners at the Korea Disease Control and Prevention Agency. There is such strong international cooperation. I believe this will ultimately defeat this disease globally."

In addition to sharing strategies for COVID-19 containment, Korea and the U.S. share in the responsibilities in maintaining strength in the region. Harris noted that the Indo-Pacific region contains four of the world's six largest economies, and that more people live in this region than all the other world regions combined.

"America has a vested interest in the Indo-Pacific region, and as rival countries compete in the Great Power Competition to flex control of the region, the U.S. seeks to strengthen relationships based on respect, an equal footing, and a fair exchange," said Harris. "The network of U.S. alliances and partnerships has been at the core of a stable and peaceful Indo-Pacific. No country can shape the future of the region in isolation and no vision for the region is complete without a robust network of sovereign countries cooperating to secure their collective interests."

After his prepared remarks, Harris spent time answering a series of questions from NPS students – Navy, Marine Corps, Space Force, Coast Guard and international officers – who asked about his transition from the Defense department to State Department, challenges in the region with regards to China and the DPRK, and for words of wisdom.

"I'll make an observation that I noticed when I was in uniform," said Harris. "The military has no monopoly on courage. We see foreign service professionals who are on the front lines of diplomacy. They're running Provincial Reconstruction Teams in Afghanistan and in Iraq. An IED will kill a Foreign Service Officer just as quickly as it would kill a uniformed service member.

"They're often serving side by side with their brothers and sisters in uniform, and they're often serving alone without the backup that we provide for our military on many occasions," he continued. "We all work for the same national strategy."

The final question of the day belonged to Coast Guard Lt. Cmdr. James Reilly, who asked if Harris had any words of wisdom he'd like to impart to NPS' mid-career officer students.

"Civility and cheerfulness matters," imparted Harris. "I tend to take a cheerful and positive attitude into the jobs I take. But the most important thing is, whether you fly airplanes, drive ships, space ships or launch missiles, competence matters more than anything else.

"You need to be an expert in your warfare specialty first before you can become a geo-political thinker," noted Harris. "So become the expert in your field and then branch out to bigger things."

To watch the complete lecture and student Q&A session with Ambassador Harris, visit the **SGL website** or **NPS YouTube** channel.

https://www.navy.mil/Press-Office/News-Stories/Article/2423755/ambassador-harris-discusses-usrok-alliance-statesmanship-during-nps-virtual-lec/

https://nps.edu/-/ambassador-harris-discusses-u.s./rok-alliance-statesmanship-during-nps-virtual-lecture

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EDUCATION:

COVID Drives Navy Training to Innovate

(National Defense Magazine 19 Nov 20) … Edward Lundquist

Restricted movement of personnel caused by the COVID-19 pandemic is prompting the Navy to take innovative approaches to providing course instruction.

At the Naval Leadership and Ethics Center, Newport, Rhode Island, Capt. Harry Marsh, prospective executive officer and commanding officer instructor, said training has evolved from rigid curriculum-based, instructor-led classes to facilitated command-level discussions.

"We still have instructor guides and training objectives, but there's less rigor in exactly how we present that information. We have more flexibility," he said.

While much of the training relies on the students sharing their own experiences in dealing with various issues related to managing and leading their units, the pandemic has forced some changes in how

training is delivered. However, Marsh said, some of the instruction actually works better in a virtual environment.

"We are guiding them to listen, think and write their ideas down, because that uses a different part of the brain, and then we match the students in pairs, one-on-one, to discuss their ideas. In the classroom, even though it's a one-on-one discussion, there are still people around and other conversations in the classroom," Marsh said.

"We can get into issues that people are uncomfortable talking about in large groups, but in a Zoom environment, when I put them in a breakout room, it's just the two people," he added. "It allows the students to really open up and discuss, and develop something that's a really useful product."

Capt. Dave Stoner, commanding officer at the Center for Surface Combat Systems, stressed the importance of balancing risk to mission and risk to force.

"It is imperative that we continue to provide training to fleet sailors and waterfront training to our ships while protecting the health of our workforce and families," said Stoner.

"Therefore, we have explored and implemented distributed technology into our mission-essential training."

Dr. Jeffery Temple, CSCS chief technology officer, said COVID-related restricted movement of personnel called for an innovative approach to providing course instruction at remote locations. Where the center used to send instructors to locations to teach, they became innovative in adopting technology to virtually send the instructor to the remote classroom.

Instructors in San Diego taught the Computer Aided Dead Reckoning Tracer course to students in Yokosuka, Japan, and a Tactical Tomahawk Weapons System Engineering course was taught from the Naval Air Station Oceana Dam Neck Annex in Virginia, to students at Pearl Harbor, Hawaii, utilizing the appropriate classification teleconferencing capability and local assets.

The center also looked at where instruction could be recorded and uploaded to Navy secured servers for viewing by incoming students, Temple said.

The Defense Collaboration Services allows for dial-in teleconferencing and presentations. This tool is available on both classified and unclassified government networks, he added.

According to Temple, the majority of newer tools and applications increase the need for more bandwidth and higher fidelity systems. CSCS is working with its Office of the Chief of Naval Operations sponsor and other learning centers and commands to implement the Surface Training Advanced Virtual Environment to develop and integrate training labs, devices, simulations, networks and training scheduling systems.

As with all network collaboration, investments are being made to improve the network infrastructure, both classified and unclassified. The programs are being developed to manage, conduct and assess local and distributed training. The training encompasses laboratories, where local and remote instructors teach and assess maintenance and operational personnel in various fundamental and complex technical concepts, and integrated combat system and bridge teams conducting basic through advanced tactical scenarios.

Temple said some of the coordination was already in the works, but has been stepped up by the pandemic.

The Center for Surface Combat Systems is collaborating with the Submarine Learning Center to learn more about its Submarine On-Board Trainer, Temple said. The surface training community is in the process of implementing a similar system based on technical expert knowledge to produce a repository of video snippets designed to enhance instruction and elaborate on difficult maintenance steps in a YouTube-like format called TEKTube.

"We want to get this capability directly to the ships in addition to our schoolhouses," Temple said.

Distributed training — locally and across the nation — was already on the Navy's horizon, but was needed much earlier than the infrastructure could support, Temple said.

Future plans revolve around distributed training and how to get instruction, communication and information disseminated without the need for everyone to be at one site, he said.

“We’re looking at how to train the instructors to teach electronically, which many have never experienced. Evaluation of our curriculum is also being performed with instructional design in mind for how best to train the material, and how to distribute this training,” Temple said.

“The biggest lesson is ‘don’t wait for a pandemic to enact what needs to be done,’” he added.

Stoner said the Center for Surface Combat Systems has been able to maintain readiness.

“By developing new, innovative ways of training, CSCS has graduated more students at this point in the year than we did in 2019,” he said. “We have completed 95 percent of our scheduled training and made up the majority of the other 5 percent. We must continue to take measures to limit COVID-19’s spread, while also ensuring our sailors are ready to fight and win.”

The Center for Information Warfare Training, meanwhile, “has dedicated a lot of time and energy on the COVID response, tracking metrics and reporting and ensuring that up-echelon has the visibility of myriad data of those exposed, exhibiting symptoms, in restricted movement, in quarantine, in isolation; and tracking the numbers of students and classes impacted, delays on the back end where we have impacts to follow-on training, or ultimately training supporting the fleet,” said Capt. Marc Ratkus, the center’s commanding officer.

According to Cmdr. Zachary McKeehan, commanding officer of the Information Warfare Training Command Corry Station, most of its courses are classified, and taught in a sensitive compartmented information facility.

“We were not able to do some of the creative solutions that some other sites may have been able to do with virtual or offline training. We have to have instructors in classrooms with the students to conduct training, so we have to posture the command to the highest state of COVID safety conducting our day-to-day mission of training,” he said.

In the first few months of COVID, IWTC Corry Station’s throughput stayed at a high level. “We average about 2,000 students on base here at Corry Station on any day of the week, and we have basically maintained that,” said McKeehan.

The command was successful in limiting the spread of the disease while maintaining throughput numbers out to the fleet, he added.

“We learned from a couple very minor outbreaks here, and were able to insulate and isolate the students that were affected. In fact, we were able to work down some of our ‘awaiting instruction’ students who, for one reason or another, were waiting for the next course to ‘class-up,’” he said.

The center’s Virginia Beach location at Dam Neck also can’t conduct classified training virtually, but has been successful in using off-site training for some course work. Tests must also be conducted in person, said Cmdr. Jim Brennan, commanding officer of IWTC Virginia Beach.

Cmdr. Josie Moore, commanding officer at IWTC Monterey in California, which is located at the Defense Language Institute, said the COVID impact has been manageable because language training is relatively easy to conduct virtually.

“Almost the very next day after COVID restrictions were put in place, the civilian faculty at the Defense Language Institute were able to make the switch to MS Teams and make use of all the collaborative tools available on that platform,” Moore said. “Students were able to stay in their rooms and do the interaction with their classmates as well as their teachers, and they also conduct all of their exams and quizzes online with the teachers’ interaction, as well.”

At the Information Warfare Training Command San Diego, commanding officer Cmdr. Tim Raymie said he had to initially drop scheduling down to about 50 percent because there was a limited amount of cleaning supplies and masks in the supply system.

“We have been focusing on teleworking, alternating schedules, minimizing exposure to the threat vectors that are out there. We’re back up to 100 percent. Everyone is wearing masks. We screen folks before they come in the door, and there is sanitizer about every three feet,” he said.

Marine Corps Lt. Col. Rory Feely, commanding officer of the U.S. Naval Test Pilot School at Patuxent River, Maryland, has two priorities for the U.S. Naval Test Pilots School: health and welfare of the workforce and students while executing the mission.

The school is a busy squadron, with a lot of different aircraft types and a lot of maintenance.

"We didn't have the depth to have two teams. I needed everybody's help every day. We couldn't run two shifts because we didn't have the supervisory management with the approvals and authorities to do that. We put our arms around those things we could control, such as the behaviors to keep people staying healthy," Feely said.

The Warfare Innovation Continuum Workshop at the Naval Postgraduate School in Monterey this year held a hybrid in person-virtual event.

According to Professor Jeff Kline, the WIC workshop brings together a mix of faculty and students with the field, fleet, academia and industry.

"I was pleasantly surprised at how well 157 people were able to work together on Microsoft Teams and Sakai," said Professor Lyla Englehorn. "We were able to include a greater breadth of participants around the world this year. The technology allowed us to do that. We had students participating remotely from Singapore and Romania, and a U.S. Marine Corps officer who is on an exchange program at the Colombian Naval Academy."

Even if COVID-19 restrictions are removed next year, Englehorn said the school is thinking of hosting hybrid events using these online tools to include a greater audience in the unclassified realm, and then maintain the classified work, as well, to include many more people working on these problems.

"We're not looking at the 'new normal,'" Englehorn said, "but the 'new next.'"

https://www.nationaldefensemagazine.org/articles/2020/11/19/covid-drives-navy-training-to-innovate

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NPS, Open Robotics Hosting Virtual Ocean Robotics Challenge

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(NPS.edu 19 Nov 20) … Mass Communication Specialist 3rd Class James Norket

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Originally slated to be an in-person event but modified to due to the coronavirus, the event begins software testing on Nov. 23, and the competition will begin in earnest Dec. 7. Student teams will operate virtual unmanned surface vehicles (USV) within a simulated environment built by NPS and Open Robotics, and will need to direct their vehicles to perform assigned challenges and tasks. In order to do so, the students will need to develop creative solutions to those challenges along the way.

Similar to previous "Virtual RobotX" competitions that initially forged the NPS and Open Robotics collaborative relationship, VORC will consist of teams from institutions and U.S. partner nations around globe to explore fundamental capabilities in robotics. Teams will be evaluated on how their USV performs in station-keeping, wayfinding, landmark localization and characterization, and more, and will be individually scored to determine a winner.

Creating real autonomous vehicles requires collaboration between a team of engineers and programmers. A difficult part of the challenge for these developers is to write and test the software that makes the vehicles autonomous when the testing system itself is still being built. So that is where NPS came in. To build the competition platform, the development team leveraged existing open-source tools that provided a baseline for simulating robot behavior, but then customized it to create a simulation environment targeted specifically toward unmanned surface vehicles.

"We are focusing on virtual environments so we can create a virtual place, and virtual vehicles, where developers can test and produce codes," said NPS Computer Science Research Associate Dr. Michael McCarrin, who also serves as the technical lead on the VORC project. "Then developers can just plug that into a physical vehicle when it is built. We try to match the virtual challenge to the actual thing.

"We are trying to build something that will allow people to participate," McCarrin continued. "We want to have a low barrier of entry so we can allow programs that don't necessarily have the funding to field a physical vehicle but want to get involved on the software side of the challenge."

Since they will be able to control the elements due to it being virtual, McCarrin thinks the challenge will be more consistent for every competitor.

"We've added different models of ships and have simulated winds and currents," said McCarrin. "For maritime robots, those are the most important factors and wouldn't necessarily be taken into effect when virtually testing land vehicles. We are able to throw things at the challengers that they have not experienced, and it will make it a little more difficult."

So far, 10 teams from four different countries have registered to participate in the challenge.

"It's a great opportunity," said McCarrin. "We get to work with universities from around the world. We are able to make progress in the development of autonomous vehicles in the maritime environment and create a network for future research projects."

According to Carlos Aguero, the Open Robotics lead for VORC, the competition is made possible by the specific collaboration between industry and academia.

"[Open Robotics] brings the expertise of general robotics and [NPS] provides the technical expertise in the maritime domain," said Aguero. "It's a very good opportunity for everyone interested in maritime robotics. All you need to join is a computer and time. It should be a fun competition."

https://www.navy.mil/Press-Office/News-Stories/Article/2422061/naval-postgrad-school-open-robotics-host-virtual-ocean-robotics-challenge/

https://nps.edu/-/nps-open-robotics-hosting-virtual-ocean-robotics-challenge

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RESEARCH:

Manning Still Matters: A Fleet Perspective

(USNI 16 Nov 20) … MCPO Paul Kingsbury, US Navy (ret.)

It has now been three years since the *Comprehensive Review of Surface Force Incidents* was conducted to find root causes underlying ship mishaps in the Western Pacific. One area identified was the impact of manning shortfalls across the fleet. In spite of the fact that the Department of Defense has had its largest budget in years, funding shortfalls that underlie all challenges to man the Navy to minimum requirements do not appear close to resolution by Navy leadership anytime soon. Today, the Navy still has thousands of gaps at sea in operational fleet units.

Beyond powerful anecdotes and personal conversations with the fleet chief petty officer (CPO) mess, there is research to support the Navy's ongoing failures to man the fleet and correlations between manning and performance. A *USNI Blog* piece titled "Manning Matters" and three **Naval Postgraduate School studies** present this research, and all provide specific details which support this thesis. Also, the *Comprehensive Review* explained that "with respect to watch team performance, resilience, and operational safety, there is strong Defense Equal Opportunity Management Institute (DEOMI) survey evidence that forward deployed operational readiness overall is affected by fatigue and stress." Coincidentally, suicide rates have consistently increased over the past several years. Real-world case studies support the idea that manning gaps induce risk to mission and risk to force—there was a gapped quartermaster chief billet on board the USS *Fitzgerald* and several cross decks to the USS *John S. McCain* prior to those collisions. Increasing gaps at sea, extended work days at sea and in-port, and the quality of work and life for fleet sailors are all connected whether Navy leaders are willing to admit this or not. This story needs to be routinely and strongly told on behalf of fleet sailors bearing the brunt of these decisions.

Gaps And Their Impacts

A 2017 *CNA* study provides an in-depth analysis of the cradle-to-grave process of buying people and distributing them to the fleet. This is an informative resource for those who want to, or should, fully understand these processes and their effects. Bottom line, a series of decisions during the complex process of manpower programming yield inadequate distributable inventory and are the root of most fleet manning woes. These include:

1. Gaps between the ship manpower document (SMD) requirement developed by the *Navy Manpower Analysis Center* (NAVMAC) and the authorized billets.
2. "Friction" from unplanned losses or what's known as the transients, prisoners, patients, and holdees (TPPH) account which takes another 8 percent reduction of the distributable inventory.
3. The "tax" on the fleet to fill billets such as recruiters and recruit division commanders.
4. The current use of the metrics of fit and fill, currently 92 and 95 percent respectively (much less in the basic phase). Intended to serve as a deliberate priority system to help manage risk between authorized billets and the number of currently on board, but which also signals to programmers a willingness to accept fewer authorized billets.
5. Missed accession and retention goals.

Consider the following illustration of how this plays out in the fleet. Pick your favorite division and assume it has ten manpower requirements in the SMD to meet the full workload of the standard 67-hour workweek. In many cases, the factors listed above converge to impact the number of sailors actually on board. If division manning dropped down to eight sailors, in theory, they would have to work 83 hours per week to make up for the two unfunded billets. If it went down to seven, 95 hours per sailor per week would be needed to meet the readiness requirements for that division. Each cut to that division's manning results in a corresponding increase in workload for the sailors left to perform, leave undone, or perform to lower standards. Keeping in mind that NAVMAC uses some very well-defined science and fleet input to determine the minimum manpower requirements based on a 67-hour workweek for afloat units, is it right to expect each sailor to routinely work about 83 hours per week or about 12-hours per day, seven days a week, under way for an entire three-, four-, or five-year tour?

This math does not account for time off, transit time to and from work, other externally-imposed requirements such as Sexual Assault Prevention and Response (SAPR) roving patrols, just-in-time training on diversity or sexual assault, or the "friction" of unplanned losses. Anecdotally, I know there are many fleet units manned at levels that require every enlisted sailor work 80+ hours per week to meet the minimum requirements and most, if not all, are manned at levels that require every enlisted sailor to work more than the 67 hours per week requirement. And fleet sources tell me there are manning shortfalls of 15 to 20 percent within some enlisted rating communities on board some classes of ships. It should be no surprise to fleet leaders when inspection and certification results are poor, ships collide, maintenance availabilities go long because of excessive "growth" work, alcohol misuse is high, and suicide rates continue to climb.

To those leaders making these decisions, or who are unaware of them but could influence them, I would ask, "Would you feel safe boarding a civilian airline whose maintenance department was routinely and chronically undermanned this way?" and "Would you feel comfortable letting your family?" Even though leaders and budgeters save costs in the MPN account, there are personal costs that result from reductions in their sailor's sleep, fitness, personal time, or cognitive performance. Manning shortfalls contribute to crew fatigue and reduced crew endurance, increasing the chance of mistakes and increasing their risk tolerance to a point of ethical dilemma and decisions to cut corners with maintenance and other administrative requirements to self-manage the workload.

Perhaps, to understand the fiscal cost, Navy leaders and programmers should compare the financial cost each year in mishaps compared with the cost savings in the manpower account. I believe Navy leaders fail to recognize the long-term risk and costs of chronically manning platforms below the requirement. The severity of the outcomes of these decisions will be understood when fleets meet in

war—parity matters not only in numbers and types of forces, but in their material and operational capability.

What the Fleet Needs

As former Commander, U.S. Fleet Forces, retired Admiral John C. Harvey explained in his comments in the *Manning Matters* blog piece, "I think it's important to take a new look at the level of risk the Navy has been more than willing to accept in the past by not funding the known manpower requirement. The costs associated with not properly accounting for the inevitable manpower "friction" and significantly increased overall systems complexity appear to me to have risen exponentially—it is a new ball game and it looks like we are playing by an outdated set of rules, assumptions, and expectations. These higher costs translate directly to higher operational risks in the fleet at every point in the deployment cycle—be it the maintenance, training, or operational phase. It looks like it is well past time to rethink the programming rules in [the Office of the Chief of Naval Operations]; intentionally undermanning the fleet is no longer an acceptable approach to fixing the Navy's enduring budget problems. The price has become too high."

That blog piece offers much advice, but I will reemphasize several points. First, draw a line and direct manning to be resourced to meet mission-based and validated requirements—set type-commander manning goals to 100 percent of the ***full*** requirement and fully fund the total cost of ownership—100 percent of the SMD requirement plus the TPPH friction. When Vice Admiral Robert Burke was Chief of Naval Personnel, he often spoke of being able to fully fund the manpower account for the first time in the history of the Navy ,and the importance of paying for the total cost of ownership. This indicated an awareness and willingness to work toward a long-term manning solution.

In addition, it is time to be more intellectually honest in reporting and use fit, not fill, to represent manning shortfalls against the ***full*** requirement, and leverage modern data analytic tools to establish a more relevant and accurate manning dashboard that displays risk thresholds independent of Optimized Fleet Response Plan (OFRP) phase. Giving the fleet billets is one thing, but in a highly technical environment requiring specialized people, giving them the right billets with the knowledge, skills, and abilities to meet the job requirement is another. And, the sailor working 80 hours suffers the same effects regardless of where their unit is in the OFRP. Once any ship falls to a certain level of fit, they could be displayed as yellow or red to more accurately reflect the level of risk, so force manning managers could decide where to accept risk. To this end, leverage the new type commander human factors engineers, fleet safety officers, and naval safety center to analyze and articulate the risk to mission and force. Then, communicate to OPNAV N1 in terms of operational risk and challenge them to take actions to mitigate it, such as increasing recruiting goals, retention incentives, or adjusting distribution policies.

Second, continue to find efficiencies in the fleet. The math is simple, either you man the fleet to the requirements or reduce the requirements. If decision makers decide to buy the total requirement of manpower, there still will be lag time in filling gaps to recruit, train, and distribute new sailors to the fleet. On the other hand, if decision makers are unable to buy the total manpower requirement, the resultant gaps and their effects will chronically exist. For either case, the Navy must become more efficient with its human resource capital—it is not an inexhaustible and inorganic resource. It should set bold efficiency goals, aggressively probing the current certification processes, operational requirements, and maintenance programs for efficiencies. For example, the Navy could curtail redundant or ineffective fleet maintenance requirements such as reducing the requirements for the number of maintenance spot checks or making zone inspections less administratively intensive, and continue to validate or reduce certification requirements. One note of caution here—the Navy cannot lower standards because it does not have sufficient manpower. The Navy must find more efficient ways to meet and measure a ship's readiness and capability to meet mission requirements.

The Navy must also critically review taxes on fleet manpower such as antiterrorism force protection requirements, recruiting and Recruit Training Command (RTC) billets, roving patrols, and motorcycle safety. The Reducing Administrative Distractions initiative was a start, but this kind of critical review should continue to find ways to remove and reduce manpower demands that provide little to no return on investment. I am confident the potential outcomes of taking risk in these areas are much more acceptable

than those the gaps in manning at sea can produce. I have learned that the Navy has started to fill some RTC and SurgeMain billets at public shipyards with Navy Reserve sailors. This is a great example, but Navy leaders can keep exploring where distribution policies can be adjusted such as sea-shore rotation or assignment based on proficiency and experience such the Surface Maintainer Experience Metric program. Also, thought should be given to how the "friction" associated with the individual's account can be reduced. These all require hard decisions and in some cases will touch on "third-rail" personnel policies.

Third, increase Navy leader knowledge and awareness of the service's total force manpower policies, procedures, and the effects of manpower decision-making. To what extent is the broader lack of knowledge in manpower and manning affecting awareness of the problems or the strength of advocacy against tradeoffs made in the military personnel navy (MPN) account? Navy leaders must become more efficient with the manning they currently have, but they also must be knowledgeable about the manpower process as it "should be" and "as is." As the CNA study explains, "Navy manpower planning is . . . a rich and complex topic that has a large body of institutional knowledge and a large body of prior research. It is a multidisciplinary subject, and there are many complicated long-standing problems." It further goes on, "Gaining an understanding of Navy manpower planning is not easy: there's a lot to learn and no standard texts. Moreover, knowledge is diffuse and not captured in one place." It has been my experience and opinion that senior officers and enlisted leaders and advisors are not well-informed enough to effectively represent the effects or to challenge fiscal decision-making that takes excessive risk in fleet manning to pursue other objectives or "priorities." It was eye-opening to me how little I knew about manpower and manning when I stepped into the role as the Fleet Master Chief for U.S. Fleet Forces Command. There is little to no formal education for senior officers or enlisted; they must rely on prior experience in the manpower world (if they have had the opportunity) or "just-in-time" (more like too little, too late) learning. The research and recommendations offered in the resources cited in this article are a great place to start!

Fourth, dial-up transparency and advocacy. To get action, you must first build awareness of an issue and then advocate for action. How aware are current naval leaders of the costs manpower decisions are having on the fleet? Anecdotally, I know that the Chief of Naval Operations visited a fleet unit whose CPO mess is manned at unacceptably low levels and was unaware of the effects. Why is there such a lack of transparency and awareness of fleet manning issues to Echelon I leaders? Who should be accountable for this? Furthermore, you have to have a willingness to advocate. I hear from the fleet that some leaders have succumbed to a defeatist attitude, lack of engagement, or avoidance of advocacy based on a belief that current funding simply cannot, and will never, be able to establish the right manning levels and buy the manpower the fleet needs. Regardless of how true or disheartening that may be, Navy leaders from the Chief of Naval Operations and the Master Chief Petty Officer of the Navy to unit leadership have the responsibility, and the communication platforms to frequently and forcefully tell the fleet's story on behalf of their sailors. And if decisions are made to take risk in manpower that result in manning shortfalls in fleet units, then be up front, align expectations, and tell the "why" behind the decisions and the outcomes it will have on sailors and their families.

In the end, Navy leaders have two options: continue to observe and ponder the problem or act. There is "real" data available to substantiate my assertions, so how long are leaders willing to wait for their staff to develop that story when there is plenty to drive action. Platitudes about sailors being the Navy's "most precious resource" or it "competitive advantage" ring hollow when they are not provided with the quality of work and life they deserve. In 2016, the commander of the submarine force chose to mandate circadian watches for the submarine force. He could have waited for more information, but realized it was the right thing to do and made the decision. Navy leaders must have the honor and courage to embrace this attitude and commit to changing the manning situation today. If they do, I think they can expect Sailors will get more work done; Sailors will get more sleep; ships will have less mishaps; retention and morale will go up; destructive behaviors will go down; and wartime readiness will follow. ***NOW*** is the time for Navy leaders to use the facts at hand to say enough with accepting risk in fleet manning! Demonstrate with action that manning matters and man the fleet!

https://blog.usni.org/posts/2020/11/18/to-meet-china-benchmark-italy

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Monterey's NPS Leads Planning for Next War

(Monterey Herald 20 Nov 20) … Dennis Taylor

Planning for a long, sustained war 15 years into our future brought some of the best technological, strategic and military minds together at a recent virtual Naval Postgraduate School workshop.

In September, some 150 people joined a video workshop called "Preparing for War 2035—Resurrecting War Plan Blue." NPS's Naval Warfare Studies Institute focused on how the United States could prepare for a future conflict with emerging technology, particularly in the fields of artificial intelligence and robotics.

Earlier this week, Jeffrey Kline, the director of the Naval Warfare Studies Institute at NPS and a retired Naval captain, and Lyla Englehorn, a Naval Warfare Studies Institute associate, spoke with The Herald about how they and their team corralled massive amounts of perspectives, skill sets, industry sectors, scientists and military leaders into a complex, cohesive approach to understanding what dynamics would be involved in a conflict with what they call "peer adversaries" — Russia and China.

The name War Plan Blue originates from pre-World War II planning coming out of Army and Navy war colleges, Kline said. At the time there was a series of "color" planning exercises like War Plan Black (German), War Plan Red (Great Britain) and War Plan Orange (Japan). A series of studies addressing the United States' ability to conduct operations in a sustained conflict, regardless of adversary, were collectively known as "Blue."

The questions asked in the exercise seem endless. What are our vulnerabilities? Do our bases anywhere from Guam to San Diego have adequate defenses or do they need hardening? Where do we need more study? How dependent are we on foreign manufacturing if the U.S. needs to ramp up production?

That last question becomes haunting considering the U.S. has become a service and information economy with limited manufacturing compared to adversaries, particularly China.

"Where are all our computer chips made?" Kline asked.

To be sure, this scenario is not about a nuclear exchange. That nightmare scenario has been kept at bay for decades owing to all sides facing obliteration if nukes are launched. This exercise focuses on sustained conventional warfare, although the term "conventional" is evolving.

One example of this, and an example only, would be the Russian Federation's invasion of the Crimean Peninsula in 2014. The geopolitical aspect is complicated and stemmed out of the Ukrainian revolution that same year. The Russian annexation (Crimea is recognized as part of Ukraine by most countries) stopped short of an invasion of Ukraine proper. But what if it hadn't and NATO forces were called in, supported primarily by the U.S.?

One possibility would be a military détente — what Kline calls a "gray zone short of conflict on an operational level" — with both sides not willing to escalate beyond the peninsula. But the number of troops, ships and aircraft deployed to the region could be significant. Russia could even play footsie with their submarines off the eastern U.S. coast.

So how would the U.S. respond to such a conflict? The answer to that are ideas generated by all the participants from across the military, academia and industry in the Resurrecting War Plan Blue workshop. Englehorn, who Kline described as the coordinator of the workshop, said there were no such things as bad ideas. Some could be cost-prohibitive or require a scale that wouldn't be feasible, but all ideas were welcome.

"Great ideas come from anywhere," Englehorn said. "We all have puzzle pieces in our heads. So let's get those puzzle pieces out of your heads and combine them with other puzzle pieces."

Kline tells the story of the U.S. Navy having had problems with swarms of jellyfish being sucked into the heat exchangers of vessels and the havoc that wreaked by allowing propulsion systems to become overheated. That led to the idea that the same problem could stall adversarial vessels during a conflict.

Enter the lowly hagfish, sometimes called a slime eel. Kline explained that the fish, an ocean bottom-dweller, has virtually no defense against predators other than to hide in the sand and its slime. The slime,

extremely sticky mucus secreted when its enzymes combine with seawater to become a gluey, elastic shield. Think of Spiderman's signature move but in place of silk this guy secretes slime and can produce five gallons of the stuff in just a few minutes, Kline said.

So it was chemically reproduced, and while it was never used against an adversary's vessel to clog its heat-exchange system, as far as we know, another significant use was discovered.

"It's a perfect temporary adhesive for wounds in the field," Kline said.

Each year a different topic is presented campus-wide. During some workshops, a group of students and faculty members play the bad guy to test the readiness of the concepts generated in the exercise. The goal in selecting War Plan Blue as this year's institute focus was to inspire other national studies and actions outside of NPS. The overarching goal is to increase the nation's industrial and infrastructure robustness, resilience and defense, Kline said.

While participants are encouraged to pour out ideas creatively, the workshop is designed with structure. Participants are divided into what Englehorn calls "concept generation teams."

"Facilitators guide them so it's not all chaos," she said. "Seeds are put out there to see what will grow. Individual tools are created to add to a toolset."

That toolset, in turn, is what will lead the U.S. in any conflict years from now.

https://www.montereyherald.com/2020/11/20/montereys-nps-leads-planning-for-next-war/

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Naval Postgraduate School Workshop Explores Emerging Technologies

(Inside Defense 24 Nov 20) … Aidan Quigley

The Naval Postgraduate School hosted a September workshop that explored how emerging technologies could shape a 2035 global conflict.

The workshop, titled "Resurrecting War Plan Blue," was held virtually from Sept. 21 to 24. *Inside Defense* obtained the **workshop's final report**, which was released Nov. 9.

The workshop considered a 2035 conflict scenario where the United States had to quickly mobilize to respond to a "rapidly deteriorating global security environment."

"The intent was to explore technologies and policies to undertake now to increase the nation's resiliency for an extended conflict," the report states.

https://insidedefense.com/insider/naval-postgraduate-school-workshop-explores-emerging-technologies

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FACULTY:

Computing Pioneer Leads NPS into the Cognitive Era

(NPS.edu 17 Nov 20) … Matthew Schehl

It has been said that technology advances at an extraordinary speed … What, then, would be said about a mind that has been innovating in the field of technology, always a step ahead, for more than half a century?

Such has been the career of Dr. Peter Denning, Distinguished Professor of Computer Science at the Naval Postgraduate School (NPS) who even today after a 50-year career of thoughtful and remarkable achievements in the field computing stands at the beginning of his latest effort for the university. As a creator and first chair of the **Consortium for Intelligent Systems Education and Research** (CISER), Denning and his NPS colleagues have developed a collaborative effort to advance intelligent systems capabilities in the Navy.

In addition to CISER and its potential for extraordinary contributions, **Denning's Harnessing Artificial Intelligence** course has already levied a powerful impact on workforce development in this complex, critical field. In fact, the DOD's Joint AI Center has already incorporated **multiple lectures** into its instructional materials, with further potential already in the works.

In this cognitive age, where intelligent systems, big data, machine learning and artificial intelligence (AI) are increasingly augmenting human activity and decision-making, his contributions represent a natural continuation of NPS' core mission, which has remained unchanged since its inception in 1909: to provide military officers with the advanced education necessary to fight and win future wars.

Drawing on a passion for advancing AI for Department of Defense applications, Denning envisions CISER driving into a future dominated by intelligent systems in which education, research and innovation will be the deciding factors in establishing the warfighting advantage of the Naval services. As NPS looks beyond the turbulence of 2020, the work of this group will resonate throughout this emerging and critical domain for chapters to come.

In the 52 years since Denning graduated from the Massachusetts Institute of Technology, he has been a veritable cornerstone of the computer sciences. He has published over 440 articles in the field and 12 books. He's been the recipient of 32 notable awards, including three distinguished service awards, three honorary degrees, three professional society fellowships, twelve technical achievements, eight best-papers, a hall of fame award, and several outstanding educator awards.

This extraordinary career began while still a doctoral student at MIT. In 1968, Denning discovered what would become a fundamental principle of computing, the locality principle. Locality says that executing computations use small subsets of their data for extended periods with abrupt jumps between subsets. Based on this principle, he invented the working set concept, which solved three vexing performance problems with virtual memory – slowness in moving pages of data between levels of memory; thrashing, a complete collapse of performance when too many programs were running at the same time; and automatic load control for optimal throughput.

Denning's working set was a game-changer, allowing computer scientists to predict what instructions and data a program will use based on where it previously looked. He became known as a virtual memory performance pioneer whose work made a nascent technology stable, reliable, dependable, and transparent.

The locality principle "transformed virtual memory from an unpredictable to a robust, self-regulating technology that optimized throughput without user intervention," he **noted** in a 2005 retrospective.

"Virtual memory became such an engineering triumph that it faded into the background of every operating system, where it performs so well at managing memory with multithreading and multitasking that no one notices."

Its legacy has continued to the present day, Denning said, directly influencing the design of processor caches, disk controller caches, storage hierarchies, network interfaces, database systems, graphics display systems, human-computer interfaces, individual application programs, search engines, Web browsers, edge caches for Web-based environments, and computer forensics.

His seminal paper, **The Working Set Model for Program Behavior**, earned Denning the **Association for Computing Machinery's** best paper award for 1968. And he was inducted into the Operating Systems Hall of Fame in 2005. The working set model has since become the universal reference model for computer memory management and the foundation of memory caching systems, which are now part of all computers and the Internet.

The development of the Internet itself can draw a direct line of continuity to Denning's work. After teaching at Princeton University for four years, Denning joined the computer science department at Purdue University. There, he worked in the early 1980s as one of four Principal Investigators in a collation of four universities with NSF sponsorship to develop a network, **CSNET**, for the computer science community based on the DOD's **Advanced Research Projects Agency Network** (ARPANET).

CSNET was a new open research community, which soon connected computer science and engineering departments in the U.S. and Europe that had previously been unable to access the ARPANET.

"It was the first step of the journey. We pulled it off and it was done well," Denning recalled in a 2009 NPS **interview**. "It feels nice to be recognized for all that work, but we weren't looking for recognition, just a good network."

In a few short years, CSNET burgeoned to link more than 180 academic and research institutions with 50,000 members around the world. CSNET gave the NSF the confidence that it could build a much larger network, NSFNET, which became the backbone of the modern Internet. CSNET enabled the transition of the closed ARPANET to the Internet as we know it, radically altering connectivity, communications, and the world.

CSNET was recognized in 2009 by the Internet Society through its **Jon Postel award**.

In 1983, Denning went to NASA-Ames to serve as the founding director of the **Research Institute for Advanced Computer Science** (RIACS), a collaboration with the Universities Space Research Association (USRA). Under his aegis the institute became one of the first truly interdisciplinary research centers for computational and space sciences and provided a vital link between NASA and the academic community.

Denning then joined George Mason University in 1991, where he chaired the computer science department. He additionally served as the Associate Dean for Computing, Vice Provost for Continuing Professional Education, Chair of the Technology Council and special assistant to the vice president for information technology.

In 1993, he founded the **Center for the New Engineer** (later renamed the Hyperlearning Center), where he and his partner Danny Menascé broke new ground in offering the first online competency-based learning modules. They developed interactive tutorials, a network connecting K-12 schools with the Internet and the "Hyperlearning Meter," a novel self-assessment and certification tool. They developed two online modules for the Defense Acquisition University (DAU).

Denning was named one of the top ten teachers at GMU for 2001. The next year he received a GMU Teaching Excellence Award. In 2003, he was one of the recipients of the Commonwealth of Virginia Teaching Excellence Awards.

When Denning joined the NPS community in 2002 as Chair of the Computer Science Department, he was a well-established leader in computer science research, education, and advocacy. He brought with him a profound depth of knowledge which he now applied to a host of DOD issues. Over the next 18 years, he became a definitive voice in deepening NPS' capacity to advance the education and capabilities of the Navy and the nation's military officers.

As Director of NPS' **Cebrowski Institute for Military Innovation,** Denning spearheaded research into a more efficient architecture of battlespace communications systems and laid the groundwork for a **World Wide Consortium for the Grid** for the DOD. He initiated the **Great Principles of Computing** project, an ongoing effort to gather and clarify the essential principles of computing to enable discussion of information processes across scientific fields. From this, Denning created a Great Principles of Computing technology course for incoming graduate students to impart the foundational knowledge necessary to take on advanced technological problems.

He founded the **Hastily Formed Networks Project**, answering DOD's call for disaster relief communications systems, a network (physical, social and informational) which could swiftly be formed in the wake of devastating crises to facilitate disaster relief, humanitarian assistance and military operations. He founded the program "Sense 21: innovation leadership", which teaches the **skill sets** by which innovation leaders bring innovations into practice in their communities. The program has graduated around a hundred innovation leaders and has partnered with the then Naval Warfare centers.

These are just a few examples of Denning's many contributions to NPS, its students and the military. He continues to push the frontiers in crucial areas, including operating systems, high-performance computing, global security, network science, information storage and security in cloud systems, **data science** and **AI**.

These have taken on greater salience as intelligent systems take on a greater role in human affairs, including warfare. Just as the emergence of the aircraft carrier induced radical change in naval operations

from World War II to the present day, networking and artificial intelligence are profoundly changing the balance of power in naval operations around the world.

"Today the pattern of radical change is recurring. The rapid rise of digitization and networking signal the beginning of a new era that may, one day, take us beyond the carrier's primacy. Indeed, by our reckoning, when that change comes the next capital ship is likely to be virtual: a swarm of platforms, including carriers, plus countless digitally controlled entities – some remotely controlled, others fully autonomous," Denning observed in a recent award-winning essay co-authored with John Arquilla, Distinguished Professor in the NPS Defense Analysis Department.

"Artificial intelligence will profoundly influence sea power in the coming years," wrote Denning and Arquilla. "It will change the game for organization, doctrine, policy, and operations. And, most importantly, it will change the areas in which we expect our Officers, Sailors, and Marines to become knowledgeable and proficient."

Such expertise, they note, requires powerful tools and sophisticated practices, skilled engineers, mathematicians and statisticians to design, build and sustain intelligent systems. CISER seeks to cultivate just that: a combined, collaborative effort by the NPS community to provide the education, research and innovation which will sharpen the tip of the spear for the naval services for decades to come.

When asked how he has kept pushing into new areas over the past half century, Denning replied, "I am am always a **beginner**. There is always something new to learn and new teachers to engage. Most of the time, my past expertise is only marginally relevant to the next set of concerns I am drawn to address."

Watch President Rondeau's "**Listen, Learn, Lead**" interview with Dr. Peter Denning, Dr. Matt Carlyle, and Dr. Mathias Kolsch on Artificial Intelligence.

https://nps.edu/-/computing-pioneer-leads-nps-into-the-cognitive-era

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Revamping Wargaming Education for the U.S. Department of Defense

(CIMSEC 17 Nov 20) … **Jeff Appleget, NPS Operations Research Senior Lecturer; Jeff Kline, NPS Operations Research Professor of Practice; & Rob Burks, NPS Defense Analysis Associate Professor**

Introduction

The U.S. Department of Defense has failed to educate generations of military officers on the skills of wargaming. Wargaming creates the environment in which uniformed leaders practice decision-making against an active, thinking adversary. Wargaming is also required by the Department of Defense's planning process to create sound and executable plans, is inherent to designing new doctrine and operational concepts, and is a vital element in the cycle of research.

For these reasons, military leaders must have the ability to create and conduct wargames. However, the current military education process does not impart this critical knowledge.

Background

Ed McGrady, distinguished Center for Naval Analyses wargamer, opened a recent commentary on wargaming by saying, "There is a widespread misunderstanding of what wargaming is…" and we agree wholeheartedly. Too many in the Department of Defense believe wargames are computer-based combat simulations used to produce quantitative analyses, but they are not. Wargaming is about human decision-making. Joint Publication 5-0 *Joint Operation Planning's* wargaming definition makes this clear: "Wargames are representations of conflict or competition in a synthetic environment, in which *people make decisions* and respond to the consequences of those decisions" (emphasis added).

Most defense wargaming practitioners recognize three purposes for wargames: educational, experiential, and analytic. Educational and experiential wargames are focused on the player. The primary output of these types of wargames is a better educated or experienced player. For example, success might lead to an officer who now knows how a new weapon system is employed or has experienced fighting

against a threat in a different region of the world. There are usually no other 'results' to demonstrate the wargame's value.

On the other hand, analytic wargames focus on producing findings and recommendations in response to a sponsor's tasking. Therefore the product of these wargames is not player-focused but sponsor-focused. Planning wargames, as outlined in Joint Publication 5-0 (Step 4: Course of Action analysis and wargaming), are specific analytic wargames with the task of analyzing courses of action, which then inform the development of a plan. Other analytic wargaming activities include developing new concepts of operations, doctrine, Tactics, Techniques, and Procedures (TTP) for emerging and future technologies, and front-end wargaming for experimentation and exercises to ensure that these expensive endeavors are properly focused and can achieve a high return on investment. We can learn much about new technologies and concepts through wargaming without burning a penny's worth of fuel.

Current Status

Department of Defense wargaming is at a crossroads. It seems self-evident that the Department of Defense should own the responsibility to improve its wargaming. While Federally Funded Research and Development Centers (FFRDCs), educational institutions, and defense contractors may have roles to play in wargame improvement, only the Department of Defense can choose to lead and embrace a comprehensive end-to-end cycle of research construct. This construct includes wargaming, computer-based combat simulations, and other quantitative and qualitative analytic techniques that, when properly leveraged, provide quality decision support to the department's leadership. It must begin by addressing the shortcomings in wargaming education.

The 2015 call to reinvigorate wargaming has inspired the reintroduction of wargaming into some service school classrooms. Hence, a portion of uniformed field grade officers have an appreciation for, and may have actually played, wargames. However, the inability of the Department of Defense's uniformed members to design and conduct their own wargames still has not been addressed in professional military education. Today, the Department of Defense relies on FFRDCs, educational institutions, and defense contractors to design and conduct wargames on their behalf. While these organizations produce useful wargames, the sheer number of wargames that should be executed across the department cannot all be performed by these organizations—they simply do not have the capacity, nor does the department have the budget.

However, there is a far more fundamental problem on the department's reliance on these organizations. This reliance is, in effect, outsourcing the intellectual underpinnings of the nation's defense strategy, officer professional development, and the department's acquisition process.

Wargaming should become an integral part of the military officer corps' professional education. The skills required to design and conduct wargames go hand-in-hand with the skills required to plan and execute military operations.

The lack of wargaming skills and experience in our field grade and senior officers should be a warning to the department's leadership. Wargaming was once the primary venue for the exchange of ideas, debates on tactics and doctrine, the sharing of lessons learned from previous operations and experiences, and the operational and doctrinal education of junior officers. Now it has largely disappeared from officers' professional development. The 38th Commandant of the Marine Corps' Commandant's Planning Guidance states this concern very succinctly:

> "In the context of training, wargaming needs to be used more broadly to fill what is arguably our greatest deficiency in the training and education of leaders: practice in decision-making against a thinking enemy. Again, this requirement is inherent in the nature of war. In modern military organizations, it is, along with the fear of violent death, precisely the element of real war that is hardest to replicate under peacetime conditions. Wargaming historically was invented to fill this gap, and we need to make far more aggressive use of it at all levels of training and education to give leaders the necessary 'reps and sets' in realistic combat decision-making."

Phil Pournelle, Senior Operations Analyst and Game Designer at Group W, points out a 2018 National Defense Strategy Commission finding that the military struggles to "link objectives to

operational concepts to capabilities to programs." Linking of objectives to operational concepts to capabilities is basic military planning. Yet our combatant commands and joint task forces struggle to conduct the planning wargames that Joint Publication 5-0 requires.

According to Joint Publication 5-0, each course of action should be wargamed against the enemy's most likely and most dangerous course of action for a given plan. Assuming a modest number of three friendly courses of action to analyze, that is a requirement for six wargames per plan. And every plan that has sat on a digital shelf for more than a year needs to be dusted off and wargamed again, as the facts and assumptions that underpinned the plan's development 12-plus months ago have undoubtedly changed, often significantly.

Unfortunately, due to time, staff capability, and capacity constraints, at best there may be one wargame conducted per combatant commander's plan: the commander's favorite Course of Action against the enemy's most likely Course of Action. Insufficient time is allotted to conduct the wargame, resulting in poor design, less thorough execution, and results that fail to illuminate the plan's operational risks or propose contingencies. This lack of time inspires the quick application of seminar games that devolve into BOGGSATS – a Bunch of Guys and Gals Sitting Around a Table.

As recent commentary from Peter Perla, author of the seminal book *The Art of Wargaming*, and Phil Pournelle have pointed out, wargaming should also be an integral part of analysis, experimentation, exercises, and the broader cycle of research. Far too often this is not the case. Instead, the department relies on analysis methods such as cost-benefit analysis, capabilities-based assessments, and analysis of alternatives that provide technical rationales for procurement decisions. However, in the Department of Defense, these analyses must be tempered with a thinking adversary in mind. Our potential adversaries in the future are concurrently developing new doctrine and concepts, fielding new technologies and force structures, and procuring new systems that increase our risk or limit our military options. Wargaming is necessary to gain an appreciation for our competitors' capabilities, options, and objectives.

Wargaming has always been an integral part of the Army's analysis to support their department's acquisition of new technology and weapons systems. Army analytic organizations, such as the Center for Army Analysis and the Training and Doctrine Command's Analysis Center, integrated wargaming with their computer-based combat simulations to provide comprehensive qualitative and quantitative analysis to support key acquisition programs several decades ago. Both tools are still used together, productively, today.

This approach's benefit is two-fold. First, the warfighters brought into the wargame's concepts of operations (CONOPS) that employs units equipped with new technologies provide input into the analysis process and gain a better appreciation for the quantitative analysis products that the combat simulations could provide. Second, the analysts gain a better understanding of how a new force would fight differently and use that knowledge to inform the instantiation of the schemes of maneuver required by their combat simulations, which in turn improves their quantitative analysis products. To do this properly, operations research analysts must create the wargaming environment, conduct the wargames, and determine how to best integrate the wargame's qualitative output into the computer-based combat simulations so that the study produces both qualitative and quantitative analysis.

Unfortunately, some of the department's more senior analysts that cut their analytical teeth using computer-based combat simulations believe that wargames provide little or no analytic value. This view completely misses the fact that counterinsurgency, hybrid warfare, the gray zone of conflict, and competition short of war are not well addressed by the millions of dollars the department invests in the maintenance, staffing, and running of kinetic-focused combat simulations and the organizations that support them.

In a recent *Naval War College Review* article, Capt. Robert Rubel (ret.), professor emeritus of the U.S. Naval War College and former chair of its Wargaming Department, stated, "Two-sided gaming should be a widespread and essential part of the professional education process from pre-commissioning through senior service colleges and even flag level courses." He went on to describe several virtues of wargaming:

- "A routine diet of two-sided gaming can generate and hone the ability to reason competitively."
- "Making two-sided gaming the default PME vehicle will help to re-create a sandbox in which innovative reflexes can be developed."
- "Repeated struggling in competitive situations is more likely to produce new ideas and insights, especially if such experience is widespread in the officer corps."

Rubel also goes on to caution: "Two-sided gaming is not easy. The design of such games must take care to channel competitive instincts properly."

In summary, the Department of Defense's need for increased capacity to conduct quality wargaming starts by educating its officer corps on how to design, conduct, and assess analytical, educational, and experiential wargames.

The Way Ahead

We propose jumpstarting wargaming education in the Department of Defense with a two-pronged approach. First, the Department of Defense needs wargame designers at an apprentice level. Any officer who is a candidate to serve on a general or flag staff (most field grade line officers) should complete a basic analytic wargaming course to enable them to bring value to a wargaming design team. We do not advocate for a specialty track for wargamers. Instead, all military leaders should be wargamers (such as the Navy's flag ranks at the onset of WWII). The Army and Marine Corps do a decent job of introducing their young officers to some of the building blocks of wargaming. While sand table discussions, table-top exercises, and rehearsal of concept drills incorporate several of the elements of wargaming, they are typically missing the conflict or competition that a thinking adversary produces. These events provide a wargaming-like basis from which to build. A logical place for such a course is in the command and general staff college level of Joint Professional Military Education.

Second, there needs to be an executive-level wargaming course for senior leaders. Senior officers who supervise and consume the results of wargaming today, such as primary staff officers on Combatant Command or other flag officer commanded staffs, need to understand what wargames are, how they are different from computer-based combat simulations, what to expect from well-designed wargames, and the level of resource investment required from them and their staff to obtain quality wargaming results. They also need to realize that their younger charges must couple their wargaming education with playing and designing wargames to become proficient wargamers. They must give their subordinates enough time to game. Moreover, senior leaders should lead by example, participating in and encouraging wargaming activities in their commands.

Over time, the wargaming apprentices, through playing, designing, and conducting wargames, will mature in their wargaming skills and take on wargaming leadership roles. Note that the goal is not to identify a pipeline to create wargaming masters. Such masters are rare individuals, and some may emerge from the ranks of military wargamers produced. But, just as most officers will never achieve flag rank, most uniformed wargamers will never become wargaming masters. The FFRDCs, educational institutions, and Department of Defense contractors have wargaming masters, and their expertise will still be needed to support the department. However, many good wargames can be designed without requiring the supervision of a wargaming master.

Since 2009, the Naval Postgraduate School's Operations Research Department has offered an 11-week Wargaming Applications course to its resident students that focuses on the design, conduct, and analysis of wargames for Department of Defense, allied, and partner sponsors. The faculty designed the course recognizing that the Naval Postgraduate School's Operations Research graduates – our military's newest Operations Research analysts–needed to be able to design, conduct, and analyze a wargame. Acquiring these skills enables them to participate in, lead, and eventually supervise the end-to-end campaign analysis that incorporates wargaming, computer simulations, and other qualitative and quantitative analytic tools as future analytic assignments will require. The course organizers did not fully recognize the added benefit of this education until some of the Operations Research graduates started serving at Combatant Commands. These graduates, now staff officers, reached back to the Naval

Postgraduate School to report how useful their wargaming design skills were in helping the Combatant Command staffs design and conduct useful planning wargames. They asked if the Wargaming Applications instructors could come to their location and teach a cadre of the Combatant Command personnel the same basic wargaming design skills they had internalized at the Naval Postgraduate School.

In response, NPS developed the week-long Mobile Education Team Basic Analytic Wargaming Course around the same philosophy as our resident wargaming course: learn by doing. The objectives for this course were two-fold.

First, it builds a cadre of personnel who can initiate, design, develop, conduct, and analyze a wargame. Unified Combatant Commands have leveraged this opportunity by having personnel from their operational planning teams and staff sections attend the course and work in teams to learn how to design, develop, and execute a wargame.

Second, since the sponsoring organization chooses the wargaming topic used in the course's practical exercises, the organization can have the core foundation of a wargame created and demonstrated that can then be further built out and used by the organization to meet other organizational wargaming requirements. NPS has conducted over 20 week-long Mobile Education Team Basic Analytic Wargaming Courses around the world, including five at Combatant Commands. Today, NPS conducts 6-8 Mobile Education Team events annually, and demand remains high.

The philosophy in teaching wargaming is that it requires a hands-on, learn-by-doing approach. Both the resident and Mobile Education Team courses are over 70 percent practical exercises, where the students are applying the techniques that we illustrate in the lectures. In both courses, a Department of Defense, ally, or partner sponsor provides the wargaming topic that serves as the impetus behind the practical exercises. Student groups design, conduct, and then analyze wargames for their sponsors as the course's graduation exercise. Since 2009, the Naval Postgraduate School resident student wargaming teams have conducted over 70 wargames for 35 Army, Navy, Marine Corps, Joint, International, and Industry sponsors. NPS views the wargaming course graduates as wargaming apprentices. They have enough knowledge and experience to make useful, often significant, contributions to any wargaming effort required in the department. Several recent graduates have actually led wargaming design initiatives at their respective organizations soon after graduation.

Conclusion

If the Department of Defense is serious about improving its wargaming capability, it needs to invest in its people through wargaming education. That education needs to be practical and applied at the company and field grade level, preferably as part of their Joint Professional Military Education or graduate school opportunities. If it is a priority to emphasize wargaming's role in Department of Defense decision-making, simply "doing more wargames" is insufficient. Preparing warfighters to employ wargaming to the full extent of their purposes must be a necessary element.

http://cimsec.org/revamping-wargaming-education-for-the-u-s-department-of-defense/46037

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AU Holds Webinar on Post-US Election Scenarios

(The News 19 Nov 20)

Islamabad : Faculty of Aerospace Sciences and Strategic Studies (FASSS) at Air University, organised an international webinar on 'Post US Elections: Forecasting Global and Regional Security Environment.'

The event was chaired by Air Marshal (r) Javaid Ahmed, vice chancellor, Air University and moderated by Dr. Adil Sultan, acting dean and HoD, Faculty of Aerospace Sciences and Strategic Studies.

Dr Rabia Akhtar, director of Centre for Security, Strategy and Policy Research (CSSPR) sharing her views on the future of Pak-US relations stated that the main competition between the US and China

would be in the South China Sea and South Asia is unlikely to be the epicenter of the new Cold War between the two global powers.

Elizebath Threlkeld from the Stimson Center, Washington D.C., while speaking on the future of the Afghan peace process stated that under the new US Administration there may be a change in tone but not in the substance. The President-Elect Joe Biden's Administration would have to convince the Afghan groups that US is withdrawing from the region.

Dr. Nazir Hussain, dean of Social Sciences Quaid-i-Azam University Islamabad offered his views on the future of Middle-East and Iran's Joint Comprehensive Plan of Action (JCPOA). He said that there is unlikely to be a drastic change in the US policies towards the region, but there is a likelihood of a renegotiation of the Iran nuclear deal. **Brigadier (r) Feroz Hassan Khan from the Naval Postgraduate School, Monterey**, US shared his perspective on the future of arms control as the issue is likely to gain more traction under the Biden's Administration.

The Chair of the session Air Marshal (r) Javaid Ahmed in his concluding remarks thanked the panelists and the participants for sharing different perspectives that were important to forecast the regional and global security environment with the change in US administration in Washington, D.C. He also highlighted the need to strengthen US-Pakistan relationships and explore new opportunities, especially in the field of education where new partnerships could be reconnoitered.

https://www.thenews.com.pk/print/745772-au-holds-webinar-on-post-us-election-scenarios

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ALUMNI:

CHDS Alumni Assume Leadership Positions at the International Association of Chiefs of Police

(CHDS.us 18 Nov 20)

The Naval Postgraduate School's Center for Homeland Defense and Security (CHDS) is proud to announce that three alumni have been sworn-in to the International Association of Chiefs of Police (IACP) Executive Board: Chief Cynthia Renaud (Ret.), Santa Monica Police Department in California; Chief Dwight Henninger, Vail Police Department in Colorado; and Chief Kristen Ziman, Aurora Police Department in Illinois.

The IACP is the world's largest and most influential professional association for police leaders, committed to shaping the future of the policing profession. With more than 31,000 members in over 165 countries, the IACP is a recognized leader in global policing, committed to advancing safer communities through thoughtful, progressive police leadership. Since 1893, the IACP has been serving communities worldwide by advancing leadership and professionalism in policing through advocacy, research, outreach, and education.

Chief Renaud will serve as the President of the IACP. President Renaud is the second female President in the Association's 127-year history. During her term, President Renaud he has pledged to focus on addressing the root cause of homelessness; critical incident response with an emphasis on crowd management, facility and business protection, intelligence gathering and sharing, and overall community safety; and the assemblance of a global working group to identify shared issues and the leading approaches to successfully working in each area of common concern. Renaud is a graduate of the CHDS master's degree program (2010).

Chief Dwight Henninger will serve as the First Vice President of the IACP. In September 2021, he will be sworn in as the President of the IACP. Chief Ziman is serving in the role of Vice President At-Large. Henninger is an alumnus of the CHDS Executive Leaders Program (2017) and Ziman graduated from the CHDS master's program (2018).

"President Renaud, Vice President Henninger, and Vice President At-Large Ziman exemplify commitment to the Association's values and to the policing profession," said IACP Executive Director /

CAE Vincent Talucci. “They bring a wealth of experience and commitment that will undoubtedly assist the Association and its membership as we continue to be the gold standard for training and leadership development. I am thrilled to work with them in the years to come.”

https://www.chds.us/c/item/17632

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Former Astronaut Recounts How He Reached for the Stars

(NAS Patuxent River Tester 19 Nov 20) … Emily Funderburk

An 8-year-old boy built a rocket ship out of a cardboard box, dreaming he could fly to the moon.

That boy was Dr. John Herrington, who grew up to become the first American Indian (Chickasaw tribe) NASA astronaut, flying to space with STS-113 Endeavor in 2002. Herrington, a retired Navy commander and graduate of the Naval Test Pilot School (TPS) here, shared his story at NAVAIR’s national virtual American Indian Alaskan Native Heritage Month event Nov. 5.

“My ancestors — my parents, my grandparents — were able to make decisions that allowed them to survive,” he said. “My heritage, based on making good decisions, allowed me to do what I’ve done. It’s influenced my life greatly. My ancestors have given me the opportunity to walk the earth and fly above it.”

Herrington made decisions that took him down an unorthodox path of becoming an astronaut. Both his parents loved to fly; he got his first flying lesson from his father at age 10. After graduating early from high school in Texas (but subsequently suspended from college for poor grades), he turned to something entirely different: rock climbing.

Learning to calculate heights, navigate sharp angles and solve puzzles on how to place his body to avoid falling, Herrington realized, in the process, he was becoming adept at mathematics.

“I learned trig on the side of a cliff,” he said. “I saw the practical nature of mathematics.” Spurred on by his hiking partners, he reenrolled at the University of Colorado. “I had a motivation to learn something I’d only seen in a textbook,” he said.

He joined the Navy and graduated from TPS in 1988. “I took my math background and applied it to fly airplanes in TPS,” he explained. “[At TPS], you’re the bridge between the engineering world and the operational world.”

He later became an aeronautical engineering duty officer and **earned a master’s degree in aeronautical engineering from the U.S. Naval Postgraduate School**. He was selected by NASA in 1996 and formed part of the largest class of NASA selectees. Nicknamed “the Sardines,” their motto was “Space is no problem.”

That motto proved true for Herrington, who fulfilled his childhood dream and logged more than 330 hours in space, including close to 20 hours doing space walks, during the 16th Shuttle mission to visit the International Space Station. In honor of his heritage, Herrington brought a hand carved flute and eagle feather on the voyage; both are now displayed at the National Museum of the American Indian in Washington, D.C.

For Herrington, diversity and inclusion are imperative to mission success.

“Honor and respect people of all ethnicities; we’re all on this team together and have the same goal,” Herrington advised. “Honor them for who they are and what they’re capable of doing and what they believe in.”

Herrington’s remarks echoed the theme of the event, “Many Nations, One Fight!” The event was co-sponsored by NAVAIR’s American Indian Alaskan Native Diversity Action Team and the NAVAIR Equal Employment Opportunity Office.

The team’s mission is to support and enhance the recruitment, retention, professional development and advancement of members of the American Indian and Alaskan Native communities within NAVAIR. Currently, NAVAIR is comprised of 0.7% American Indian men and 0.3% American Indian women.

Within the Department of Defense, there are 21,000 American Indian and Alaskan Native service members and civilians.

"When we bring together teammates from diverse backgrounds, we can leverage that diversity of thought and perspectives," said Gary Kurtz, the team's executive champion. "These important discussions have the power to galvanize our organization and compel us to action. More importantly, treating our teammates across the board with dignity and respect is foundational to how we operate as a command. Treating others with dignity and respect is, after all, not only the right thing to do, but also critical to mission success."

American Indian Alaskan Native Heritage Month is observed each November to celebrate the diverse cultures, traditions and histories of native people and acknowledge their contributions to the U.S.

https://www.dcmilitary.com/tester/news/local/former-astronaut-recounts-how-he-reached-for-the-stars/article_90b2d221-3b42-59ec-a3be-8c779d4d2c4c.html

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Morehead State Alumnus DeMoss Promoted to Rear Admiral in U.S. Navy

(Morehead State University 20 Nov 20)

Trent DeMoss (90) was promoted to the rank of rear admiral lower half earlier this year, and subsequently assumed command of Commander, Fleet Readiness Centers (COMFRC), under Naval Air Systems Command (NAVAIR), in Patuxent River, Maryland.

Commander, Fleet Readiness Centers (COMFRC) is the headquarters for eight Fleet Readiness Centers (FRCs) and one Reserve component across the globe. COMFRC employs a workforce of more than 20,000 shore-based aviation maintenance professionals, comprised of highly skilled military, civilian and contractor aeronautical engineers, logisticians, managers, technicians and artisans who produce aircraft ready for tasking by providing maintenance, repair and overhaul of Navy and Marine Corps aviation assets and support equipment.

"Just another day of doing the work and being around great people," DeMoss said. "My promotion is a reflection of all of them, not of me. It's been a marathon full of challenges, sacrifices and tough days, but the days are full of more rewarding moments than are countable. Wouldn't change a minute."

A native of Morehead, DeMoss had a grandfather, as well as several uncles and cousins, who served in the Navy and Army. Having grown up around Morehead State University thanks to his mother Carla Salyer and father Dr. Gerald DeMoss (63) working on campus, he decided to pursue his MSU education. His brother and MSU professor of biology, Dr. Darrin DeMoss (89), was also an MSU student.

"Many of my role models and friends were relationships with people I knew through my parents and interacted with on a daily basis," he said. "Simply, it was and still is home."

DeMoss graduated with a Bachelor of Science in Physics and Mathematics in 1990 but found the idea of serving in the military appealing for both travel and adventure. He went on to attend Officer Candidate School in Newport, Rhode Island, where he graduated in 1991 and was commissioned an ensign in the U.S. Navy, earning the designation of aerospace engineering duty officer (maintenance) in 1992. That same year, DeMoss reported to his first assignment with Helicopter Anti-submarine Squadron 5 (HS-5) in Jacksonville, Florida. There, he served as the maintenance and material control officer and completed the USS George Washington's (CVN-73) maiden deployment.

DeMoss reported to the Naval Postgraduate School in Monterey, California, in 1994 and went on to earn a Master of Science in Aeronautical Engineering in 1997. DeMoss served in various roles aboard the USS Harry S. Truman (CVN-75), USS Dwight D. Eisenhower (CVN-69), USS Theodore Roosevelt (CVN-71) and at Lockheed Martin from 1997 to 2007. He was also deployed with multi-national NATO forces to Kosovo and Macedonia, supporting Task Force Falcon and Operation Joint Guardian. DeMoss was later selected "Best in Service – Navy" for his performance in 2001. Later, he completed a successful eight-month deployment supporting operations in South Africa, Operation Enduring Freedom and maritime security operations in the Gulf of Oman.

DeMoss reported to NAVAIR, Naval Undergraduate Training Systems, as the assistant program manager, logistics in 2009 until his transfer in 2012. While assigned to NAVAIR, he also served as deputy program manager for F/A-18 and EA-18G Air Vehicle Systems in the F/A-18 and EA-18G Program Office.

He later reported to COMFRC as the military production director in 2014 before reporting to Fleet Readiness Center Southeast as the executive officer in 2015. Once there, he took over as commanding officer in 2017 before reporting to COMFRC, as vice commander two years later. After earning his current ranking of rear admiral, he took command of COMFRC in August 2020, a position he holds to this day.

His decorations include two Navy Achievement Medals, three Navy Commendation Medals, three Meritorious Service Medals, a Joint Service Commendation Medal, a Defense Meritorious Service Medal, two Legions of Merit, and others.

"I never thought I was going to make a career of it; I looked at it as a short-term set of goals that I would do and then move on to other things," Demoss said. "Thirty years later, it has flown by. Have loved every minute. I've met people and had experiences I will never forget and will value the rest of my life."

https://www.moreheadstate.edu/News/2020/November/Morehead-State-alumnus-DeMoss-promoted-to-Rear-Adm

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The Chief's Desk – Nov. 20th

(Signals 20 Nov 20) … Chief Scott Freitag

In my opinion, the Fire Service does not do a good enough job preparing our personnel to communicate effectively. Honestly, I don't think we spend enough time on the topic for anyone in the Fire Service whether in Operations or Non-Operations. A person's ability to communicate has a direct impact on their level of credibility. Whether written, verbal, or non-verbal the way you communicate sends a message about who and what you are to others around you.

As part of the Executive Leaders Program through the Naval Post Graduate School, I was introduced to Allen Weiner Ph.D. His firm, Communication Development Associates, focuses on helping leaders develop or hone their communication skills. I just finished reading his book *So Smart **But**…: How Intelligent People Lose Credibility – and How They Can Get it Back*.

Allen has been kind enough to offer us a one-hour presentation called Managing Competence and Credibility. I am currently working to schedule the program virtually for our managers, senior staff, and Battalion Chiefs. Ultimately, I would like to engage him for the Fire Chiefs Academy and have recommended him for consideration to the Battalion Chiefs Academy.

So, what is it about communication that is so important? Just about everything we do revolves around communicating some message to someone other than ourselves. The further you progress through the ranks, the more responsibility you will have for conveying who we are as an agency both internally and externally. It may start with something as simple as being a Fire Pal and culminate with filling in as the keynote speaker in front of a large audience that was expecting the Governor. That went really well but was a bit nerve-racking between receiving the call in the late afternoon on a Thursday and being prepared to speak at 1000 Friday morning.

Just about everything we do conveys a message. We will talk about non-verbal as well as verbal communications in a bit, but right now think about your grooming standards, what clothes you wear, your posture, etc. They all convey a message to your audience. For us in the Fire Service, what we wear is pretty straightforward, and provided for us. Do I wear the blue pants with the blue shirt today, or the blue shirt with the blue pants? That said, I tend to wear business casual with slacks and a uniform polo or logo button-up. For the situations I typically find myself in, business casual is the most appropriate attire.

However, there are times that my Class A uniform is the best choice. When I spend a day at the Capitol, I'm typically in my dress uniform. First, it makes me stand out against the sea of suits so legislators know I'm there. Two, it has our logo so legislators know that CAFMA is involved. Three, it is a professional representation of the Fire Service. We want people to know that we are present, that we are part of a profession, and that we are professionals.

The way you shake someone's hand is also important and is part of a first impression. I can look the part in the right uniform, but if I have a weak handshake, one that is too strong, too fleeting, or lingers too long, I will send the wrong impression. Part of a handshake includes eye contact and a smile.

Understanding that a majority of your message is delivered via non-verbal communication is extremely important. Let's say you're meeting someone and they push your buttons. You may walk away from the tense moment thinking you did a great job because you didn't give in to your desire to provide a proper tongue-lashing. However, your lowered brow, narrowed eyes, deep red face, forward posture, and clenched fists said more than your words could have relayed – you failed. Call this an opportunity to practice normal face. It's tough, but we all need to learn to control our emotions and respond to whatever is around us.

Your posture whether sitting or standing sends a message. Checking your phone during a conversation, looking away from the person speaking, shifting in your seat incessantly, lack of eye contact, how you hold your mouth while you're listening, how you hold a piece of paper while you're speaking – all send a message. Sometimes good, sometimes not so good. It is important that you practice being in the moment with the person or persons with whom you are communicating. I at least try to tell someone that I am expecting an important message, so I may have to check my phone or take a call during our meeting. While I'd prefer not to interrupt someone, there are times when it cannot be avoided. In those instances, give a courtesy heads-up. If your message, or phone call, will take a significant amount of time away from the meeting, see if you can change the meeting time. Not valuing someone else's time sends a message – they're just not that important.

Your words do mean something, even though your non-verbal cues relay a majority of your message. While my undergraduate degree is in Mass Communications, I am by no means an expert. I used to think I needed bigger words so that I would sound more better smart. However, studies have shown that smaller words convey a message far better than larger or more technical words.

When you are speaking to a group of people it is important to have command of the stage. I still get nervous before a speaking engagement, so I usually start with some sort of icebreaker just to calm myself. Walking the stage too much is a distraction. Standing with your hands frozen by your side, or with a death grip on the podium are a distraction. Saying ummmm or uhhhh too much is a distraction. Studies show that if you are reading from a paper as part of your presentation, it sends a better message if the paper is held at an angle rather than straight up and down. A little tip I learned from Allen – who knew??

For the love of all things holy please no death by PowerPoint, and do not read the slides. Many presentations do require a slide deck, but the slides should serve as a guide, not as the entirety of the presentation. I think we all need work in this area. Don't speak too fast, don't speak too slowly, and avoid being monotone. Remember the teacher in the movie Ferris Bueller's Day Off? Don't be that guy. You have to at least sound like you are alive, that you have command of the material you are presenting, and that you are happy to be where you are. Have fun with it, use appropriate humor, and be cautious of your language.

With technology today, written communication has become even more challenging. Has anyone ever conveyed the wrong message in a text or an email? If you could see me, my hand is up. Yes, I have written angry emails, ignored my own advice, and hit send. No bueno. If you have a difficult message to deliver to someone, your best approach is to do it in person, or if that's not possible, a phone call. If in-person, and it's a difficult conversation, going outside for a walk may be advisable. Apparently, bad news is better received when moving. Much of the message we are trying to send is lost in our written communication today. A final tip, smaller words are better in writing as well as when speaking.

One of the issues with what we will call "toxic leaders" is an inability to communicate properly whether in writing or in person. You can be blunt without being a jerk about it. How you approach the

message you are sending is vitally important. Again, your non-verbal cues will send more of a message than whatever words you use. If you have negative feedback, focus on being constructive, not destructive. Your tone of voice, choice of words, and location of the conversation all send a message and potentially not the one you're trying to share. The goal is to help change a behavior or improve a situation, not make it worse.

Finally, be more concise. I know, I'm not the person to send this message, but I'm working on it. One of the things I'm learning is that I do not have to provide every single detail, nor do I have to address every argument that may exist regarding what I am presenting. I need to package my message in a way that delivers the core and provides opportunity for my audience to ask clarifying questions. For example, I have worked for five years on our ambulance concerns. This also means I know a majority of the arguments against my recommendation, as well as all of the arguments in support of my recommendation. However, I have to understand that I cannot cover five years' worth of work in a 10-minute presentation. What I have to do is figure a way to condense the message down to a smaller, yet more impactful, package.

There is a lot more to this topic than I can cover in just a couple of pages. I hope that these bits of information will help you understand the importance of spending more time developing your communication skills. We didn't even touch on active listening or the communication loop. Another time, I've used up my word limit for this week.

https://www.signalsaz.com/articles/the-chiefs-desk-november-20th/

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Pomona-born Astronaut Makes History as 1st African American to Join Extended Mission on Space Station

(KTLA 22 Nov 20) … Kristina Bravo

A Southern California native made history this week as the first Black astronaut to work at the International Space Station as a long-term crew member.

Victor Glover, a Naval Postgraduate School alumnus, who was born in Pomona and graduated from Ontario High School in 1994, arrived at the NASA outpost on Tuesday as part of SpaceX's second crew launch. The 44-year-old Navy commander and pilot is the only space rookie of the four-member crew, who's staying at the station for six months.

For NASA, the mission begins regular crew rotations at the space station with the help of a private company's spacecraft.

Glover was chosen as an astronaut in 2013 while he served as a legislative fellow at the U.S. Senate.

Asked about his career trajectory in an interview released by NASA, Glover noted his experience at Ontario High School.

"It goes way back," he said. "So high school athlete, love being part of a small high-performing team, wrestling and football. [I] was fortunate to wrestle in college while pursuing my engineering education."

He graduated from the California Polytechnic Statue University, San Lus Obispo in 1999 before earning three master's degrees between 2007 and 2010 at the Edwards Air Force Base in California, the **Naval Postgraduate School** and the Maxwell Air Force Base in Alabama.

Glover said he originally wanted to be a Navy SEAL.

"I wind up deciding to go into aviation and learn to fly," he said.

Black astronauts have made short stays at the space station before, according to The New York Times, but Glover is the first one to join a crew for an extended stay.

"It is bittersweet because I've had some amazing colleagues before me that really could have done it, and there are some amazing folks that will go behind me," he said of the milestone in a recent interview with The Christian Chronicle. "I wish it would have already been done, but I try not to draw too much attention to it."

Over the summer, as Americans protested on the streets following the killing of George Floyd and Breonna Taylor, Glover spoke about racial injustice on Twitter.

In response to a question about astronauts sticking to space, he explained: “Remember who is doing space. People are. As we address extreme weather and pandemic disease, we will understand and overcome racism and bigotry so we can safely and together do space. Thanks for asking.”

Glover has four children with his wife, Dionna Odom of Berkeley, according to NASA. His mother still lives in Southern California, and his father and stepmother reside in Prosper, Texas.

https://ktla.com/news/local-news/pomona-born-astronaut-makes-history-as-1st-black-space-station-crew-member-to-stay-long-term/

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