University of
CINCINNATI | COLLEGE OF NURSING

Introduction

The iCoN Initiative is an ongoing partnership between University of Cincinnati (UC) College of Nursing faculty, staff, instructional designers and the information technology department to transform the delivery of nursing education in the classroom, simulation laboratory and clinical settings. This initiative facilitates an optimized learning experience by helping faculty to creatively leverage iPad as a vehicle to engage students in learning and to develop technologically sophisticated, future health care leaders who are critical thinkers. A secondary goal is to improve communication and collaboration among students, faculty and advisors.

HOW TO USE THIS BOOK

iCoN Initiative Timeline

2009

2010

2011

2013

2014

2015

2018

CHAPTER 2
Vision

Key Stakeholders: The dean, university president, assistant dean for technology, executive program director, program director and community are working together to ensure the success of the school's vision.

Goals and Sustainability Plans: The school's goals for learning with technology align to the vision. The school community has ensured the long-term sustainability of the school's vision and goals, including allocation of required financial and human resources.

Patient care—and health care—have become much more complex throughout the years, and nurses have risen to meet new demands by taking leading roles in the advancement of care, administration and in the numerous technology improvements that are rapidly affecting the way health care is delivered.

Guided by our vision, "Through creative leveraging of technology and inclusive excellence, UC College of Nursing will lead the transformation of health care in partnership informed by the people we serve," and supported by a group of faculty, staff, students, alumni and community partners who embrace a spirit of innovation, we prepare nurse leaders to provide the best care for all patients in this ever-changing reality.

Greer Glazer

**DEAN, UNIVERSITY OF CINCINNATI COLLEGE OF NURSING
ASSOCIATE VICE PRESIDENT FOR HEALTH AFFAIRS**

Our iCoN initiative is one of the innovations that has transformed the way we teach, the way students learn and the way we lead as a college. Since embarking on this effort, we've seen continuous evolution—at times seamless, at times bumpy. Regardless, we're strongly commitment to finding better ways to lead as nurses, educators, researchers, community partners and health care providers.

The initiative keeps expanding far beyond what we could have imagined when faculty members first explored the potential of incorporating iPad technology into the classroom. Students are now engaged in active learning strategies, using their devices to create capstone projects and receiving real-time feedback on assignments and tests. Faculty members continue to find innovative ways to flip the classroom and more fully engage students.

As support for the transformation grows and our model for sustainability improves, our end goal remains the same: to graduate nurse leaders who are critical thinkers, confident with technology, so they are able to seamlessly access the technology they need to provide effective care without losing sight of what is most important—the patient.

As the first college to offer a Bachelor of Science in Nursing over one hundred twenty five years ago, we remain on the forefront of nursing education, aware that innovation and leadership happen every day. We are continuously looking for partners to help us realize an even greater future that allows us to lead the transformation of health care.

Greer Glazer

UC Nurses. We See Leaders.

Greer Glazer, RN, CNP, PhD, FAAN
Schmidlapp Professor of Nursing

VISION
Through the creative leveraging of technology and inclusive excellence, University of Cincinnati College of Nursing will lead the transformation of health care in partnership informed by the people we serve.

MISSION
Develop nurse leaders who are empowered to generate, explore and apply nursing knowledge for evolving health care environments.

Neville Pinto
UC PRESIDENT

As our university heads into the celebration of our bicentennial, we are creating a campus mindset of boldly leaning into the future, creating new opportunities and solutions in the process. Our new strategic direction, "Next Lives Here," is founded on a vision of the University of Cincinnati leading urban public universities into a new era of innovation and impact.

Technology plays a huge part in our Next Lives Here innovation agenda and we're glad to see our College of Nursing taking the lead in using iPad and technology to transform the traditional classroom model. The next generation of nursing students will be well-served by this approach – since it will re-engineer how students learn, interact and collaborate.

As leaders of health care transformation, nurses need to be competent in the latest technologies to ensure the best and safest care possible. The College's motto is "UC Nurses. We See Leaders." Our university believes that being a nurse leader is being open to change and innovation. And I know the UC College of Nursing is preparing leaders that will join the workforce ready to make a difference and create what's next.

Watch President Pinto full message.

– Neville Pinto, PhD

Yvette Pryse

EXECUTIVE DIRECTOR, UNDERGRADUATE PROGRAM

As the Executive Director of the Undergraduate Program, I have been in a unique position to witness the technology evolution at the College of Nursing in the past five years. The use of iPad in the classroom to support innovative teaching strategies has evolved to developing technologically sophisticated future health care leaders. This view is evident when faculty encourage and support the use of mobile devices and various health care applications for learning and patient care alike. iPad introduces improved and innovative uses of technology into practice settings.

By integrating technology in the classroom and clinical settings, faculty are helping prepare students for the future of nursing. When recent graduates enter the nursing workforce with an appreciation for technology in health care, we are hoping it improves health care outcomes and patient safety, reduces medical errors and strengthens communication. Using technology and iPad, UC nurse leaders are conditioned to identify and act on quality improvement opportunities. iPad introduces improved and innovative uses of technology into practice settings. We ensure the infrastructure and support for innovation in the classroom and practice settings is future-oriented and robust. Technology is the future, and at the college, we are preparing future nurse leaders to lead important change initiatives around technology.

– *Yvette Pryse, PhD, RN*

The use of iPad as an instructional tool allows every faculty member to be an individual leader in utilizing innovative teaching strategies to increase student engagement in a deeper learning experience. As a result of the maturing faculty expertise in the use of iPad, technology has expanded to all classrooms. For example, our nurse practitioner programs utilize iPad video features and AirPlay to teach advanced nursing skills, such as suturing and intubation.

iPad also allows for more robust simulation activities for graduate nursing students and gives advanced-practice students an opportunity to practice diagnostic strategies to enhance their differential diagnosis skills. Leveraging iPad in our Doctor of Nursing Practice (DNP) programs has exposed students to a wide array of platforms, apps, tools and resources. This vista of experiences has made the program stronger and excited students about learning.

iPad can be used as a tool for research and for improving patient outcomes. For example, by creating an educational tool, a DNP student can teach patients about their new diagnoses and treatment plans.

As a result of widespread adoption of iPad, the movement to a more innovative approach to teaching with stronger emphasis on learner-focused teaching has occurred. Both faculty and students are learning new skills and finding new ways to improve patient outcomes. iPad initiative is the focus of active research as a Scholarship of Teaching & Learning (SoTL) project that continues to advance the science of nursing technology and education.

– *Christine Colella, DNP, CNP, CS, RN*

Christine Colella
EXECUTIVE DIRECTOR, GRADUATE PROGRAMS

As the Director of the Center for Professional Growth and Innovative Practice at UCMC, I have had the privilege of working with teams from UC College of Nursing and UC Health to enhance our use of educational and clinical technology across academic and clinical areas of health care. We are working toward a seamless transition from nursing students using resources in the classroom to then using those resources in the clinical realm. Our Health Resources and Services Administration-supported Nurse Education, Practice, Quality and Retention team, led by Associate Dean for Academic Affairs Denise Gormley, includes UC College of Nursing and UCMC nurses. This team implemented iPad devices in interprofessional rounds to access information pertinent to patient care. The college is an expert resource that we rely on for educational technology information. We value the relationship we have with UC, which serves as the expert we can partner with to improve the use of technology in patient care and education.

– Amy Costanzo, PhD, MSN, RN-BC

Amy Costanzo

DIRECTOR, CENTER FOR PROFESSIONAL GROWTH AND INNOVATIVE PRACTICE UNIVERSITY OF CINCINNATI MEDICAL CENTER (UCMC)

Kathy Wright

**PRINCIPAL,
HUGHES STEM HIGH SCHOOL**

These have been exciting times for our students at Hughes STEM High School. We are inspiring our students to expect more from themselves and their education—to dream bigger than they thought possible.

We do this by extensively integrating technology into the curriculum and emphasizing experiential learning through job shadowing, internships and summer opportunities that allow students to earn college credit and professional certifications. This kind of approach provides a seamless pathway into college and, eventually, a career.

Our partnership with the University of Cincinnati fits perfectly with this philosophy. Through the Pathways for Emerging Health Care Leaders program, led by Dean Greer Glazer, students are introduced to the colleges of medicine, nursing, pharmacy and allied health sciences through interactive, technology-based programming. This gives them a real-world look at health professions majors and the kinds of jobs available to them in these fields after they graduate.

It is wonderful to watch our students' progress. At the regional Young Scholar's Day Conference in April 2018, our Health Professions Affinity Community (HPAC) was awarded Outstanding Performance in the "HPAC Growth" category, and one of our research posters received the HPAC AmeriCorps Choice Award.

As Principal of Hughes STEM High School, I'm fortunate to have a front-row seat to the kinds of authentic experiences that are afforded our students through the partnership and the innate ability of program coordinators to build meaningful interactions that not only support, but, in some cases, shape and stretch the understandings our students have about the world in which they live.

It's truly empowering and life-changing for many of our students, and I look forward to continuing and expanding this partnership within the coming years.

– *Kathy Wright, M.Ed.*

Hughes STEM High School Summer Camp

Karen Bankston, PhD, MSN, FACHE, Clinical Professor, challenges Hughes STEM Health Academy students to aspire to academic excellence as they enter the 10th grade.

Matt Rota

ASSISTANT DEAN OF TECHNOLOGY

The Theory Behind the Leadership

Within the past 20 years, technologies have greatly impacted education. Instructors have witnessed widespread classroom adoption of computers, the Internet and wireless and mobile technology. Now, iPad and complementary apps and platforms, such as AppleTV, iTunes, multi-touch books and iTunes U, have provided an opportunity to go beyond impacting education and transform the way we learn, interact and collaborate. For the college, this transformation has not occurred in a vacuum. It has been fostered by an organizational culture that embraces technology in the classroom, along with committed leadership and a partnership between information technology (IT), instructional design and subject-matter experts. To drive a culture change, the college initially implemented a technology-driven strategic plan and, with that as a foundation, we have:

- Developed a customer-oriented support philosophy;
- Created a robust training program for faculty, staff and students;
- Created innovative learning spaces; and
- Improved student and faculty access through the use of technology.

The degree to which faculty and students adopt, integrate and leverage technology is closely linked to the quality of support, development and design services readily available to them. The support infrastructure must be consistently customer-focused, high energy, rapid-responding and forward-thinking so that faculty and students are willing to try new technologies. At the college, the TPACK Model, the Whole Product Model and the Technology Adoption Life Cycle, coupled with an organizational vision to creatively leverage technology, created the comprehensive framework to advance the pioneering of iPad in the classroom, lab and clinical settings. The TPACK Model describes the positive interactions that flow from a synergistic partnership between faculty, instructional design professionals and information technology professionals. The Whole Product Model defines a comprehensive list of services (support, development, training, communication, marketing, etc.) needed to make a technology initiative successful. This framework allowed the college to transcend adoption and redefine pedagogical strategies, as described in the SAMR Model.

– *Matt Rota, PhD*

TPACK Model

SAMR Model

CATER and IDC work with students, faculty and staff, along with UC's central IT group – UCIT – to give the College of Nursing optimal access to technology services. Meet our team:

Greer Glazer, PhD, and Matt Rota, PhD

Presenting at Apple Higher Education Forum

Dean Greer Glazer, PhD, and Assistant Dean of Technology Matt Rota, PhD, were invited to present the college's work with iPad technology in nursing education at the February 2018 Apple Higher Education Leadership Forum in Redwood City, California.

Drs. Glazer and Rota presented "iPad in Nursing Education" at a roundtable session and shared their experience with implementation, timelines, approach to faculty support and strategies for integrating tools and applications to transform the traditional classroom model to meet the educational needs of the next generation of nursing students.

The forum, attended by approximately 130 people from across the United States, also covered topics such as "Empowering Students with Mobile Technology," "Leading With Mobility in Mind" and "Preparing Students for Today's Mobile Workforce."

The college has twice been designated an Apple Distinguished Program and aims to transform nursing education through the creative leveraging of technology by building on our successes and continuing to push boundaries.

Goals and Sustainability Plans

Innovating into the Future

The University of Cincinnati recently unveiled its latest strategic direction, Next Lives Here, with an emphasis on innovation. To this end, UC established the 1819 Innovation Hub, meant to offer a dedicated environment for thinking, making, doing, discovery and delivery.

The 1819 Innovation Hub occupies a structure built in 1929 that once housed a Sears, Roebeck & Co. department store and later the university's Campus Services. A $38 million investment has transformed the 133,000-square-foot building into a contemporary setting where students, faculty, staff and regional business leaders can collide and develop creative solutions to problems.

The first floor houses a 12,000-square-foot makerspace where tools for creators of all skill levels—including hand tools, 3-D printers, laser cutters and other equipment—are available.

This will provide nursing students and faculty, who already use iPad in classroom and clinical environments, the opportunity to use design applications to sketch concepts and share ideas for solutions to modern health care problems.

In August, the college hosted approximately 110 faculty and staff for its annual retreat at the UC 1819 Innovation Hub. The event helped lay the groundwork for the college's upcoming academic year, where innovation will be front and center.

The retreat included sessions on Innovative Thinking and Strategy with Drew Boyd and Design Thinking with Start Something Bold. It also exposed attendees to the various features of the space, including 3D printers, laser cutters, app development and 3D modeling.

Nursing is the first UC college to integrate the Innovation Hub as part of an innovative curriculum. A total of 30 faculty will embed makerspace resources into their courses, impacting over 500 students in the first year.

UC Nursing faculty and staff met for an innovation-focused retreat at the UC 1819 Innovation Hub. Attendees got to explore the various features of the space, including 3D printers, laser cutters, app development and 3D modeling.

"Creativity is the collision of two unrelated things."

-Drew Boyd
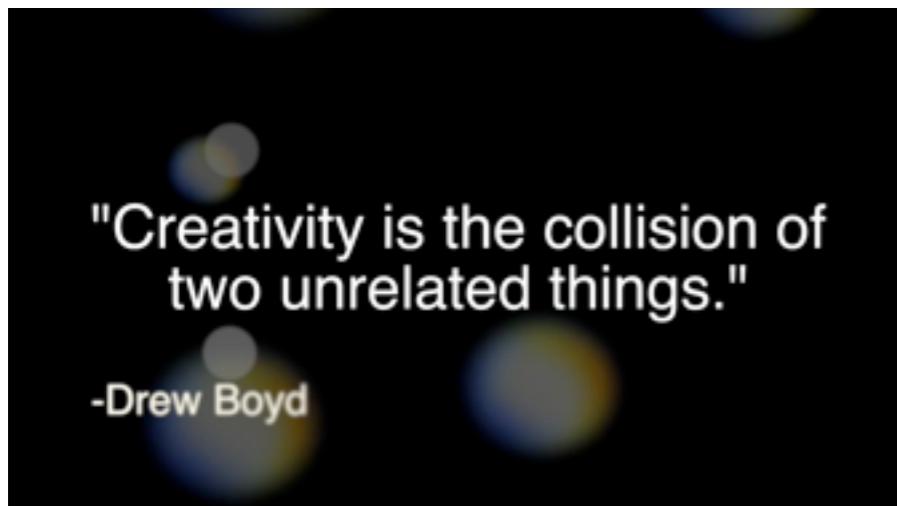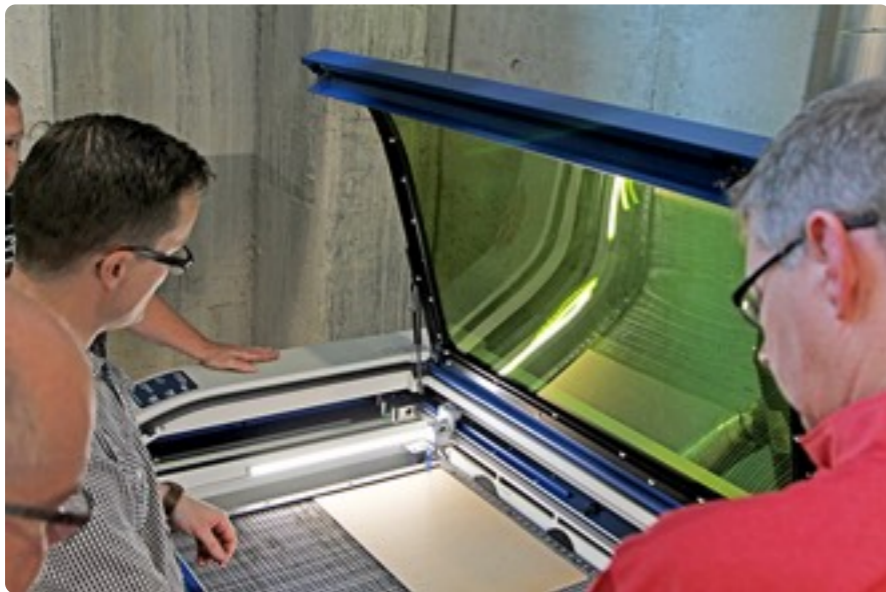
Faculty and staff retreat highlights

What's Next

The College of Nursing is working to utilize emerging technology, especially virtual and augmented reality and app development. With a $100,000 Provost Technology Innovation Award, the college is implementing a virtual clinical patient interprofessional education (IPE) experience. As the principal investigator for the grant, Matt Rota, PhD, Assistant Dean of Technology, collaborated with faculty from the colleges of nursing, pharmacy, medicine and allied health to develop the first case.

In addition, the college's simulation laboratory is implementing Google Glass smart glasses to provide the instructor with perspective into the students' cognitive reasoning in the lab.

A virtual patient hospital room built in Unity Software for the VR/AR IPE experience

Apple Distinguished Educators

The college has had one administrator, one staff member and one faculty member selected as Apple Distinguished Educators (ADEs): **Kathleen Ballman** and **Matthew Rota**, Class of 2017, and **Melanie Comer**, Class of 2015. In addition to their innovative contributions to the college, outlined on the following pages, all three ADEs were invited to present at and lead the 2018 Digital Innovation Bootcamp: From Concept to Action, a collaboration between the American Associations of Colleges of Nursing (AACN) and Apple.

Kathleen Ballman

Kathleen Ballman

Kathleen Ballman, DNP, APRN, ACNP-BC, CEN, is an Associate Professor of Clinical Nursing, the Coordinator of the Adult-Gerontology Acute Care Nurse Practitioner Programs and has served as a faculty member in the specialty courses for more than 10 years. She received her nurse practitioner training and her doctor of nursing practice degrees from UC, and has a practice background of more than 30 years in the emergency department and 12 years in cardiology. Currently, she practices as a cardiology nurse practitioner in the Cardiovascular Institute at the University of the University of Cincinnati Medical Center (UCMC).

As the program coordinator of the adult-gerontology acute care nurse practitioner programs, Dr. Ballman is consistently engaged in using technology to enhance teaching and learning in both the classroom and laboratory settings. She has demonstrated significant innovations in teaching and learning in the courses she teaches and has served as a role model to other faculty in developing and incorporating innovative and interactive learning strategies. She has presented at the local, regional, national and international levels on the work she has done at the college, most notably at the National Telehealth Conference, the iCoN Symposium, the American College of Cardiology, the International Meeting on Simulation in Healthcare, the Annual Lilly Conference, the EDU-SIM Annual Meeting and the National Conference for Nurse Practitioners in Acute Care.

Dr. Ballman is an international leader in the adoption of iPad technology in the onsite learning environment. An example of this innovative leadership occurs in her suturing lab course: historically, students watched her demonstrate suture placement on a large monitor mounted to a single wall. Today, Dr. Ballman mounts an iPhone or iPad to a stand and zooms the device's video camera on the suture demonstration. The demonstration is then live-streamed to the student workstations via an iPad. As her cohorts of 30 students attempt return demonstrations of a suture placement, they can ask questions and request a repeat demonstration. Dr. Ballman then re-demonstrates the suture live and all students get a close-up of the procedure, allowing the learning experience to have the feeling of 1:1 instruction. The demonstrations are recorded for later viewing by the students using their iPad or other iOS devices.

Her efforts with iPad adoption, touching over 150 students to date, culminated with her recognition in 2017 as an Apple Distinguished Educator—making Dr. Ballman one of only four registered nurses among this global and prestigious group of educators.

Matt Rota

Matt Rota

Matt Rota, PhD, is the Assistant Dean for Technology for the college, responsible for the instructional design and IT department, known as the Center for Academic Technology and Educational Resources (CATER). In this role, he provides leadership oversight to ensure the department aligns with part of the college's vision that states, "Through the creative leveraging of technology ... we will transform health care ..."

Since being named an Apple Distinguished Educator in 2017, Dr. Rota has actively engaged with faculty, staff and students to continue to transform how they use technology. Dr. Rota was invited to a plenary presentation on "Course Instructional Design: What Nurse Faculty Should Consider First" at the American Association of Colleges of Nursing (AACN) Baccalaureate Education Conference, Nov. 14, 2018, in New Orleans. Over 500 faculty from baccalaureate nursing education programs are expected to attend the conference.

At a local level, Dr. Rota has been working with his team to continue to focus on the next phases of the iCoN initiative. For example, he and his team moved to wireless printing from iPad for all student printing, resulting in several hundred thousand dollars in cost savings. Additionally, based on the enthusiastic response of faculty and students, the team continues to roll out new apps for faculty and students.

Finally, Dr. Rota is in the process of working with his team and faculty to incorporate virtual reality into the curriculum. In the fall of 2018, the college will implement a small pilot around a custom-designed, interprofessional virtual patient for students. Virtual reality and augmented reality will continue to evolve at the college.

Melanie Comer

Melanie Comer

As a Senior Instructional Designer at the college, Melanie Comer, M.Ed., M.S., partners with faculty to design and develop courses in the master's and post-graduate certificate online and hybrid programs.

As part of the college's iPad initiative, she also collaborates with Bachelor of Science in Nursing faculty to redesign course content for delivery via iTunes U and multi-touch books developed with iBooks Author, as well as to plan app-based learning activities and assignments. In addition, she works closely with the Center for Academic Technologies and Educational Resources (CATER) to provide faculty professional development on leveraging technology to integrate active learning in the classroom.

Comer holds a Master of Education in curriculum and instruction with a focus on instructional design and technology. In 2015, Comer was selected as an Apple Distinguished Educator and a UC eLearning Champion. She was also invited to return as an alum to the 2017 ADE academy.

Apple App Developer Certification
Juan Lopez Rosado
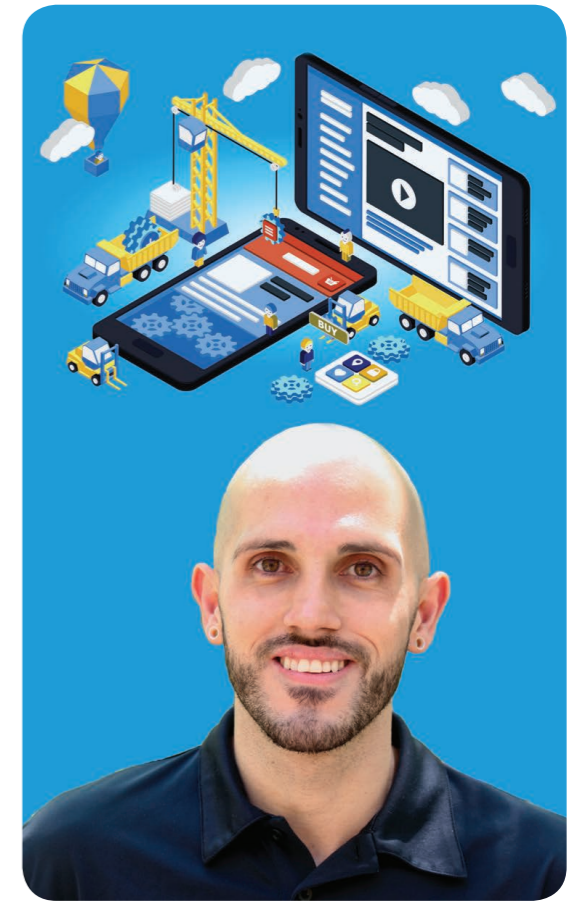
What is Apple Teacher?

Apple Teacher is a free professional learning program designed to support and celebrate educators using Apple products for teaching and learning. Educators can build skills on iPad and Mac that directly apply to activities for students, earn recognition for the new things they learn, and be rewarded for great work. As part of our sustainability plans, we encourage faculty and staff to complete Apple certifications.

72%

67%

Denise Gormley
SENIOR ASSOCIATE DEAN FOR ACADEMIC AFFAIRS

As Senior Associate Dean for Academic Affairs at the college, I have responsibility for coaching, mentoring and developing faculty in their role as educator. Because part of our vision at the college is to leverage technology to transform health care, I use the annual review process with faculty to discuss with them how they are using active learning strategies and technology in their classes to enrich their teaching. For these annual reviews, I use a rubric developed with some of the Quality Matters™ criteria to assess what faculty are doing in their courses related to technology and active learning. I have been so pleased to see that faculty have embraced the use of technology, are using it routinely in their courses to engage students for active learning, and are innovative in the variety of technology applications they use. Faculty are then sharing what they are doing to help more novice faculty learn how to use innovative, active learning strategies in the classroom through faculty-development opportunities, presentations and our iCoN Summer Institute.

Our faculty have become icons for others in nursing education! Our students are benefiting from our faculty's use of innovation in the classroom and will be better prepared to lead in the ever-changing health care environment that is becoming more and more technology-based than ever before.

– *Denise K. Gormley, PhD, RN*

Name: **Course:**

Technology & iPad Teaching Rubric

Criterion (Score 0 if element is absent)	Below Expectations (1)	Meets Expectations (2)	Exceeds Expectations (3)	Score
Demonstrates the use of the active learning strategies in your course (iPad/Blackboard)	Little to no elements of active learning strategies in the course either with iPads or Blackboard.	Some elements of active learning strategies in the course either with iPads or Blackboard.	Strong use of active learning active learning strategies in the course either with iPads or Blackboard.	
Demonstrates teaching with use of Apps and/or other technologies in their course	Application(s) are used as a direct substitute with no functional change. Serves just as a substitution of technology in the SAMR model.	Application(s) acts as a direct tool substitute with cognitive opportunities and functional improvement. Serves as Augmentation of technology in the SAMR model/	Application allows students to examine and break information into the cognitive process and ties into evidence-based research . Serves as Analyze in the SAMR model. Application allows students to present and defend learning processes. Serves as Evaluate in the SAMR process.	
Illustrates the use of iBooks and/or eTextbooks in their course	iBooks isn't professional and requires more originality - widgets need to be more appropriate to the topic -product lacks a professional appearance and does not contain sources for images / movies etc.	iBooks is professional, educational and shows originality and inventiveness. - widgets are appropriate to the topic -product is professional in appearance and contains sources for images / movies etc.	iBooks is very professional, educational and shows considerable originality and inventiveness. - widgets are very appropriate to the topic -product is very professional in appearance and contains sources for images / movies etc.	
Utilizes best practices when designing courses i.e. use of discussions boards, video use, presence in course *Based on Chico Rubric for Online Instruction	A. Course offers limited opportunity for interaction and communication student to student, student to instructor and student to content. B. Course goals are not clearly defined and do not align to learning objectives. C. Learning objectives are vague or incomplete and learning activities are absent or unclear. D. Course provides limited visual, textual, kinesthetic and/or auditory activities to enhance student learning and accessibility. E. Course provides limited activities to help students develop critical thinking and/or problem-solving skills.	A. Course offers adequate opportunities for interaction and communication student to student, student to instructor and student to content. B. Course goals are adequately defined but may not align to learning objectives. C. Learning objectives are identified and learning activities are implied. D. Course provides adequate visual, textual, kinesthetic and/or auditory activities to enhance student learning and accessibility. E. Course provides adequate activities to help students develop critical thinking and/or problem-solving skills.	A. Course offers ample opportunities for interaction and communication student to student, student to instructor and student to content. B. Course goals are clearly defined and aligned to learning objectives. C. Learning objectives are identified and learning activities are clearly integrated. D. Course provides multiple visual, textual, kinesthetic and/or auditory activities to enhance student learning and accessibility. E. Course provides multiple activities that help students develop critical thinking and problem-solving skills.	
			TOTAL	

Notes:

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iPad, Technology and Innovation in Teaching rubric based on the Chico Rubric for Online Instruction. Data will be used to evaluate faculty use of technology, innovative active learning strategies and iPad to inform faculty development workshops in the future.

Building on Success

Technology plays an integral part in the world around us, and the health care industry is no exception. From electronic health records to intravenous pumps that can be managed from a smart device in another room, technology has substantially changed the way health professionals communicate and care for patients.

With this in mind, starting in fall 2018, the college's Direct-Entry MSN program will join our BSN and DNP programs in iPad initiative. The rationale for the movement is simple: the health care environment is complex and ever changing. When faculty use iPad as a key teaching and learning tool in the classroom, clinical settings and laboratories, they introduce students to complexity and structure while allowing them to choose their own pace, place and mode of learning.

In the classroom, iPad allows students to engage with content and discussions with real-time examples, such as videos, TED talks and information from industry leaders. Course content is available via iTunesU and supporting textbooks are digital, increasing the portability of the information in this very mobile time. This also reduces the load of textbooks students must carry, helping to reduce back injuries, which are a major cause of disability in nurses.

In the laboratory, students are using iPad to create videos of themselves performing skills. In the past, students had to choose which skill was performed in person under the watchful eye of faculty. With the use of iPad, students perform and record multiple skills. This strategy allows students to create, critique and re-record the skills as many times as needed to meet the requirements of a checklist, building in the important aspect of muscle memory. Additionally, the students are able to view and critique their work in detail. This type of review process provides students with a different perspective, one that is not reliant on the perception of what they have done. Students can see their interaction with the patient (mannequin) and reflect on the interaction, which assists in student development of a therapeutic relationship.

CHAPTER 3
Learning

Teamwork: In pairs or teams, students share responsibility and make decisions together to complete projects.

Communication and Creation: Students choose to create products that show what they know or think and share them with others.

Personalization of Learning: Student learning supports their interests and provides equitable access to learning materials.

Critical Thinking: Students engage in critical thinking through independent learning and discovery, including problem-solving, interpretation, and analysis.

Real-World Engagement: Students learn from realistic examples, immersive experiences, and activities that make an impact on their community.

Forming Family Ties

In August 2017, the University of Cincinnati College of Nursing debuted iLead, its own peer-mentoring program for undergraduate students. The program centers on five core values: inspiration, leadership, engagement, achievement and discovery. The program's building blocks revolve around creating a "family" of four or five students in varying stages of their college careers, and iPad. The program, mandatory for freshmen and sophomores, is optional for juniors and seniors and yields a successful 60 percent participation rate.

iLead has expanded student use of iPad beyond academia, into the real world. As an example, each family utilized the WordPress app to create a blog highlighting their adventures together. Our original expectations were far exceeded by the wide reach of organizations and activities in which our families were involved, including community service and events in downtown Cincinnati.

With iPad available, families were able to take photos and add them to their blog in real time, sharing instantly with their peers, faculty and the world what the college is doing within their community. Participating in these immersive experiences not only reinforces our college's core values, but also introduces our students to the greater community and varying walks of life within Cincinnati.

iLEAD Family Meeting

Blood donation 3/29

leadcomoxdery
April 30, 2018

Kayla and Alex stopped by the blood drive to meet and talk about how the year was going.

I have been attempting to survive sophomore year (mostly to get through pharmacology). I just got a job at Christ Hospital as a PCA on an oncology floor and am extremely excited to start that!! –Alex

I'm enjoying my mental health clinical at children's college hill and how much and how my appreciation for psych nurses has grown because as much as I love my clinical, dealing with psych patients, especially kids, can be a lot more mentally and emotionally tolling than I anticipated. – Kayla

iLead Blog Entries

Communication and Creation

Reimagining Assignments

This comic—created using ComicLife on iPad—shows an assignment completed by a student in the DNP Leadership Seminar course.

For this assignment, students are expected to read an assigned book and design a book report that represents what they learned. The assignment can be created in any form, except on paper; acceptable forms include iMovie, Keynote, iThought chart and ComicLife strip. Students also must meet the requirements of the rubric (below).

Component	Points Possible
Completes assigned reading on time	/10
Assignments includes: • Leadership lessons from the book • Take home message • An idea of who the book would be helpful for	/65
Assignment is creative and interesting and utilized iPad technology	/15
Assignment Aesthetics • On time • Submitted to Box COURSE notebook	/10
TOTAL POINTS	/100
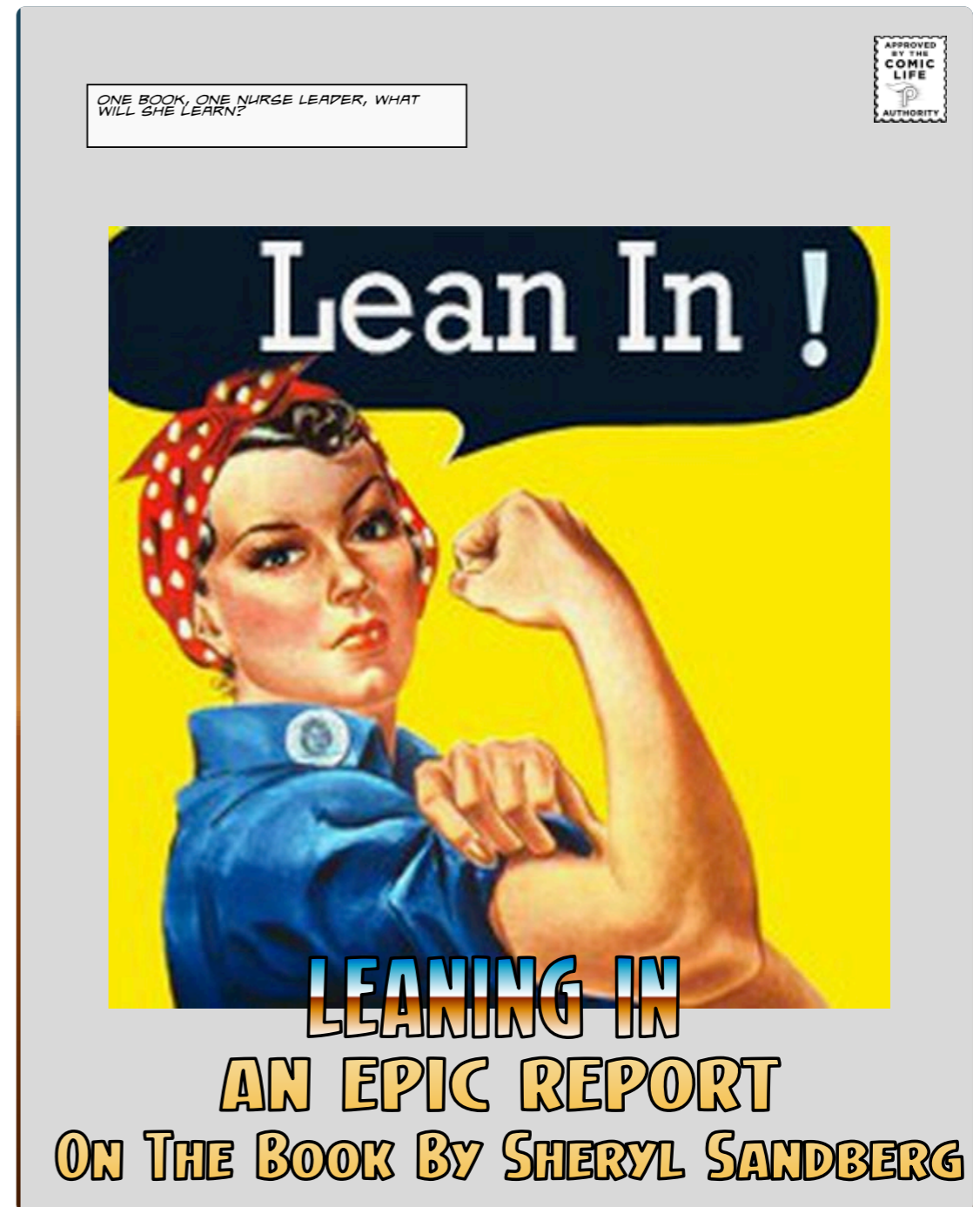
ComicLife Student Project

Developing Foundational Skills

Students in the Direct-Entry MSN program are required to submit two videos based on the material covered in the classroom and practiced in the lab setting. They are presented with content, procedural steps, a checklist, rubric and discussion about five focus areas: asepsis, general well-being, safety, communication and documentation.

The first video is the insertion of an indwelling urinary catheter. The procedure requires the application of sterile technique as well as compassion for the patient due to the nature of the skill.

The second video is the insertion of a nasogastric tube (NG), either a salem sump pump or a feeding tube. Insertion of an NG is not a sterile procedure, but requires educating the patient and a number of steps.

When students believe they are ready, they enlist the assistance of a classmate who uses iPad to record the video and becomes the videographer, coach and evaluator. We found that the repetitive piece of the assignment helped develop muscle memory for future reference when in clinical settings.


NG Tube Insertion

Foley Insertion

Presenting Research

The DNP project is the culminating assignment for the program. It demonstrates the attainment of all DNP essentials, while providing students an opportunity to deliver their learnings to faculty, committee and other attendees. Students work on the project throughout the three practicum courses, and use iPad applications such as Keynote to deliver a 30-minute presentation prepared to accompany the discussion of their projects.
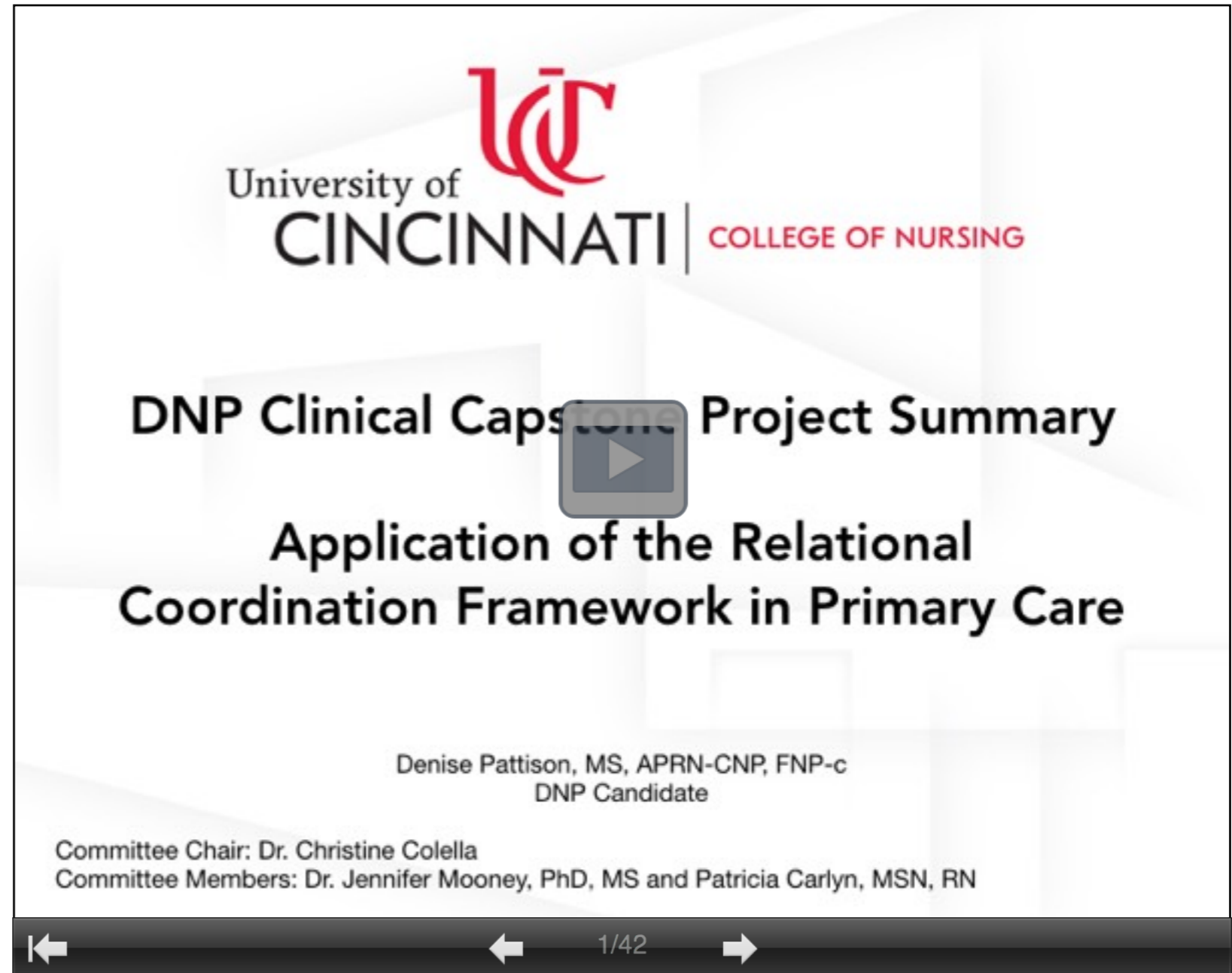
Sample DNP Capstone Project Summary

28

Critical Thinking

Contributing to a Culture of Excellence

For the final assignment in the Quality Improvement and Patient Safety course, students are required to make a video with iPad. Course instructor Carla Henderson, DNP, MSN, RN, CNE, sees this as an opportunity for students to reflect on and think critically about the concepts they have learned. Students answer the following questions:

How can you, as a nurse leader, contribute to the culture of excellence in patient care? In addition, provide one or two examples of change that you will implement based on information obtained in this course.

The video is 2-5 minutes in length and submitted using Box. **Click on the pop-up image for a detailed look at the grading rubric.**

Student Video Created on iPad

Student Video Created on iPad

Collaborating with Community Partners

Continuous technological developments in health care will support patient-centered care, teamwork and collaboration, evidence-based practice and quality improvement and support a safer and more effective patient-care experience. Technology has the potential not only to change experiences for patients and their families, but also to have a far-reaching impact on health care processes and the practices of health care professionals. It is recognized that the introduction of technology at the bedside is a daunting challenge for many large health care organizations. The college is active in our pursuit to lead this important and inevitable change by ensuring that our students and future nurses have the knowledge, skills and attitudes to support the future of technology in health care.

We encourage the students' use of information and technology to communicate, manage knowledge, mitigate error and support decision making. As one component of this mission, the college is collaborating with our major practice partner, the University of Cincinnati Medical Center, to remove barriers to the use of hand-held devices in the practice setting. This partnership has created a new policy and educational program that will permit the piloting of student use of iPad in the clinical setting for the upcoming 2018-2019 academic year. Initially, students will use the device as a resource tool and a mechanism to support evidence-based conversations and activities. This is viewed by the college as only the first step!
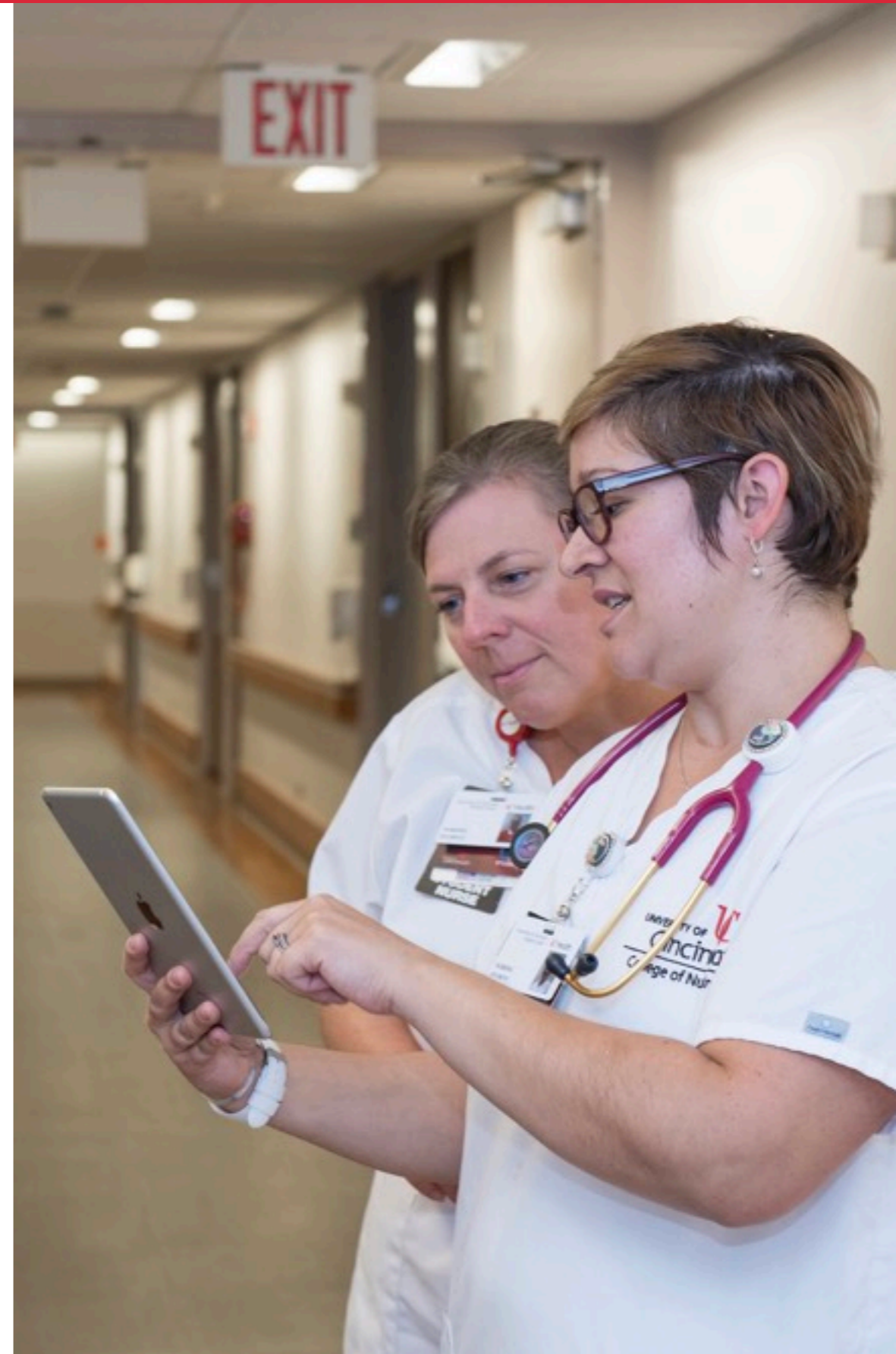
Improving Patient Outcomes

For her capstone project, Kelsey Carter, a student in the Nursing Administration DNP program and an emergency department RN at Mercy Health in Cincinnati, evaluated the nurse handoff process between the emergency department and intensive care unit (ICU) to determine whether it could be made more efficient. It was identified that the original nurse handoff process brought inefficiency to the patient admission process.

Ultimately, a nurse committee was created that developed a new evidence-based, standardized nurse handoff process to be performed between emergency and ICU nurses during ICU patient admissions. Multiple efficiency outcomes were evaluated, including average handoff time and average admission time. With implementation of the standardized, evidence-based handoff process, average handoff time improved by 22% and average admission time improved by 19%. Improved efficiency in the nurse handoff and admission process leads to improved patient care.

The Project Planning Pro application on iPad was used to develop a plan for project implementation and evaluation. This application was also used to create a budget for the project. Below are screenshots of the Gantt chart generated from the app, used to plan project implementation and evaluation.

Kelsey also used the iThoughts application to diagram the original handoff process (to identify areas of waste) and to diagram the new handoff process. These process flow maps were used in the education of staff in the implementation of the new handoff process.

Gantt Chart Created in Project Planning Pro on iPad.

CHAPTER 4

Teaching

Instructional Design: Teachers create and use content that offers inclusive design and a variety of formats.

Professional Learning: Teachers learn ways to foster learning opportunities for their students and themselves.

Going Paperless

The implementation of electronic medical records, digital imaging and online appointment scheduling permanently changed the health care work environment. Despite this, nursing education often provides little exposure to similar technology in the skills laboratory. Printed handouts, mock charts and worksheets remain standard in skills labs, though most students will not use paper documentation in the workplace.

To date the cost savings for lab and clinical paper-to-digital conversion has been an estimated $80,0000 for printing alone.

The BSN program in 2013 started using iPad in the classroom, and a couple years later, the University of Cincinnati College of Nursing became an iPad-testing platform, increasing use of iPad-based applications, such as MindMeister and iAnnotate.

In fall 2017, educators incorporated this technology into the skills lab—requiring students to document patient data, retrieve information and upload assignments on their iPad — in an effort to better simulate real-world environments and decrease printing costs for students.

Faculty moved away from paper worksheets in favor of electronic versions, requiring both students and faculty to embrace the use of mobile technology. The following semester, educators continued to encourage a paperless model with sophomore students in the clinical setting.

The implementation process required identifying mobile applications for use, orienting faculty and staff on how to use those applications, and ensuring adequate support for all. Instructional designers worked with faculty to identify key iPad applications to achieve course objectives. Those applications included MindMeister, iAnnotate, Box and Pages.

Lab faculty, many of whom are adjunct instructors, received an orientation session on the applications, as well as on the university's online education platform, Blackboard. Instructional designers provided support on an ongoing basis throughout the semester.

The electronic format provided many benefits to faculty and students: as students received timely feedback on lab assignments, they were given the opportunity to improve the quality of subsequent assignment submissions; the electronic format provided faculty with continuous access to all aspects of student work and grades; increased access to student submissions provided an opportunity to review student work periodically, identifying issues as they arose, rather than at the end of the course.

Additionally, faculty who were not providing timely feedback to students were identified, and support and feedback were provided to lab adjuncts when grading issues arose.

Simulating Patient Care

Simulation has a long history in health care education and is internationally accepted as a standard in nursing education. This is supported by the 2014 NCSBN landmark study findings that up to 50 percent of traditional clinical experiences of nursing students could be successfully replaced by well-developed, immersive simulation experiences without altering the educational outcomes. Simulation-based educational strategies are purposeful in their design and, as such, require a great deal of planning to achieve desired outcomes of the student experience. **Click on the icons to learn more about some of the ways the college is using technology in the skills and simulation labs.**
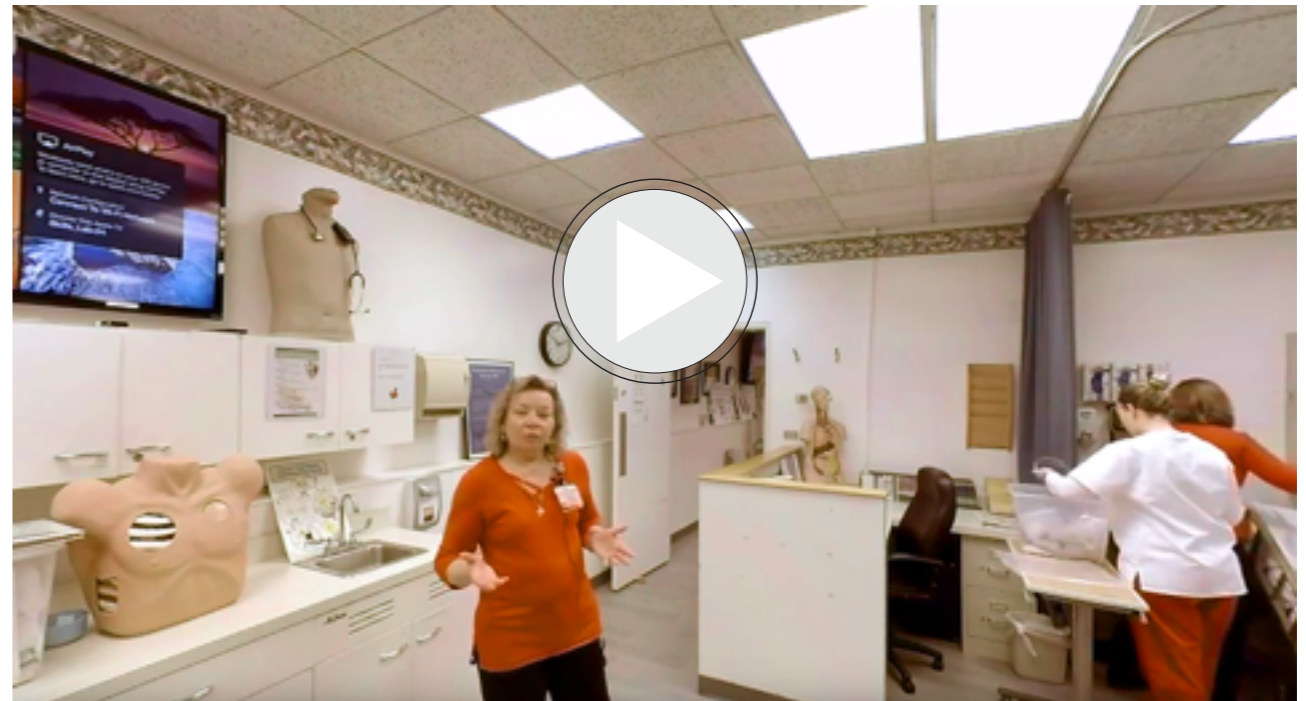
Skills and Simulation Lab 360-Degree Video Tour

Enhancing Student Assessments

The college faculty use ExamSoft, a cloud-based tool, to administer student exams on iPad. This platform streamlines assessment creation, management, delivery and reporting, and in turn, provides teaching and learning benefits.

With ExamSoft, faculty create an exam and send an encrypted exam file to students with an access code for test day. When the designated test time expires, the exam locks and uploads answers to a secure server for faculty review. At that point, faculty can grade the exams, analyze results and instantly share feedback with students.

This technology:

• Dramatically shortens exam grading time;

• Eases exam security and integrity concerns; and

• Quickly identifies at-risk students who could use additional help.

After a few semesters in which the college piloted the tool, faculty and students have adopted ExamSoft at a 100 percent rate within the BSN and Direct-Entry MSN didactic courses.

ExamSoft empowers faculty to share feedback quickly and gives students time to adjust their study plans to improve their performance within the course. On iPad, students with additional learning needs can take advantage of accessibility features to maximize their test-taking ability.
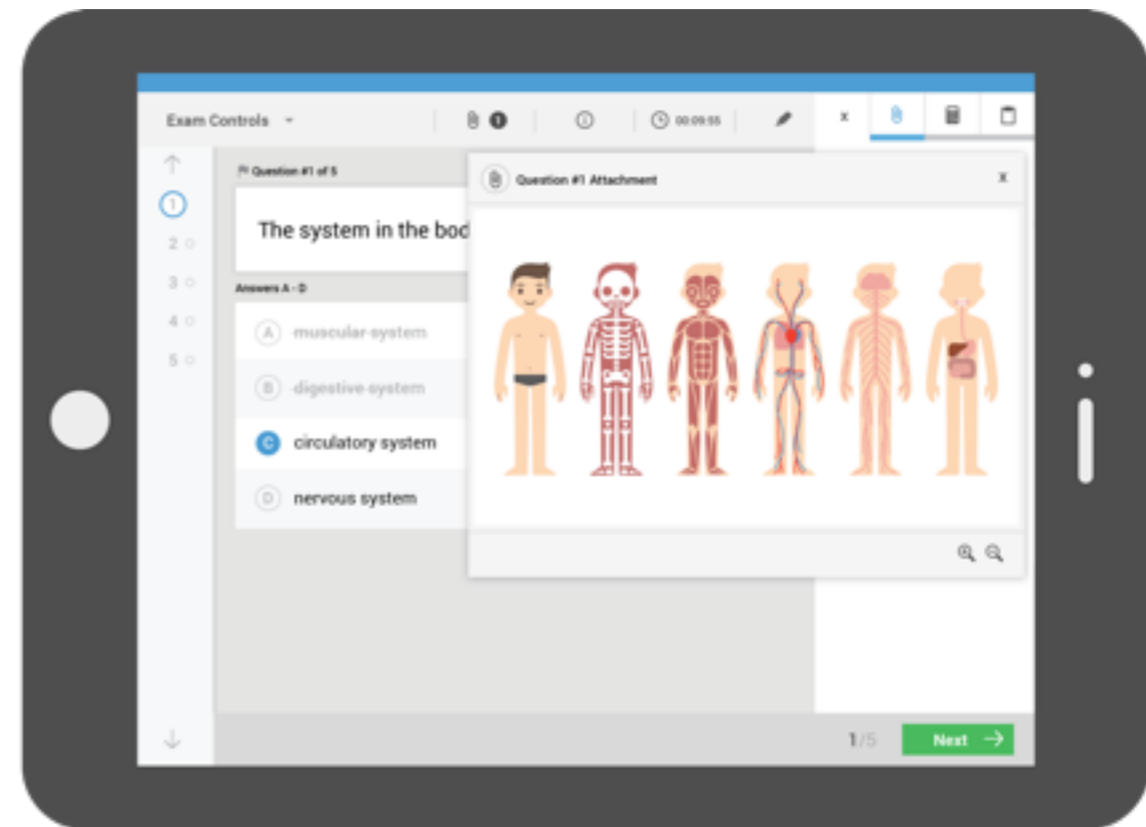
ExamSoft

Professional Learning

Building Momentum

The iCoN Summer Institute began six years ago as professional development for college faculty, staff and students. Faculty using iPad partnered with instructional designers and CATER staff to lead didactic active-learning strategy sessions to enhance the learning experience in the classroom with iPad. Session leaders provided training on topics such as pedagogy, creativity and productivity applications, among others.

Soon, external professionals expressed interest in the iCoN Summer Institute, so in 2015, the college extended invitations to local health care partners, and in 2016, opened the event fully to educators, health care providers, technology professionals and others across the country.

Since the first national conference, the event has annually attracted nearly 100 attendees from institutions and organizations across the United States, such as Rush University, University of Virginia, University of Rochester, University of Arkansas, Texas A&M University-Corpus Christi, Stony Brook University, Cincinnati Children's Medical Center and American Association of Critical Care Nurses.

These events also attracted sponsors, such as Skyscape, ExamSoft, Unbound Medicine and Nursing Central.

Since its inception, the iCoN Summer Institute has built momentum year after year, expanding its reach and number of attendees.

2018 iCoN Summer Institute

Investing in Faculty, Staff and Students

Professional development has extended beyond the iCoN Summer Institute teaching faculty how to use apps, web-based platforms and software in the classroom. Professional development opportunities are created to continue to build momentum, community, sustainability and pedagogical context around iPad initiative—a critical part of its success. The college has invested heavily in professional development, which has included providing countless hours of on-the-spot assistance and tools to ensure student, faculty and staff success.

Due to the strong adoption of the TPACK model, faculty request professional development based on their needs and when introducing new technology and apps. For example, faculty members set meetings with instructional designers and IT to discuss substitutions and modifications of assignments to incorporate technology. Faculty also submit apps so instructional designers and IT can vet them.

Introducing Students to iPad

Each fall and spring, the Center for Academic Technology and Educational Resources (CATER) partners with the Office of Students Affairs and DNP program administrators to design an orientation for DNP students, which involves curating a list of apps and other needs for coursework and building a training plan for students.

Orientation provides students a robust review of iOS system preferences and accessibility features, covers basic functionality and introduces apps for learning and research. Training focuses on guiding students on an exploratory adventure and encouraging them to venture off into the apps in a low-stakes, safe environment. Even a few faculty enrolled in the DNP orientation program to experience the same fun as students!

In addition, DNP faculty have welcomed CATER to host trainings where faculty share lessons learned and challenges with technology use, and learn more about new technologies before classes begin, allowing them time to explore prior to introducing them to students.

Click on the icons of the apps most-commonly used by DNP students to learn more.
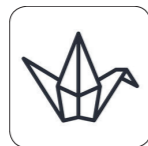
Environment

Learning Spaces: Teachers and students use a variety of classroom arrangements, spaces outside the classroom, and virtual environments to support instructional practices and learning goals.

Infrastructure Design: IT staff, administrators, and teachers design access to hardware, software, and services to provide new opportunities for learning and teaching.

Learning Spaces and Infrastructure Design

As we continue to expand the reach of the one-to-one iPad initiative, we strive to continuously improve the learning environment for our students, faculty and staff. In previous years, the University of Cincinnati College of Nursing overhauled the technology environment in classrooms, standardizing on a common suite of tools and interfaces to ensure each classroom operated in a similar manner as any other learning space. Through the past two years, we have continued this effort, expanding and enhancing our environments.

Procter Hall 103   41

Traditional Lecture Hall: Procter Hall 103

In our largest lecture hall, Procter Hall 103, several components were upgraded to make the space easier to operate for students and faculty. Large LCD displays now hang toward the back of the room, allowing those students sitting in the last rows of a packed classroom to better see the content presented. This also allows students to more easily view any content shared via the AppleTV.

For faculty teaching in 103, the most welcome improvement has been the installation of a large LCD confidence monitor to mirror what students see at the front of the lecture hall. Faculty no longer need to have their backs to students but, instead, can use this monitor to ensure they remain on track with their presentation.

Collaborative Learning: Procter Hall 274 & 288

Procter Hall 274 is our largest collaborative environment, with several wall-mounted LCD displays strategically hung next to individual works tables, allowing for small group collaboration within the larger space. The instructor can show the same content on all of the screens or allow smaller student groups to share their own content through the AppleTV connected to each individual screen.

The most recent upgrade to this space is the addition of an Echo Pod lecture capture box. This allows the content displayed to the students—regardless of source—to be recorded simultaneously with the classroom audio. This captures the full lecture experience that can later be reviewed at each student's convenience.

Using 274 as an inspiration, Procter Hall 288 is our newest learning environment. Smaller than the classroom on which it is based, 288 continues with the theme of wall-mounted LCD displays matched with group work tables. Similarly, faculty have the option of sharing content across all displays or allowing smaller groups of students to share their own screens.

In addition, both Procter Hall 274 and 288 utilize another enhancement inherent to their design. In a large, traditional lecture hall such as Procter Hall 103, the general layout of the technology controls and the seating arrangement puts the instructor in the front of the room. In these collaborative classrooms, however, the faculty member is brought to the physical center of the space. No longer are instructors forced to a stage at the front or tethered behind a podium. Instead, the space for their materials is in the center of the classroom, removing the possibility of a student hiding in the back of the class. Every learner in the room is practically equidistant from the faculty member.

Procter Hall 274

Wedbush Conference Room

Unique Spaces: Wedbush Conference Room

In addition to enhancing the classroom environment, the continued improvement of technology mobility has inspired the college to enhance other areas besides the usual lecture spaces. Procter Hall 306, better known as the Wedbush Conference Room, has seen its technology capability enhanced, thanks to the portability and ease of use of iPad in conjunction with AppleTV. Part conference room, and part museum of nursing artifacts and memorabilia, it is not the typical space for lecture. However, with the wireless sharing capabilities of iPad and the small footprint of AppleTV, this technology can be implemented in smaller and more unique spaces where these capabilities would not typically be found.

Universal Enhancement:
Room Schedule Digital Signage

Across all learning spaces throughout the college, the most readily noticeable enhancement is the display of each room's daily schedule. In the past, our classrooms and conference areas could be booked online as resources within Microsoft Exchange, but without checking these online calendars ahead of time, it was impossible to know the current schedule for a particular room. Consequently, locating a space for an ad-hoc meeting resulted in double-booking, squatting or other conflicts.

To alleviate these issues, the college installed digital room signage outside of all learning spaces. These electronic ink displays check the online public calendars and present a near real-time schedule for the day. There is no longer the need to pull out a device and bring up the room calendar; anyone is able to see the availability of a room by simply looking at the sign.

Digital Room Signage

Mobile Working Environment:
UC Health iCoN Innovation Suite

Building upon the improvements to the classroom learning environments and unique spaces, the college also fully realized a new vision of how mobility can enhance the environment for faculty and staff and implemented a 21st Century Work Model that positively impacts productivity, satisfaction and well-being.

Dean Glazer secured funding for this visionary project – a major 7,200-square-foot office space renovation on the building's second floor – with a large gift from UC Health, strengthening our relationship and indicating even tighter collaboration as clinical partners.

The redesigned space – the only open workspace for faculty at UC, and one of the few in the country – eliminates the previous office silos, encouraging collaboration between faculty and staff. It features open office areas for about 50 faculty and staff, with embedded technology allowing for greater mobility. It serves as a meeting place for UC and UC Health teams to gather and plan the educational preparation of nursing students and serves as a think tank for future models of professional practice. It enables multi-disciplinary team work, and helps us manage our growth with flexibility and scalability.

Procter Hall 275

Several larger conference rooms provide a more formal setting for meetings.

CHAPTER 6

Results

Research Practices: Established, ongoing investigative practices use a variety of data, including existing measures or site-based studies, to measure the progress, success, and next steps of the school's technology-rich program.

Research Practices

Evaluating Active Learning Strategies

To evaluate how well we are levering technology to promote active student learning in all levels of programs, the University of Cincinnati College of Nursing has collected evaluation data through the past three years. Led by two faculty members, Carolyn Smith, PhD, RN, and Tracy Pritchard, PhD, the Active Learning Outcomes Evaluation Team is tasked with surveying students and faculty to identify current trends.

In turn, the college uses the data collected to provide faculty development in specific active learning strategies and identify trends and changes among students when they report progress through the program.

Key lessons learned in the past three years:

- New technology brings a device learning curve for both students and faculty. It is important to provide the infrastructure and development opportunities to facilitate device adoption;

- The importance of assessing student learning styles before device adoption needs to be underscored. One size (i.e. strategy) does not fit all. Variety in active learning strategies and applications to facilitate their completion should be considered; and

- Adopt a tiered approach to introduce technology in active learning strategies. Faculty and students need a foundational knowledge and sharing of resources and supports that will build their skills incrementally over time.

Carolyn Smith, PhD, RN

Tracy Pritchard, PhD

Concept Mapping

Concept mapping is an example of a successful active learning strategy deployed on iPad. A concept map is a drawing or diagram that shows the mental connections students make between a major concept presented and other concepts they have learned.
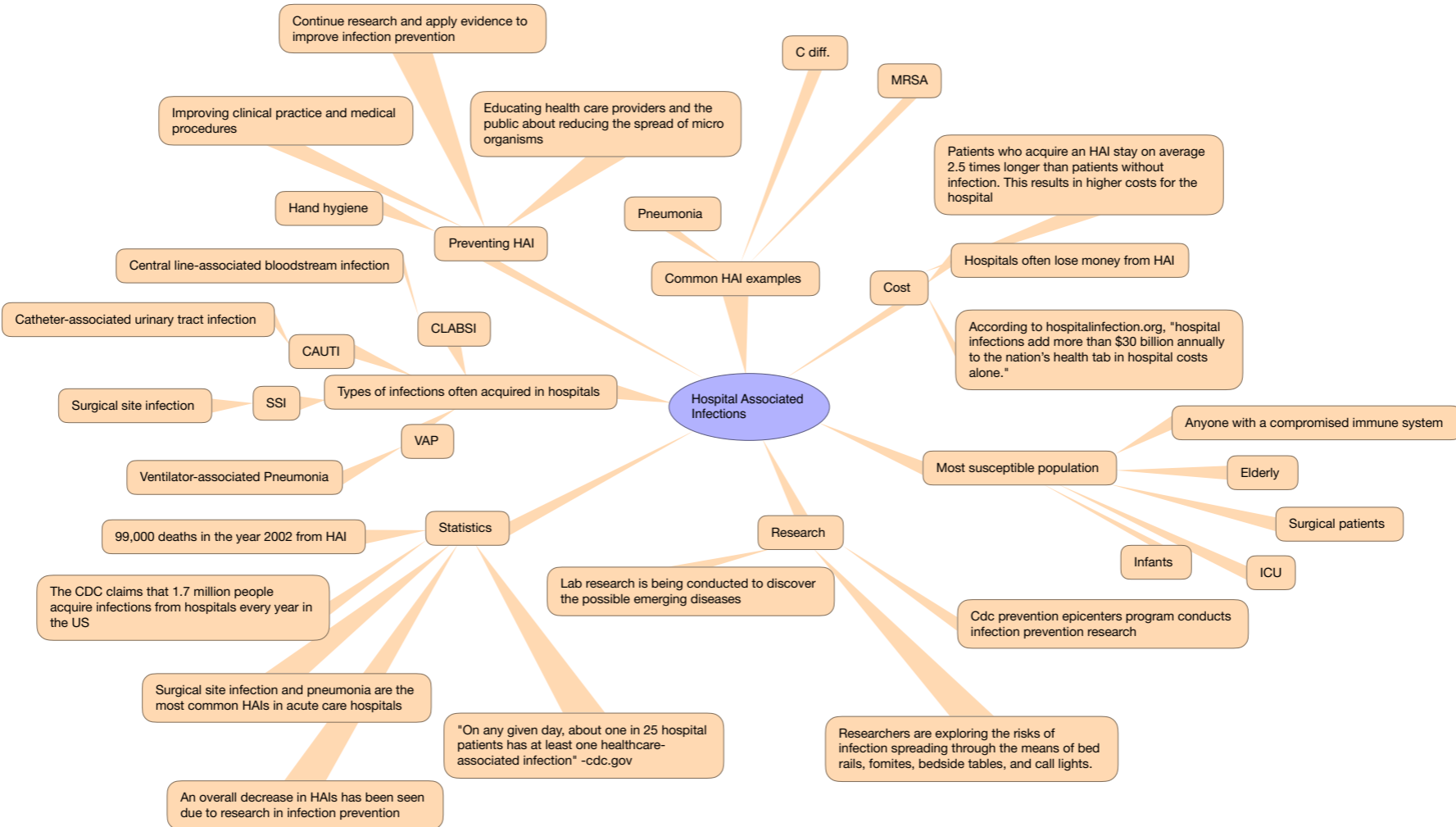
Hospital Associated Infections (HAI) Created by a Second-Year Student with the iThoughts App

Applying Student Feedback

The college's DNP program obtains student feedback regarding use of iPad and the integration of app-based assignments each semester. During the 2017-2018 academic year, student feedback, along with a programmatic review performed by an outside consultant, led to many quality improvement initiatives. These included:

1. Standardization of apps across courses to ensure students are mastering apps, rather than having to learn a new app for each course.

2. Improvements to and standardization of iPad training on campus: based on student feedback, training was condensed to a half day with hands-on opportunities and more time for questions, answers, and troubleshooting.

3. Development of an app tutorial repository in conjunction with the instructional design team to ensure both students and faculty can readily access information to help them navigate apps they may not have used recently, thus reducing the number of calls to the IT/Instructional Design (ID) support staff.

4. Launch of Guidebook for program orientation, allowing incoming students to use iPad early on and as a common place for all students in the program to learn about updates and have program information at their fingertips. This addition further promotes our vision to continue to strive to be a completely iPad-based program.

Strengthening Collaboration among Health Professions

Denise Gormley, PhD, RN, Professor and Senior Associate Dean for Academic Affairs, received a three-year grant in 2015 from the Nurse Education, Practice, Quality, and Retention (NEPQR) UD7HP28546 Interprofessional Collaborative Practice (IPCP), sponsored by the Health Resources and Services administration of the U.S. Department of Health and Human Services. Thanks to the grant, Dr. Gormley and the college partnered with the University of Cincinnati Medical Center (UCMC) on a surgical acute care floor to implement a nurse-led, interprofessional bedside-rounding project.

As part of the project, nurses used iPad for education, structured information sharing, and patient-care planning and evaluation. This required the college to work with UCMC's IT team to successfully install Airwatch, EPIC, and Cantos in iPad

The interprofessional bedside rounding team including physicians, nursing, rehab services, social work and pharmacy rounding on a patient.

used by the surgical unit, prior to the start of the project. Interprofessional health care workers were trained to use iPad mini and employ the variety of medical, nursing and pharmaceutical applications made available as resources. To date, the college has a total of 24 iPad mini in use on two UCMC units—one of which is a Dedicated Education Unit.

The use of iPad has strengthened collaboration and communication between nurses in several ways. Nurses use iPad:

• For teaching purposes, taking advantage of clinical education resources, uploaded by the college;

• For reporting during interprofessional bedside rounds with a standardized script for structured information sharing;

• To access electronic medical records at the point of care; and

• To conduct interprofessional team evaluations.

Dr. Gormley and the NEPQR grant team are in the process of leveraging iPad to develop a nurse-specific solution that strengthens teamwork and collaboration and increases patient satisfaction and safety. Additionally, this solution will serve to boost nurse compliance with organizational policies. The implementation of iPad has proven essential to improving our ability to meet changing societal health care needs in the practice setting.

Counseling At-Risk Teens with Technology

Parental intimate partner violence (IPV) is witnessed by 5.5 million American teens during adolescence, making them particularly vulnerable to negative health behaviors such as substance or tobacco use, unhealthy eating, sexual risk-taking and teen dating violence. Women who experience IPV and their children often seek help at domestic violence shelters (DVS), many of which provide peer or professional counseling to assist women; however, counseling services for children are often lacking due to limited resources.

Carolyn Smith, PhD, RN, assistant professor at the College of Nursing, leveraged iPad in her research to test the efficacy of an intervention to improve the health of teens who live in families experiencing IPV. The intervention, tested in eight DVS, used iPad to collect participant data; deliver one-on-one sessions through FaceTime – allowing teens to meet with their counselor virtually; and provide teens with access to intervention components, such as education materials, through a link placed on iPad home screens.

One of the goals of the study was to assess the feasibility of delivering the intervention in shelters based on the willingness of teens to participate in iPad-based sessions and their level of satisfaction. Preliminary study results indicate teens enjoyed using iPad to complete various parts of the study.

Preventing and Treating Opioid-Use Disorders

Angela Clark

"Every life is worth saving" is the belief of Angela Clark, PhD, RN, Assistant Professor of Nursing, and her team conducting research to improve the prevention and treatment of opioid-use disorders. To instill this same principle in patients and their friends and family members, researchers are leveraging technology.

Using iPad, Dr. Clark and her team have created interactive opioid interventions, along with manuals and guidelines for research to improve the fidelity of the intervention—or the degree to which it is delivered as intended—potentially preventing local adaptations that would allow for dissemination of misinformation.

iPad allows the team to quickly access research protocols for video and photo capture, record interventions for training and fidelity monitoring purposes, and collect and transfer data. Building multi-touch books to deliver the intervention enhances the delivery by offering audio and video, interactive quizzes, animations, case studies and skills demonstrations. These various educational strategies help promote behavior change.

Through her experience, Dr. Clark says the real benefit of multi-touch books is that they keep the expert present. Multi-touch books delivered on iPad allow Dr. Clark to share videos of people who have experienced stigma or received naloxone to reverse an overdose. This way, patients can relate to stories, which establishes "buy-in" on the educational intervention and promotes behavioral change. iPad also allows Dr. Clark to ensure consistency across intervention groups.

Administering Intranasal Naloxone

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