Penn State classrooms circa 1894 and 1957
Digital Innovation is Transformative

From smart phones to self-driving cars to online educational technology to sensors that translate brainwaves into action, technology is transforming our lives, as well as our classrooms.

*Will Penn State and its students lead or follow?*
Penn State’s Vision

“Penn State will prepare students for success in the digital age and use digitally optimized outreach to foster economic prosperity in communities across Pennsylvania and beyond.”

Driving Digital Innovation--Strategic Plan
Where Penn State is positioned today

Through World Campus and hybrid classrooms we have a head start on educational technology, but...

...we need to create the innovative learning environments that empower students outside the classroom and create lifelong learners who are resilient in an ever-changing job market.
How Penn State is transforming teaching and learning

• Flexible, adaptable spaces.
• Technology classrooms; online and blended learning options.
• Virtual and augmented reality.
• Accommodations for multiple learning styles.
• Support for faculty innovation.
Collaborative Classrooms

Classroom with overhead screens and several students collaborating on laptops.

Rogers Family Trading Room—Smeal College of Business
Design Experience Lab  Willard 109

- Design based on principles essential to collaborative learning and creative thinking.
- Faculty from IST, Engineering, Eng. Design, Telecommunications, Journalism, Biobehavioral Health and Entrepreneurship were involved in the room design.
- Used for classes in 8 colleges—Arts & Architecture to Liberal Arts to Science.
BlueBox Studio  Althouse 101

- Designed as an experimental classroom where teachers can test new methodologies and methods involving group and technology facilitated learning.

- Accommodates 44 students; has hosted 40 courses across 5 colleges over 4 semesters with 32 faculty.
New STEAM Suite

Penn State Fayette, The Eberly Campus

Engineering and arts suite with:

• 4 traditional classrooms,
• Arts classroom,
• Computer lab,
• 2 electrical engineering technology labs that simulate industrial environments,
• Lab with six 3-D printers.
How Penn State is transforming teaching and learning

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One Button Studio & Media Commons

- PSU developed software that allows for simplified video recording, and the creation of high-quality videos.
- Used by 15K+ students annually on all PSU campuses.
- Penn State technology has been adopted by 100+ universities worldwide including: Indiana, Iowa, Nebraska, Florida, and Notre Dame.
Blended Learning Transformation Program

BlendLT

Development • Design • Research

• Supports faculty who wish to redesign an existing residential course to an innovative blended (face-to-face and online) format.

• Started Fall ‘16; to date supported 23 faculty and 2,000 students.
How Penn State is transforming teaching and learning

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Immersive Experiences Lab (IMEX Lab)

\textit{Ag Sciences 109}

- Opened Fall 2017
- Technology to support consumption and creation of immersive media.
- Hosts courses from: Ag Sciences, Liberal Arts, Arts & Architecture, Engineering, IST, and EMS.
The Dreamery • Shields Building

• Co-learning space where students, faculty and staff can explore virtual reality and immersive technologies.

• Used as a model for a new Virtual Reality lab on Lehigh Valley campus.
How Penn State is transforming teaching and learning

- Flexible, adaptable spaces.
- Technology classrooms; online and blended learning options.
- Virtual and augmented reality.
- Accommodations for multiple learning styles.
- Support for faculty innovation.
• University-wide initiative to enrich teaching and learning through 3D printing, rapid prototyping, design thinking and direct support.

• Supports courses in 8 colleges with 24/7 online access.

• 36 Makerbot 3D Printers.

• Last year, nearly 1,600 students printed 6,742 projects.
Artificial Intelligence: Making Free Textbooks

- This human-assisted computer approach uses open source material to create textbooks and specialized materials.
- Relevant resources can be combined, remixed, and re-used to support specific learning goals.
World Campus 360-degree Videos

- For the first time, online students can use a VR headset to watch 360-degree immersive videos.
- The videos place students in a virtual classroom to learn how to respond to challenging behaviors.
- Helps students better understand the content and skills they are learning.
How Penn State is transforming teaching and learning

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Partnership with Adobe Creative Cloud
Designed to Foster Digital Fluency

- Since last fall, 24,000+ students, faculty and staff downloaded Creative Cloud for no cost (previously cost up to $250 per person/yr.)
- Provides access to 20 Adobe desktop and mobile applications for design, photography, video and web.
- PSU negotiated savings of $1M/yr. on this enterprise license, plus Adobe agreement resulted in a $5M software gift to campaign.
Faculty Fellows

• Yearlong program with 5 faculty.
• Team-based approach to innovation and research.
Symposium for Teaching and Learning with Technology

- **March 17, 2018 at The Penn Stater**
- Annual event bringing together people and ideas that transform education.
Annual Artificial Intelligence Competition

• Teams develop AI-based solutions to improve the PSU student experience.

• First round: Select projects receive $2,500 in seed money; second round awards an additional $5,000 to develop minimum viable projects; third round awards from remaining $50,000 pool.

• 2017 Challenge engaged: 6 campuses, 8 colleges, 30+ departments, 12 faculty, 24 staff, 72 students and 9 IBM mentors.

2017 Winner: TransferMatch Team
Annual Open Innovation Challenge

• High profile opportunity to present innovative ideas; audience votes on winning concept.
• 40+ entries annually; 6 finalists; 1 winner.
• Winner works with PSU Ed Tech team to explore/develop idea.
Welcome our Faculty Guests

• **Ann Clements**: associate professor and graduate program chair for music education; 2015 Open Innovation Challenge winner.

• **Scott McDonald**: associate professor of science education and Director of the Krause Innovation Studio; 2016 Open Innovation Challenge winner.

• **Scott Yabiku**: professor of sociology and demography; 2017 Open Innovation Challenge winner.

• **Ashu Kumar**: instructor, IST and program coordinator of the Entrepreneurship and Innovation minor, Penn State Beaver; finalist in 2017 Open Innovation Challenge.
Faculty presentations
Summary

Penn State is among the thought leaders in digital innovation, and is funding two Strategic Plan initiatives in Driving Digital Innovation.

Still, the major challenge is to scale up.

• Do we have the resources we need to advance innovation fast enough?
• What can we do to ensure that additional worthwhile activities are funded?
Discussion