REFINING REMOTE

NORTHWESTERN ENGINEERING PROFESSORS FIND THEIR GROOVE CREATING NEW LEARNING TOOLS AND EMPHASIZING MENTORSHIP.

While the pandemic kept many academic communities apart this year, Northwestern Engineering thrived, finding new ways to educate students during an unprecedented situation.

After abruptly shifting away from in-person learning in March 2020, by Fall Quarter, professors got into their remote teaching rhythms. By Winter Quarter, they had further refined materials and lesson plans.

This shift meant transforming gaming from a pastime into a valuable learning tool, developing new gadgets to connect, tweaking in-person courses to fit the reality of remote, and doubling down on mentorship. Some new moves may find a permanent place in the McCormick School of Engineering's pedagogy once students return to the classrooms and labs.

BRIAN SANDALOW

💻 DEVICES FOR DISTANCE LEARNING

Michael Peshkin, professor of mechanical engineering and Breed Senior Professor of Design, built on his extensive experience creating devices for the classroom to develop aids that support remote learning.

In fall 2020, Peshkin developed a simple mirror hack that redirects a laptop webcam to become a document camera. All Northwestern students could request one be sent to them free. The hack allows students to show their written work to their professor or TA in real time, get feedback, and work on it together.

Peshkin's earlier inventions also found new life. Lightboard, which he developed in 2013, helps faculty produce "asynchronous" 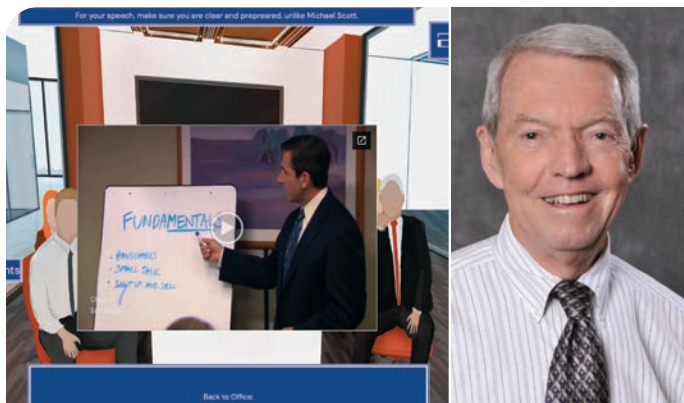or pre-recorded content easily. Using the glass chalkboard, teachers can face toward their viewers as they write and draw, with their marks glowing in front of them.

Then there's nScope, a portable electronics lab that fits in a backpack. The small, USB-powered device turns any laptop into an electronic workbench, allowing students to carry their lab equipment with them anywhere. nScope turned out to be pandemic-ready as a lab course.

Peshkin also hosted mini-webinars on how to get the most out of teaching virtually. "I wanted to teach our community the best practices," Peshkin says. "Here are the tools, here's why you might want to use them, and here's how to do Zoom in a secure way."

"HERE ARE THE TOOLS, HERE'S WHY YOU MIGHT WANT TO USE THEM, AND HERE'S HOW TO DO ZOOM IN A SECURE WAY."

Michael Peshkin Professor of Mechanical Engineering and Breed Senior Professor of Design

✔ WINNING THE GAME

William White, professor of industrial engineering and management sciences, developed four video game-like stories for his IEMS Organizational Behavior course.

"These new, interactive case studies give students an immersive opportunity to think about how they would behave if they were in charge," White says.

The web-based experiences, complete with dossiers, use sounds and visuals familiar to video gamers. One challenge places the players at the head of a company. A good decision adds points to their score; a bad one knocks them back—and is announced by a clip of Michael Scott from *The Office*, whose management skills aren't exactly best practices.

Creating the experiences also opened up learning opportunities. Enlisting the help of IEMS student Ben Nelson Bentley ('21), White recruited four student developers who had lost internships because of the pandemic and paid them through grant funds.

"It can be difficult to stay focused on a laptop screen for hours on end during Zoom calls," Bentley says. "Using interactive elements to break up the lecture kept students engaged and helped to develop a better understanding of the cases on which they're based."

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Ben Nelson Bentley Senior, Industrial Engineering and Management Sciences

REINVENTING MENTORSHIP

During the pandemic, students have benefited from experiences outside the classroom as well as inside. Students took advantage of the biomedical engineering mentorship program last fall to help them to connect to alumni.

Suzanne Olds, undergraduate program chair and professor of instruction of biomedical engineering, worked with the department advisory board to launch a biomedical engineering four-year mentorship program. Though the program had been in development for more than a year, the launch during the pandemic could not have come at a more helpful time.

As of fall 2020, 166 BME undergraduates were paired with a unique alumni mentor whom they meet with each quarter. The students use those connections primarily to get career and internship advice during an unusual job search period.

"My mentor is an absolute perfect match," says BME student Izabela Stankiewicz ('21). "I have struggled figuring out post-grad life and am overjoyed that I finally have somebody to talk to who is working in a position I am extremely interested in and who also has a similar background to me."

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Izabela Stankiewicz Senior, Biomedical Engineering

IMPROVISING AT A DISTANCE

Improvisational performance is partner-based, supporting teammates' ideas and feeding off their energy.

Despite the challenge of going remote, adjunct lecturer Byron Stewart and Assistant Dean Joe Holtgreive said, "yes, and," by bringing Engineering Improv I (The Art of Allowing) and II (The Art of Inspiration, which became The Art of Application) to Zoom.

As always, these courses offered through the Office of Personal Development challenge students to tackle unexpected obstacles, building leadership and resilience skills that can be leveraged in both academic and non-academic contexts.

"Having to go remote required creativity in how we teach the mindset and practices of Engineering Improv I," Stewart says.

"And completely rethink the goals of Engineering Improv II," Holtgeive adds. "Zoom may not be the best platform for teaching improv, but it turns out improv is the best way to engage our students on Zoom."

The students reported feeling more confident and comfortable in their other remote classes when applying the lessons of Engineering Improv.

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