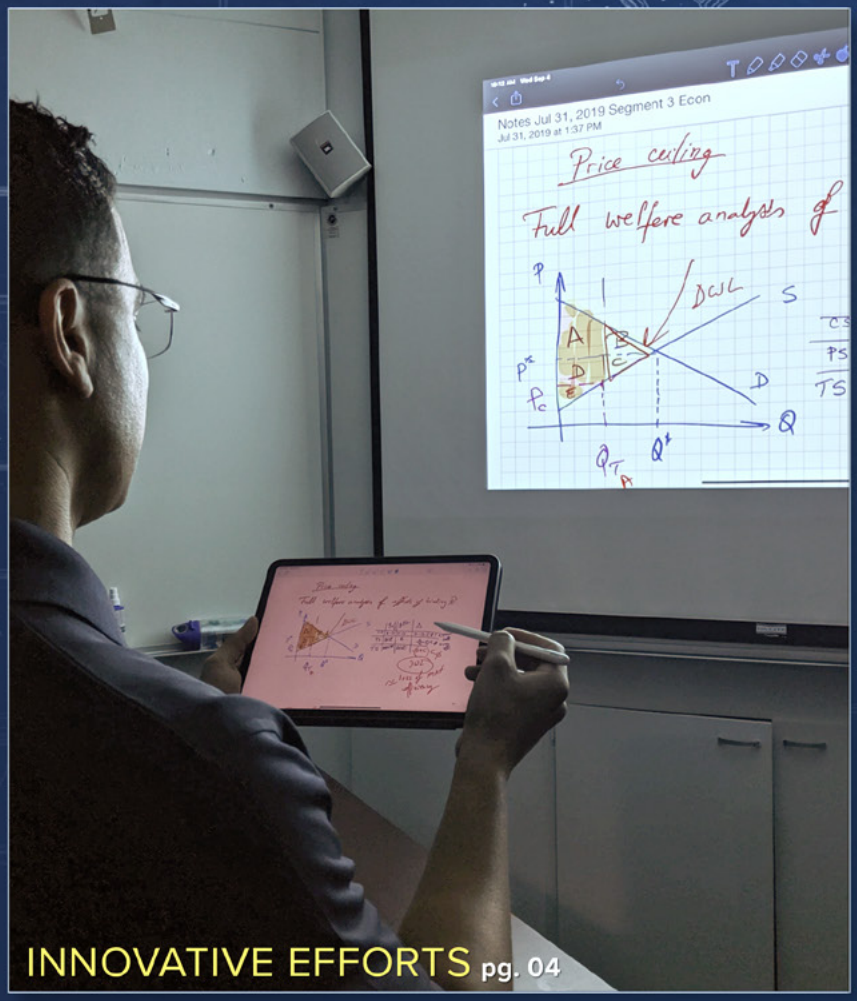
TLC YEAR IN REVIEW

Teaching and Learning Commons at The Naval Postgraduate School

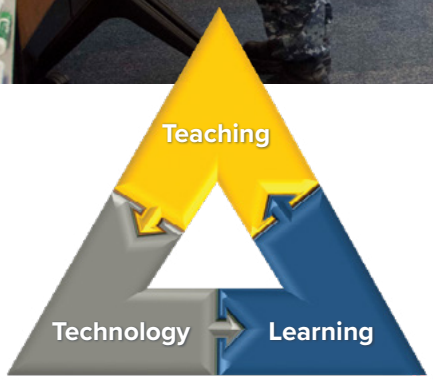


INNOVATIVE EFFORTS pg. 04

FLEx SPACES pg. 08

FACULTY VOICES pg. 09

DISTANCE LEARNING pg. 10



FOREWORD FROM TLC LEADERSHIP

Discover the Teaching and Learning Commons (TLC), a responsive network of academic resources for faculty to meet students' educational needs and create distinctive learning experiences.

Are you looking for resources to continuously provide quality education at NPS? Engage with us for educational guidance, information about innovative effective teaching methods and practices, or simply because you would like an opportunity to participate in teaching/advising conversations.

During its first year, the TLC leadership team has been dedicated to listening and receiving feedback from faculty and students regarding teaching and learning at NPS. To encourage efficient use of limited resources, we then identified initiatives that would benefit faculty and students campus wide, while supporting the NPS mission and strategic plan. We used the resulting feedback to prioritize greater collaboration between DKL, ITACS, and OAPGE to implement the following initiatives:

- 2018-2019 Classroom of the Future;
- 2019-2020 Quality Education Year One: Distance Learning; and
- 2020-2021 Quality Education Year Two: Comprehensive Quality Programs.

As we enter AY2020, we encourage interested faculty and departments to partner with the TLC, share instructional challenges and promising practices, to advance the goal of quality and innovation in support of student achievement.

Ralucca Gera

Ralucca Gera
Associate Provost for Graduate Education

WE'VE BEEN LISTENING!

With a goal of serving as an effective change agent, the first year of the TLC has been spent reaching out and listening to faculty and students to better understand the challenges that exist within the teaching and learning ecosystem at NPS. Through use of open forums, department visits, feedback forms, and surveys the TLC has looked to gain insight into what concerns faculty and students have and what support is required. Mini-grants not only served to address challenges that came to light, but also sparked conversation about what other opportunities could support pedagogical exploration.

Tools for the Classroom
Faculty & students identify tools they incorporate into their teaching and learning.

Student Perspective
Students discuss their challenges and possible solutions.

CAPT Ben Collier
Student Council President

Scan to
Learn More About TLC
Open Forums

2018

NPS Strategic Plan 2018-2023
"Establish Teaching and Learning Studio"

Apr - Jun

Technology Mini-Grants

Jul - Sep

"How We Teach, Learn, and Advise" Open Forums
Student Perspective
Faculty Perspective
Teaching Fellows Program

Oct - Dec

"How We Teach, Learn, and Advise" Open Forums
Staff Perspective

Student-Driven Mini-Grants

Aviar Design Project Begins

Classroom Feedback Forum

Technology Mini-Grants

Aviar Design Open Forums

2019

Jan - Mar

Technology for Teaching and Learning
ITACS Presentation

Wacom Pilot Begins

Innovative Tools for the Classroom
Faculty & Students Presentations

Final Aviar Design Presentation

Apr - Jun

Impact of Technology Mini-Grants

Instructional, Travel, & International Student Mini-Grants

TLC Department Visits

FLEx Space Design Completion

Jul - Sep

FLEx Space Tiger Team Kickoff

TLC MINI-GRANTS PROGRAM SEEDS INNOVATIVE EFFORTS ACROSS CAMPUS

By Matthew Schehl

When Naval Postgraduate School (NPS) faculty and students speak, the university's Teaching and Learning Commons (TLC) listens.

In response to input from the NPS community, the TLC has awarded a dozen mini-grants over the last year to expand the university's pedagogical horizons. In supporting a range of innovative ideas from faculty and students, these grants plant the seeds that may grow and spread into more effective ways NPS learns and teaches.

"The bottom line is we're listening to you," noted Dr. Ralucca Gera, TLC director and Associate Provost for Graduate Education. "Tell us how we can support you to be able to use the classrooms differently than before and how to improve the quality of the education."

Not all students learn the same way, she said, and the mini-grant initiative affords faculty the opportunity to meet students where they're at.

Since time immemorial, the pedagogical model has tended to be immutably passive: an expert, a piece of chalk, a board, and students scrambling to take notes to the best of their abilities. But times are changing, as increasingly tech-savvy students are hungry for more active, engaged methods of learning.

"For someone who does the chalkboard, that may work perfectly for them, but how can we still support you? Maybe it's a travel mini-grant to bring in a guest speaker to enhance the classroom experience or to attend an important professional conference on education," said D'Marie Bartolf, NPS' Coordinator of Education Innovation who manages the mini-grant program.

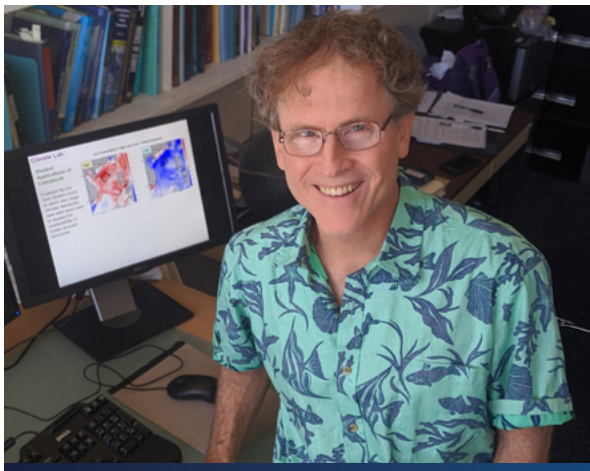
"We're not trying to tell you using a chalkboard is wrong, but we also want to know if there's something else that can be brought into this environment that can enhance the experience for your students," she added. "What can we do for you to empower you to take the next step forward?"

The TLC mini-grants have already covered a broad swath of academic territory, including high-powered rockets, a mind-mapping tool for learning new concepts, novel wireless class communications, virtual reality goggles and a glass writing board enabling face-to-face communication between professors and students.

Awards have varied in type and amount – averaging around $3,000 – but they all have one thing in common: they can be scaled beyond the requester's immediate domain to improve the educational experience throughout NPS.

"Mini-grants not only served to address challenges that came to light, but also sparked conversation about what other opportunities could support pedagogical exploration."

-Ali Rodgers, Director, OTL



Prof. Tom Murphree, with ClimateLab

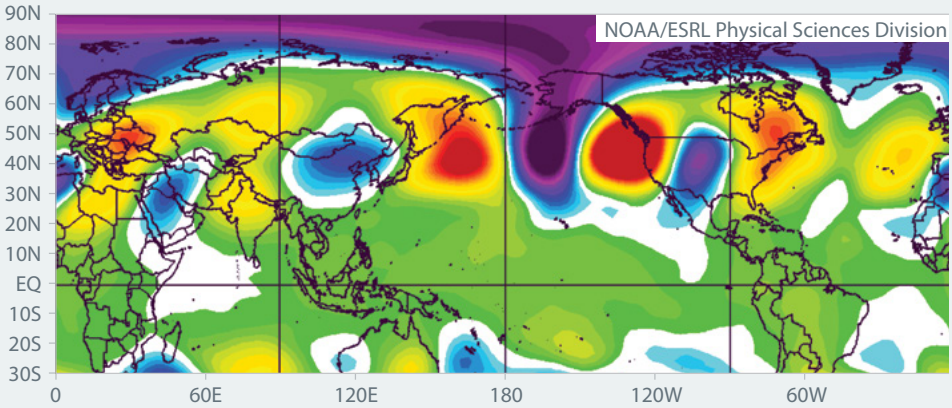
MURPHREE LEVERAGES CLIMATELAB MINI-GRANT

Such was the case for Tom Murphree, associate research professor in NPS' meteorology department and one of the mini-grant initiative's first awardees in Summer 2018.

Murphree received a mini-grant for NPS to acquire a license for ClimateLab, a tool allowing users to easily analyze, visualize and make projections with very large global climate data sets. While immediately invaluable for teaching and learning, thesis research and course development within meteorology and operational oceanography, ClimateLab is a versatile tool applicable across a wide range of disciplines.

"ClimateLab is extendable beyond people who work with environmental data, and we're actually starting to experiment with putting in what we call activity data information of ships at sea and airplanes in the sky," Murphree explained. "It's people at NPS interested using [Automatic Identification System] data to track sea-going vessels; people in physics and engineering who need to know about the environment in which their equipment is operating; it's also people

in operations research, information science and defense analysis that need to understand, for example, the relationship between weather, climate and conflict."



ClimateLab: Example from student study in which very large climate reanalysis data sets were used to assess predictability of Santa Ana events and California wildfires.

This wouldn't necessarily be possible without the TLC mini-grant, he said, as they open doors to new ways of doing things that research funding doesn't cover.

"For most of us, the outside funding we have is for research, not teaching and learning: we might have the research funding, but it can't easily be applicable to a technology that's primarily intended to help the students learn," Murphree said.

"The mini-grants are a great way to get the community more engaged with the latest and greatest to support teaching and learning," he continued. "They're also pretty quick and efficient: a lot of times working with the government it can be a pain if you want to buy something, but TLC made it easy and relatively painless."

This is, in fact, the *raison d'être* of the TLC.

Since its inception in the Spring of 2018 as an action area identified in the Strategic Plan, the TLC has endeavored to be the catalyst of a stimulating, quality teaching and learning environment to best educate its unique student population, and Gera knows first-hand what that means.

"I'd been teaching at NPS for 13 years before I took this job and I was always looking for ways to experiment in my classroom, but often these ideas couldn't get traction because of a lack of funding or space," Gera said. "So when I got this job, one of my first thoughts was to hear from faculty what they would like: what would you as faculty want to try?"

The TLC integrates a wide range of specialized services and resources to better support NPS' academic mission, including the Dudley Knox Library and Information and Technology Communications Services (ITACS).

"Think of the TLC as a cohesive, virtual umbrella organization over existing centers - nobody belongs to the TLC, but we bring together faculty and student perspectives as well as the technology to support their requirements," Gera emphasized. "Our focus is to enhance teaching and learning and instill awareness of the resources that faculty and students have for that."

The crux of the enterprise's success comes down to communication, and the TLC has gone to great lengths to engage the NPS community: a series of Open Forums highlighting critical issues, surveys, visiting departments to determine the best ways to support them, and … the mini-grant initiative.

"The mini-grant was one of the ways for us to listen to the faculty: what else do you want to do?" Gera said. "And we work with you to make sure this is compatible with our systems so that you're not finding hiccups with it."

Mini-Grants for Student Success

For Navy Lt. Jesse Hernandez-rodriguez, receiving a TLC mini-grant was a lifesaver.

His second quarter at NPS in Summer 2018 was brutal: having been out of school for several years meant the fast pace of the Graduate School of Business and Public Policy (GSBPP) was "challenging." He was having a hard time keeping track of the plethora of papers, books, notes and notebooks he was rapidly accumulating.

He and his wife were soon expecting their second child as well, yet complications necessitated she be admitted to a hospital in Salinas, Calif., for intensive care and Hernandezrodriguez strongly

Student-Driven mini-grant winners, Prof. Simona Tick and LT Jesse Hernandezrodriguez.

felt he needed to be at her side as much as possible.

"We spent so much time at the hospital," he recalled. "I still had my school responsibilities, so imagine having to stay overnight with thick books strewn all over the hospital bed!"

As a graduate student in GSBPP's Manpower System Analysis curriculum, Hernandezrodriguez has a penchant for efficiency. Faced with the Herculean tasks before him, he was determined to find a way to work smarter, faster and better.

Turns out, there's an app for that: Reflector 3 by Squirrels LLC, which wirelessly mirrors a phone, tablet or computer to the big screen and other devices. Streaming video can also be recorded for review and, when integrated with note taking programs on a tablet, can become a powerful tool in a classroom setting.

"I found a way on my tablet to become much more organized, with everything I needed going to the cloud," Hernandezrodriguez said. "I thought it would be great for me to take and save notes along with recorded lectures."

Call it synchronicity, but often the timing was just perfect: Hernandezrodriguez ran the idea by his quantitative methods professor, Dr. Simona Tick, at the same time as the TLC broadcasted a call for mini-grant applications.

"He basically suggested we could partner up and maybe try some of these features, or even recording simple work exercises that might help students who otherwise might be falling behind in the coursework," she said, and suggested he apply for a mini-grant.

Tick immediately recognized the potential of the wireless communications technology for her classroom. The screen mirroring software could do so much more than a whiteboard and markers in engaging her students, she thought: video and audio of her lectures could be posted to Sakai - NPS' interactive student and faculty portal - for students to master harder concepts, students wouldn't have to squint into awkwardly-lit angles to read her writing and could review her explanations at leisure.

Prof. Simona Tick works with LT Jesse Hernandezrodriguez on the application of wireless collaboration in the classroom.

Along with GSBPP assistant professor Alan Ballard, Tick threw her full support behind Hernandezrodriguez to apply for a TLC mini-grant; he received the grant for the Fall 2018 quarter, transforming the idea into reality.

"It was very, very effective," he recalled. "I would be laying with my tablet on whatever little couch I could find at the hospital, a textbook on half of the screen, my notes on the other, and I was able to submit my assignments while I was there."

"You don't need anything other than that tablet," he continued. "You have the whole school, the whole textbook, all the files on just that one screen and that's it."

Hernandezrodriguez is now in his fifth quarter with a stellar academic record, and he and his wife have two healthy children. The Navy lieutenant walked away from that rough patch feeling listened to by the TLC and NPS faculty as he struggled to carve his way.

"It's obvious they care; that they want to be innovative," he reflected. "They are truly interested in providing the best educational experience for all of us and making sure that our voices are being heard."

The TLC intends to only strengthen this as it moves forward.

"My hope with these mini-grants is that we really spark the imagination: learning what we can do and expanding what we can do in the classroom to get students excited," Bartolf said. "As long as we can keep people imagining and trying out new things, then we truly are a living teaching and learning ecosystem, and that's the goal."

TLC MINI-GRANTS AWARDEES

Prof. Warren Yu
Cebrowski Institute for Innovation

Technology: OLED 4K TV
Improving classroom experience by enhancing visibility of displayed instructional content.

Prof. Kristin Giammarco
GSEAS, Systems Engineering

Technology: Coggle
Using mind mapping to aid solidification of learning and create visual record of student learning experiences.

Prof. Tom Murphree
GSEAS Meteorology

Technology: ClimateLab
Analysis and visualization of large data sets will support project based learning and increase student engagement.

Capt. Dillon Pierce and Prof. Jim Newman
Space Systems Academic Group

Student-Driven Technology: CubeSats
Providing a lab-based, hands-on education experience to foster critical thinking, teamwork, innovation.

Prof. Kathryn Aten
GSBPP

Instructional Technology: Tabletop Learning Glass
Maintaining an capturing face-to face contact with students to improve distance learning instruction.

GSEAS Mechanical and Systems Engineering

Travel: Dr. Roger Dougal travel to NPS
Support training for faculty and students on the S3D design software and process that will be incorporated into the TSSE program.

GSEAS Systems Engineering

Travel: Dr. Len Toncale travel to NPS
Deliver two open seminars to all of NPS on "Integration of Systems Processes Theory (SPT)" and "Would a Rigorous Systems Pathology Add Significantly to an Understanding of Complex Systems Military Failures?"

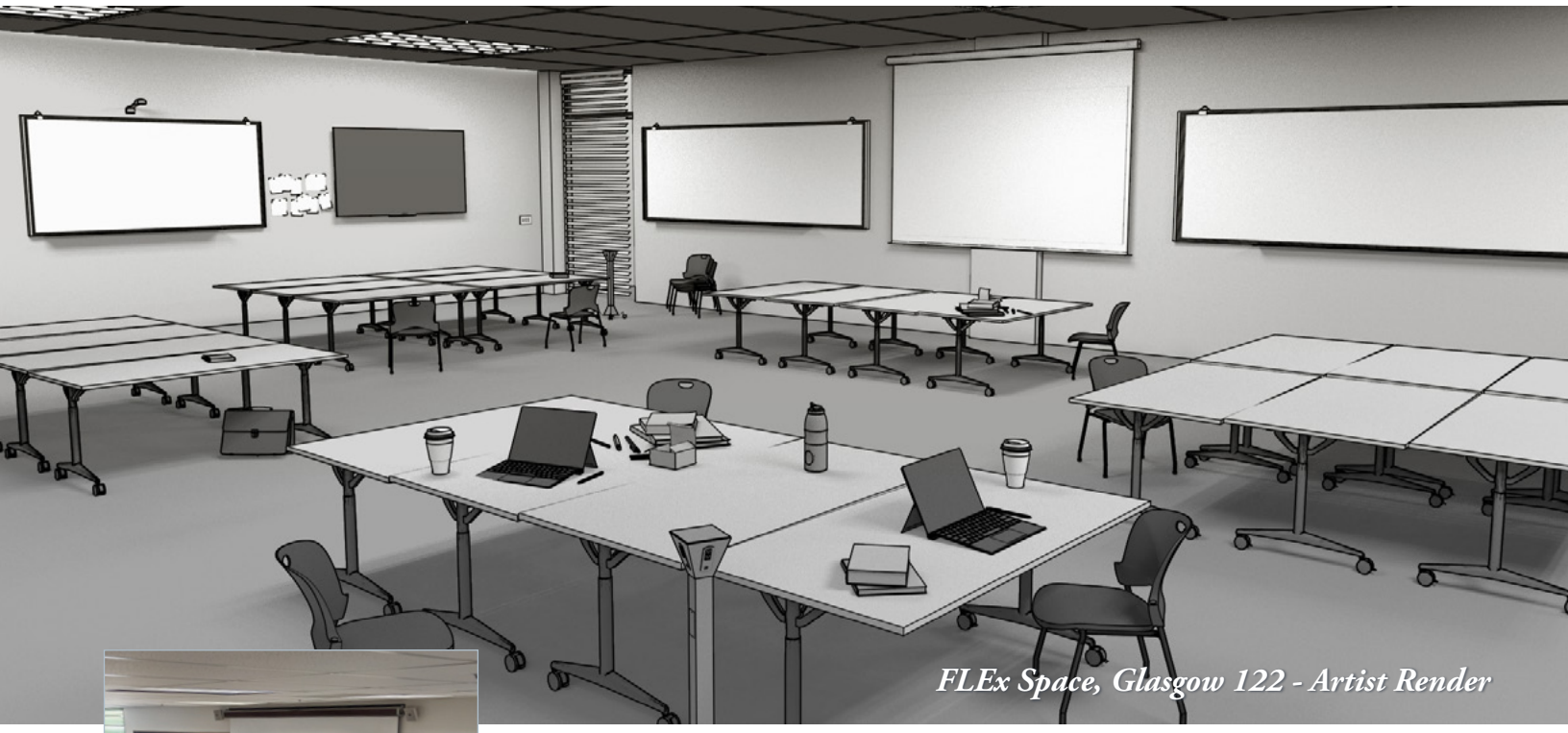
CDR Joel Feldmeier
GSEAS Meteorology and Oceanography

Travel: National Weather Association Annual Meeting
Connecting classroom learning with operational applications.

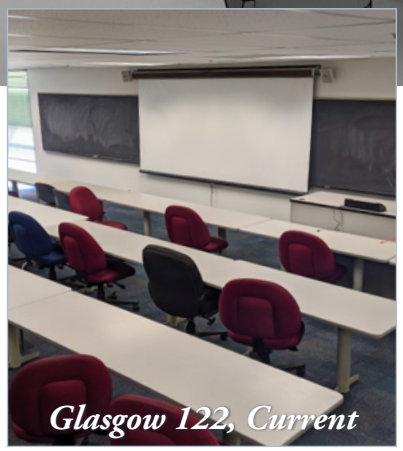
Kathleen Duke
Defense Resource Management Institute

International: Hybrid laptops
Transitioning to digital course materials will allow for increased student-faculty interaction and improved learning.

Scan to
Learn More About
Tech Grant Awardees



FLEx Space, Glasgow 122 - Artist Render



Glasgow 122, Current

CLASSROOM OF THE FUTURE: FLEx SPACES

By Scott Bischoff

Flexible spaces partnered with instructional support looks to have a big impact on teaching and learning at NPS.

After more than 4 months of working with Aviar Designs and gathering faculty and student input, the Classroom of the Future (CoF) team began engaging with schools to develop a Flexible Learning Experience (FLEx) Space for each school. Valuable feedback provided by early adopters, faculty piloting new technologies, and other stakeholders, assisted the team in designing spaces aimed to meet the needs of all types of faculty and students.

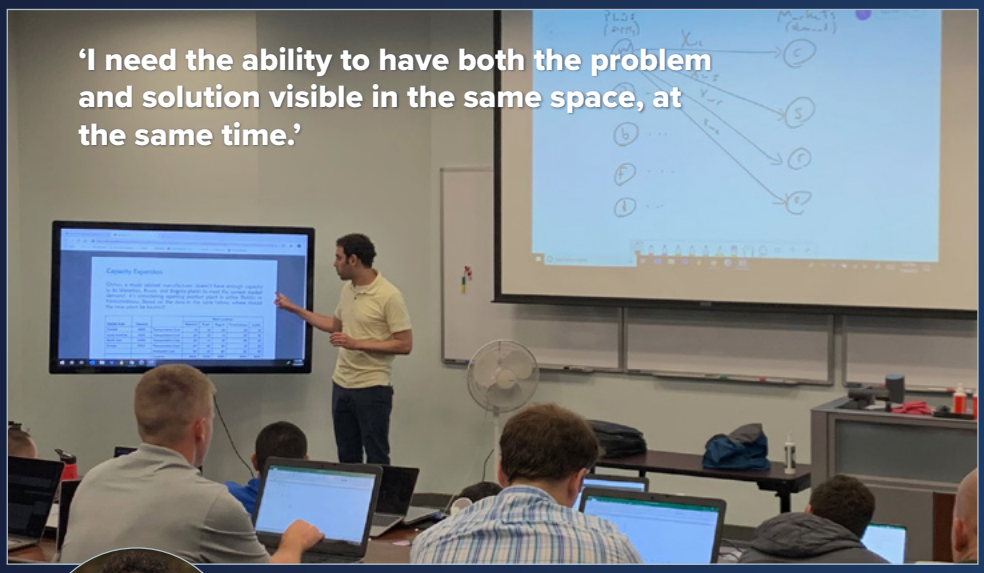
With regard to incorporating technology, the objective was to create spaces that could scale from no technology to high technology, welcoming all users. The inclusion of technology was determined based on its ability to support different instructional approaches, allowing faculty and students to experiment and determine best practices and tools for different tasks.

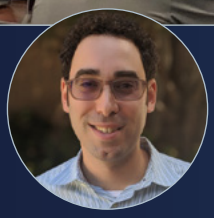
Additionally, adaptability, movement, and design supporting collaborative learning were identified as must-haves. Furniture was selected that enables students to carry out their school work comfortably and does not detract from their ability to focus and learn. Students are not just passively sitting and listening to an instructor, chairs and tables on casters allow students to group and un-group easily; working with others when it is the right fit and working alone when needed.

In the end, the team looks to showcase four FLEx Spaces that facilitate instruction from anywhere in the room and meets the needs of a diverse group of users.

Scan to Learn More About FLEx Spaces

FACULTY VOICES





Daniel Reich
Course: Business Modeling and Analysis
# of Students: ~30 (Reed 103)

Dual Projection Screens

Technology Pilot

Problem

Using only a projection screen (plus a whiteboard and/or laptop) is limited. Students and faculty need to be able to reference problems in realtime as we work out solutions in front of class. Students in the back of the room have a hard time reading screens and whiteboards well.

Solution & Benefits

Using dual screens and the MS Whiteboard app allows content to remain visible and captured for later viewing. Benefits include: continual reference of problem space, flexible zoom, display options, better contrast control, and ability to save/share.

Wacom Tablet

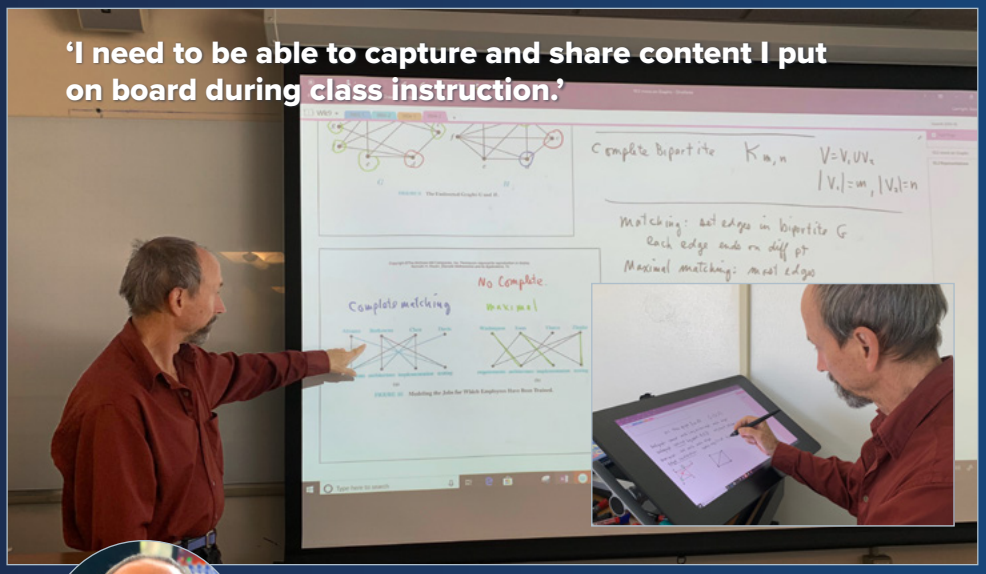
Technology Pilot

Problem

Students spend a lot of their time focused on taking notes. Interested in identifying ways to increase student engagement in the classroom and increase instructor interaction with content.

Solution & Benefits

The combination of the projection screen, Wacom, and OneNote allowed me flexibility with my content to demonstrate different case scenarios while also increasing my mobility in the classroom. Students spend more time paying attention and enjoy the ability to review what happened in class.



Prof. David Canright
Course: Logic and Discrete Mathematics I
# of Students: ~22 (SP 221)

Faculty Opportunities in FLEx Spaces

By Ali Rodgers

Although the lecture still remains a traditional instructional approach in higher education, an NPS faculty team, of early adopters, will experiment with new classroom technologies in the FLEx Spaces during the upcoming quarters. Faculty will experiment with classroom methods to engage students in meaningful practice and applied learning experiences to demonstrate their thinking and to receive important feedback to develop and refine critical and analytical thinking and reasoning. The FLEx learning spaces provide unique opportunities to facilitate a variety of instructor and student interactions that promote knowledge integration and the transfer of academic skills to complex problems.

Ali Rodgers, Director of the Office of Teaching and Learning (OTL) works with faculty during a FLEx Spaces tiger team engagement.

FLEx Spaces tiger teams support faculty application of best practices to integrate technology and pedagogy and provide research-based instructional methods.

Student Support for Distance Learners

DL Technology Pilot

Problem

The GWC looked to find out if DL students were interested in using video-conferencing tools to collaborate during writing coaching and review sessions. They hoped that students would feel more connected using the remote face-to-face technologies. This pilot aimed to measure DL students' experience and satisfaction during these coaching sessions.

Solution & Benefits

While students like the face-to-face interactions a lot, more importantly, however, were the time constraints and security restrictions that led many students to favor the previous methods of writing review. **The investigation identified follow-on efforts for supporting DL students.**

DL SUPPORT

Graduate Writing Center

Graduate Writing Center
Supporting: NPS Distance Learning Students

WHAT'S NEXT...DISTANCE LEARNING (DL)

By Dennis Lester

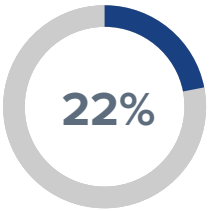
With the FLEx Spaces project in full swing during 2019, the TLC started thinking about another impactful, campus-wide initiative for next year and beyond. There are multiple institutional accreditation reviews and an NPS command inspection by the Navy Inspector General scheduled for 2020. Considering these high visibility events, the fact that there are multiple touchpoints in the NPS Strategic Plan 2018-2023, and there is meaningful feedback from faculty and student surveys and interviews, **the TLC identified distance learning (DL) quality as an initiative with potential high payoff.**

DL-Quality Course/Program Development Journey Map

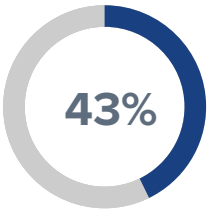
DL programs started taking root at NPS in the late 1990s – in part due to presidential executive orders and the intuition of the Department of the Defense Advanced Distributed Learning (ADL) program. In the early 2000s, 25 NPS faculty were chosen to complete a course in DL tools and techniques and the Office of Continuous Learning (OCL) stood up at the time. In 2008, OCL became the Center for Educational Design, Development and Distribution (CED3) providing instructional design, media development, programmatic communications, and DL program support to students. During the same year, a faculty development expert joined the NPS team to support what would eventually become the Office of Teaching and Learning (OTL). Through these years and continuing to date, Information Technology and Communication Systems (ITACS) and **the Graduate Writing Center (GWC) and Thesis Planning Office (TPO) have been providing valuable support to DL students and faculty.** *(See figures below).*

Given the significance of DL at NPS and the opportunities to enhance, showcase, and expand our programs, the time is right for TLC to support a DL quality initiative. For 2020, the effort would focus DL quality improvement at the course level. TLC and its partners will be at the disposal of faculty to provide face-to-face orientation on DL best practices and accreditation standards as well as assist in the development of new courses and revision of legacy courses. During 2020, the emphasis would shift to DL quality improvement at the program and certificate level. Recognizing the expansiveness of the DL program at NPS, the TLC strategy will be to work initially with a cohort of selected faculty and a cohort of academic associates to pilot the DL quality initiative and spread their skills among other faculty, departments, and programs.

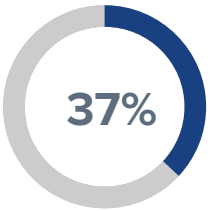
Distance Learning Fast Facts | Compared to NPS Totals



NPS Class Sections Are DL



NPS Students Take DL Course During Program



NPS Faculty Teach DL Course(s)

These numbers substantiate the significance and reach of the non-residential DL programs at NPS. They also imply that the DL class sizes tend to be larger than residence classes, which can pose challenges to faculty such as keeping students engaged, managing course content, and the like. Furthermore, teaching DL for the first time and keeping course content current, relevant, and readily accessible can be particularly daunting.

Empowering cross-organizational teams as a community of practice to enhance the quality of NPS education through collaborations that create and support innovative and distinctive learning experiences.

TLC

Teaching and Learning Commons at The Naval Postgraduate School

WWW.NPS.EDU/TLC