

ANNUAL NONPF CONFERENCE

Creatively Leveraging Technology to Become an **iCon** for Innovative Nursing Education

Education through technology: Interactive Case Studies, TeleHealth and iPads; Oh my!

Saturday, April 5, 2014



college of nursing

TELEHEALTH

The Importance of Introducing TeleHealth into the Adult Gerontology Acute Care Nurse Practitioner Curriculum

Kathleen A. Ballman, DNP, ACNP-BC, CEN
Associate Professor of Clinical Nursing
Coordinator AG ACNP Program



college of nursing

WHAT IS TELEHEALTH?

TeleHealth:

is a conglomerate of Health I.T. methods used in modern-day medicine to improve a patient's health via a two-way communication between a patient and practitioner at a distant site (Centers for Medicare & Medicaid Services)



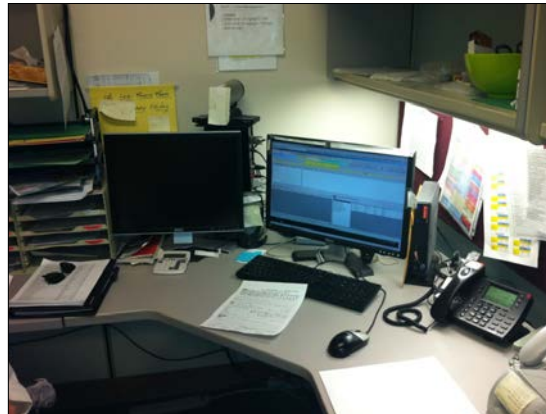
college of nursing

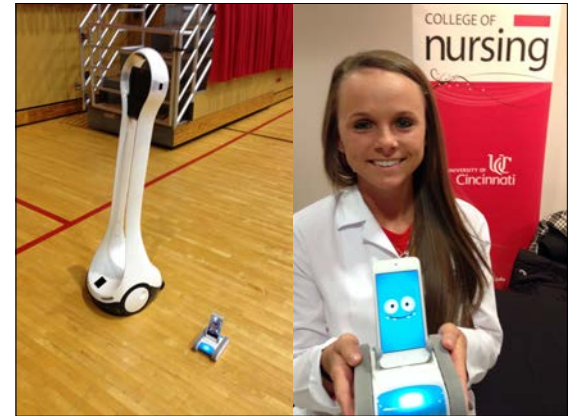
HOW IS TELEHEALTH USED?

- Rural health services
- Remote specialty and subspecialty consultation
- Military healthcare
- Correctional facility healthcare
- Videoconferencing



college of nursing





PREPARING FOR THE FUTURE

- IOM Report, 2003
- MSN Essentials, 2012



TELEHEALTH EDUCATION IMPLEMENTATION

Process:

Scholarly Project

- Utilization of SLOs to focus on the use of special technology in the care of the acutely ill or injured patient population
- Introduction of TeleHealth in the CoN Collaboratorium /Simulation Center by expert Debi Sampsel
- Literature search for TeleHealth topics
- Assigned reading
- Assigned topics to present
- Tele-ICU rotation
- Development of presentation or case scenario development
- Delivery of presentations

STUDENT LEARNING OUTCOMES

- Analyze current systems for tracking the outcomes of interventions while continuing to improve the quality of care
- Critique research related to therapeutic nursing interventions used in advanced nursing practice
- Demonstrate appropriate therapeutic nursing intervention utilized to reduce or alleviate symptoms
- Advocate appropriate use of cost-effective interventions in the care of acutely ill patient

TELEHEALTH INTRODUCTORY CLASS

Presentation on:

- What TeleHealth is and how it is currently being used
- CoN sponsored interprofessional innovation collaboratory
- Robot research

Hands on experiences:

- Learn to drive V-go
- Mental health consult role play
- Learn to drive Flo-Bot and see patients
- Experience a variety of settings in Santa Barbara, Ca.
- Utilized the Mini bot controlled with iPad
- Visit with vendors of TeleHealth technology



UNIVERSITY OF
Cincinnati

College of nursing





TELEHEALTH TOPICS EXPLORED

1. Evidence for the use of TeleHealth
2. Effectiveness of TeleHealth
3. Legal scope of practice using TeleHealth
4. Reimbursement Ohio vs a state with independent practice
5. Client reaction to TeleHealth
6. Family reaction to TeleHealth
7. Staff/health care provider reaction to TeleHealth
8. Models of TeleHealth delivery in different setting
9. How is TeleHealth used where you work



college of nursing

TELE-ICU ROTATION

Cincinnati Veteran's
Administration Medical
Center



college of nursing

Tele-ICU Control Center & Patient Perspective



college of nursing

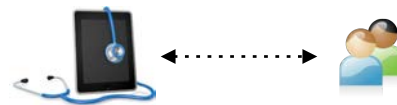
SHARING THE LESSONS LEARNED

- Year 1: Powerpoint presentations presented to the class
- Year 2: Poster presentations give to the entire CON and guest during the Capstone Celebration



college of nursing

UTILIZING TELEHEALTH FOR SITE VISITS



college of nursing





OUTCOMES

- Presentations opening discussion and enhanced understanding of the impact of TeleHealth
- Students met with Senator Kearney and opened discussion reimbursement for TeleHealth
- Student discussion for use in a Doctoral Capstone Project
- Streamlines NP clinical site visits
- Prepare AG-ACNP students for the future of healthcare





REFERENCES

- American Association of Colleges of Nursing. The essentials of master's education for advanced practice nursing. Accessed from: <http://www.aacn.nche.edu/education/mastlessn.htm>
- American Association of Critical-Care Nurses. (2013). AACN Tele-ICU nursing practice guidelines. Accessed from: <http://www.aacn.org/wd/practice/docs/tele-icu-guidelines.pdf>
- American College of Emergency Physicians. (2013). Telehealth in emergency medicine: a Primer. Accessed from: [http://www.acep.org/uploadedFiles/ACEP/Membership/Sections_of_Membership/telemd/Telehealth%20in%20Emergency%20Medicine%20Primer\(1\).pdf](http://www.acep.org/uploadedFiles/ACEP/Membership/Sections_of_Membership/telemd/Telehealth%20in%20Emergency%20Medicine%20Primer(1).pdf)
- Centers for Medicare & Medicaid Services (n.d.). Telehealth. Accessed from: [medicare.gov](http://www.medicare.gov)
- Institute of Medicine. (2003). Health professions education: A bridge to quality. Washington, DC: National Academies Press

INTERACTIVE CASE STUDY

Teaching the art of differential diagnosis at a distance:
The use of an interactive case study



Christine L. Colella DNP, CS, CNP
Director, NP programs
University of Cincinnati, College of Nursing

THE PROBLEM

- Dilemma of an on-line course
- Insuring distance students get a similar experience
- No learning strategy already designed to use
- Collaboration with instructional design
- Development of an Interactive Case Study (ICS)
- Decision to validate the learning

THE PLAN

- To develop an Interactive Case Study (ICS)
- Facilitate the learning of the art of diagnostic reasoning for students at a distance
- Compare the differential diagnosis list generated by students on site as compared to distant students using ICS
- Evaluate the data both quantitative and qualitative



college of nursing

KOLB'S CYCLE OF LEARNING AS A FOUNDATION

Stages in cycle	Purpose	Function in Learning	ICS
1. Concrete Experience (CE)	Provides the basis for learning and relies on an openness and adaptability	Enable learners to grasp the experience	Patient Interview Lab review
2. Reflective Observation (RO)	Makes sense of the concrete experience as a variety of perspectives are explored		<ul style="list-style-type: none"> • Comparison of novice to expert (questions) • Documentation opportunity • Journal reflection
3. Abstract Conceptualization (AC)	Uses logic and ideas to understand the situation and problems	Equip learners to transform the experience into something meaningful	Knowledge check opportunity to devise questions
4. Active Experimentation (AE)	Is where the learner tests their theories and ideas which leads to a new concrete experience thus perpetuating the cycle		



USKO & O'DELL, 2010; Kolb, 2005; Merriam, Caffarella, & Baumgartner, 2007

college of nursing

THE APPROACH

- Convergent mixed method design with simultaneous data collection and analyses
- Mixed methods provides complementarity
- Quantitative dominant design
- Data collection for the research project is embedded in the course design.



college of nursing

INTERACTIVE CASE STUDY

Welcome to the
Interactive Differential Diagnosis Case Study

Click Here to Start

Introduction PROGRESS:

INTERACTIVE CASE STUDY

Click each test to view results before making your differential diagnosis. After reviewing both, click next to document your findings.

CBC RENAL ECG

U/A HEPATIC

Labs Review PROGRESS:

INTERACTIVE CASE STUDY

Based on Mrs. Pearson's responses, I need your help selecting three physical assessments to perform. What do you think? Select a system by hovering over the system and clicking it.

Musculoskeletal

Neurological

Abdominal

Cardiac

Respiratory

You will not be able to proceed until all three correct systems have been selected. Check your selections by clicking the red next button.

Physical Assessment PROGRESS:

Chest Pain Interactive Case Study

college of nursing



Name: Robert Jennings Pulse: 76
 Age: 52 Resp. Rate: 12
 Chief Complaint: 'chest pain'
 Blood Pressure: nurse could not obtain
 Temp: 98.8° F

Patient Interview

UNIVERSITY OF Cincinnati

< PREV NEXT >

Chest Pain Interactive Case Study

college of nursing



Name: Robert Jennings Pulse: 76
 Age: 52 Resp. Rate: 12
 Chief Complaint: 'chest pain'
 Blood Pressure: nurse could not obtain
 Temp: 98.8° F


Patient Interview

UNIVERSITY OF Cincinnati

< PREV NEXT >

Chest Pain Interactive Case Study

college of nursing




Physical Assessment

UNIVERSITY OF Cincinnati

< PREV NEXT >

Chest Pain Interactive Case Study

college of nursing



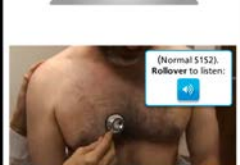
Physical Assessment: Cardiac Exam

UNIVERSITY OF Cincinnati

< PREV NEXT >

Chest Pain Interactive Case Study

college of nursing



(Normal S1S2).
 Rollover to listen:


Physical Assessment: Cardiac Exam

UNIVERSITY OF Cincinnati

< PREV NEXT >

Chest Pain Interactive Case Study

college of nursing



No murmurs noted with bell.

Physical Assessment: Cardiac Exam

UNIVERSITY OF Cincinnati

< PREV NEXT >

THE EXPERIENCE



Chest Pain Interactive Case Study

college of nursing

Good work! I've provided my differential diagnosis list so that you can compare. How did you do?

- 1. GERD | CORRECT**
Based on history... duration (2-3 weeks) no pattern, not related to exercise, middle chest, pain described as burning, worse when he lies down, no shortness of breath, antacids relieves pain, and physical exam. Slight epigastric tenderness, normal heart sounds, pulses, pressure, normal ECG.
- 2. Myocardial infarction | INCORRECT**
Possible because of HTN, + family history of 2 brothers, needs to be ruled out but presentation, negative physical exam, normal ECG puts this 2nd.
- 3. Cholecystitis | INCORRECT**
No history, no physical findings.
- 4. Pancreatitis | INCORRECT**
Possible because of alcohol intake and complaint of pain & physical findings but CBC is normal & ECG is normal.

Making Your Differential

UNIVERSITY OF Cincinnati

THE RESULTS

- **Equivalence testing:**
 - Is student performance equivalent?
 - Is there clinical as well as statistical significance?
 - 291 students (distance learning, n = 150, on-site, n = 141)
 - Responses differed by only 4.9% (a priori equivalence estimate of 10%)

THE RESULTS

- NVivo 9™ used to examine the reflective journals that were embedded in the ICS where students recorded their thoughts
- Data was grouped according to themes:
 - Affective (214)
 - Confidence (152)
 - Experiential learning (178)
 - Defending choice (161)
 - Value (142)
 - Take aways (82)
 - Technology (62)
- Serendipitous
 - Role modeling concept was a driver to this project but was not expected to be able to be captured



THE RESULTS

- **Confidence**
 - "I feel fairly confident with the decisions I made with this patient"
 - "I learn best from this approach, I could put it all together"
 - "This experience would probably help everyone that does DL feel more comfortable and adequate when performing assessments"
- **Experiential Learning**
 - "This shows how the job is done not just the theory"
 - "Watching this in first person made me feel as if I was performing the same exam"
 - "I often feel like I might be missing out on the hands on approach to learning the material but this experience helped me visualize and understand the objectives a lot better"
 - "This really helped me to see how to be a NP"

THE RESULTS

Take Aways

- "I think this has helped me a lot to have a better idea what to expect when I get into clinical"
- "Continue to have an open mind regarding possible diagnoses"
- "Watching those really helped me focus on the things I should be asking and how"
- "It was a good lesson to watch the faculty walk through a potential real patient and follow her example of bedside manner and a systematic approach to practice"
- "I am a visual learner and this enhanced my learning experience and helped me understand key concepts in my practice"



college of nursing

THE RESULTS

Role Modeling

- "I need to stay calm and collected like (the faculty) and go in a systematic order"
- "I thought my questions were good but watching (faculty) and the way hers afforded the opportunity to diagnose and get great information, you allowed the patient to elaborate mine were just yes and no, I learned a lot from watching"
- "Your questions were more precise, I wasn't sure how/what to ask until I saw yours"
- "What I learned is to use the time to build a relationship with your patient"
- "I liked the way you talked with your patient and didn't judge but gave reassurance for good things like quitting smoking"
- "The interview was very calm and flowed nicely, the patient/NP rapport was conversation-like"



college of nursing

DISCUSSION

- Quantitative data support that learning outcomes for on-site and DL students were equivalent.
- Qualitative data supported our quantitative findings
- ICS were described as an excellent learning experience
- ICS enabled students to "get" the experience of interacting with a patient
- Qualitative results assist in explaining the quantitative data
- Comments shed light on student thought processes



college of nursing

DISCUSSION

- The demand for learning and teaching at a distance is increasing and the results of this study indicate that technology can be used to role model and allow distance students to experience the differential diagnosis process
- Developing this type of educational strategy requires a systematic approach, time, and a template
- Systematic approach requires identification of learning outcomes, content required, storyboard development
- Identify timeline for development and implementation
- Utilization of technology that makes this accessible to faculty



college of nursing

THE FUTURE

- Used as Pilot study for HRSA grant
- Funded July 2013
- Inter-professional development
- Series of ICS



college of nursing

REFERENCES

- Boatright, R. E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development*. Thousand Oaks, CA: Sage.
- Cotela, C. & Boery, T. (2014 in press). Teaching Differential Diagnosis to Nurse Practitioner Students in a Distance Program. *Journal of Nursing Education*.
- Creswell, J. W., & Plano Clark, V. L. (2010). *Designing and Conducting Mixed Methods Research* (2nd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W., Plano Clark, V. L., Gutman, M. L., & Hanson, W. E. (2003). Advance mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods*. Thousand Oaks, CA: Sage.
- Cribbie, R. A., & Arpin-Cribbie, C. A. (2009). Evaluating clinical significance through equivalence testing: Extending the normative comparisons approach. *Psychotherapy Research*, 19, 677-696.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Lisko, S. & O'Dell, (2010). Integration of theory and practice: experiential learning theory and nursing education *Nursing Education Perspectives*. 31(2): 106-8.
- Merriam, S.B., Caffarella, R.S., & Baumgartner, L.M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). San Francisco: John Wiley & Sons, Inc.
- Newman, J., Ridancour, C. S., Newman, C., & DeMarco, G. M. P. (2003). A Typology of Research Purposes and its Relationship to Mixed Methods. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods* (pp. 167-188). Thousand Oaks, CA: Sage.
- Tashakkori, A. & Teddlie, C. (1998). *Mixed Methodology* (Vol. 40). Thousand Oaks, CA: Sage.



college of nursing

IPAD INITIATIVE

Using the iPad and Supporting Technologies to Transform Nursing Education

Emanuel Lewis
Information Technologist & Service Manager
Center for Academic Technologies & Educational Resources (CATER)

Chris Edwards, MS
Assistant Dean for Information Technology & Communications
Director, Center for Academic Technologies & Educational Resources (CATER)
Distinguished Educators



college of nursing

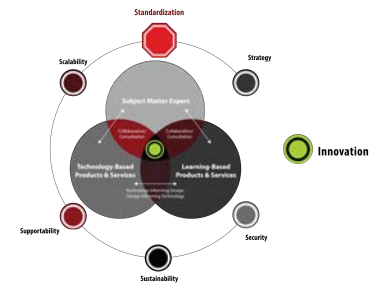
APPROACH

TPACK Model



APPROACH

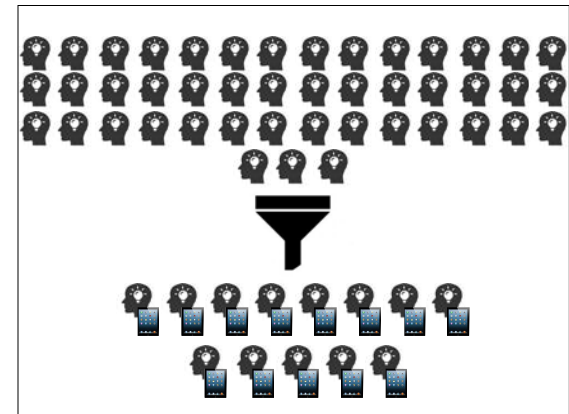
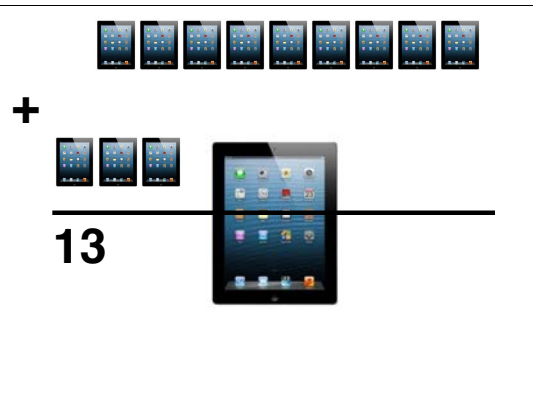
6S Model + TPACK Model

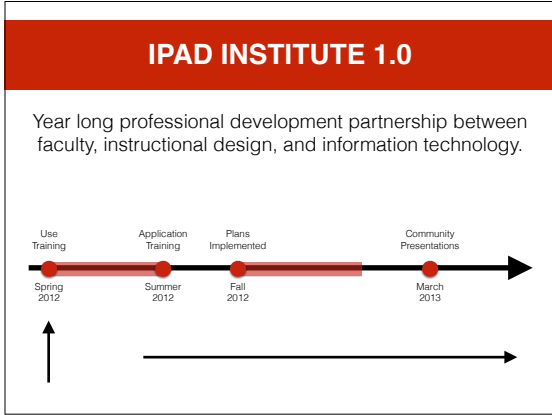
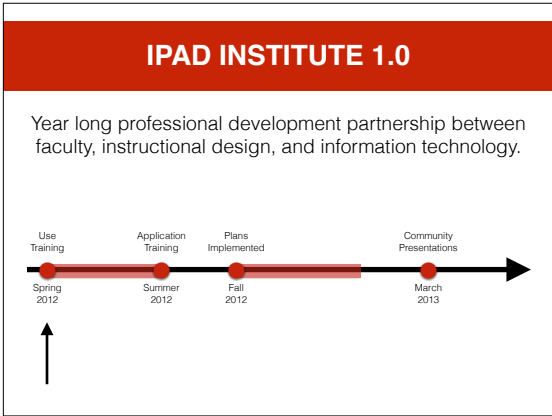
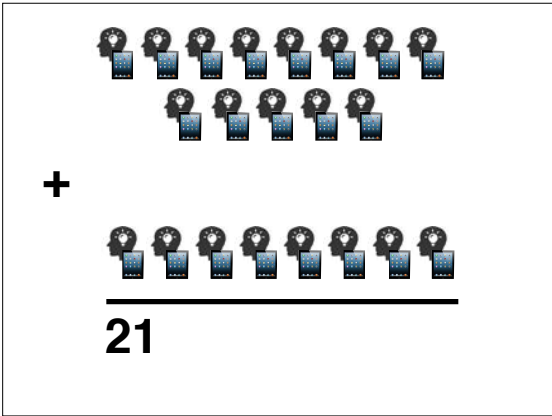


IPAD INSTITUTE 1.0

Year long professional development partnership between faculty, instructional design, and information technology.

- Competitive selection process
- 2 days of iPad how to training
- 2 days of app, classroom, and pedagogy training
- Challenged faculty to consider how the iPad would impact the way they:
 - Interacted with the physical space
 - Communicate with students
 - Conduct Assessment
 - Provide Feedback
 - Create, design, and delivery content
 - Manage faculty life
- Develop personal strategic plans
- Deliver community presentation on outcomes





INFRASTRUCTURE 1.0

Began reworking our infrastructure to embrace and support iPads

- iPads replaced document cameras (temporary)
- Apple Volume Purchasing Program (AVPP)
- Apple TVs... everywhere
- Special ATV wireless - registration required
- Began to develop standardized suite of apps
- Skills & simulation



STANDARDIZED SUITE OF APPS



Adapted from The Pedagogy Wheel 2.0 - Alex Gagnon, Engaging Students

STANDARDIZED SUITE OF APPS

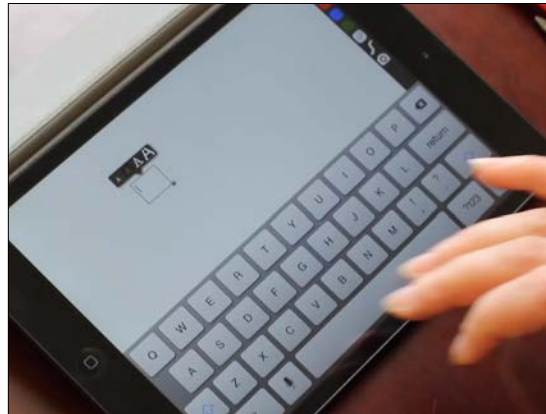


Jot! Whiteboard



Jot! is a simple, fast whiteboard that lets you sketch out your ideas and share them in real time. Draw, take notes, or wireframe on your iPad quickly and easily as soon as ideas come to you. Share your ideas via email or save them as photos. Collaborate in real time over the internet with Live Sharing.

College of Nursing
University of North Carolina at Charlotte



Redefinition

Tech allows for the creation of new tasks, previously inconceivable



Modification

Tech allows for significant task redesign



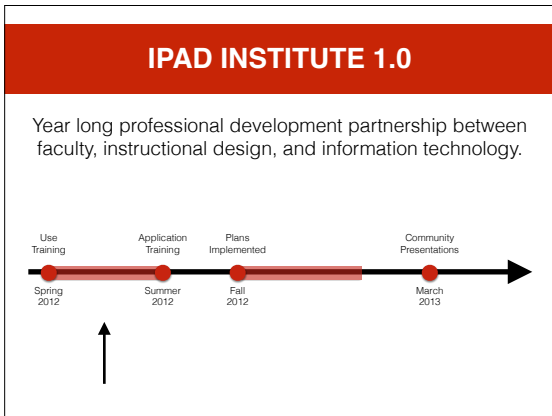
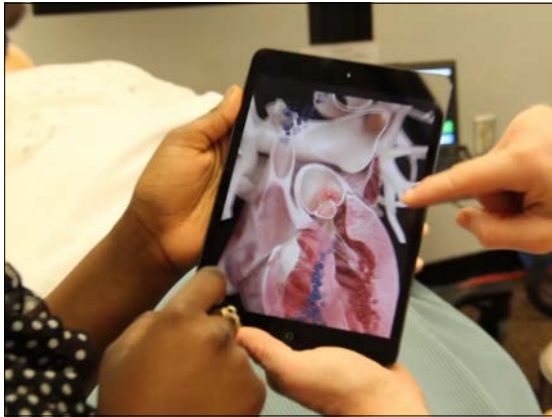
Augmentation

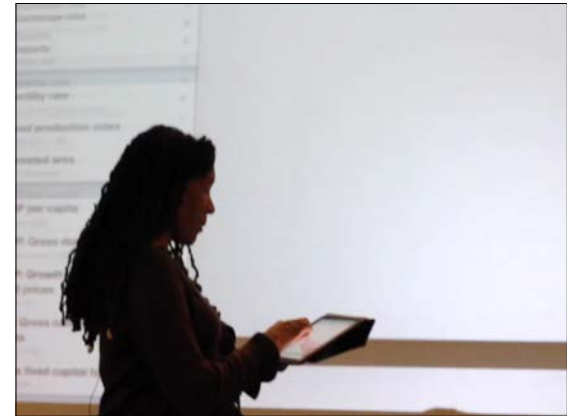
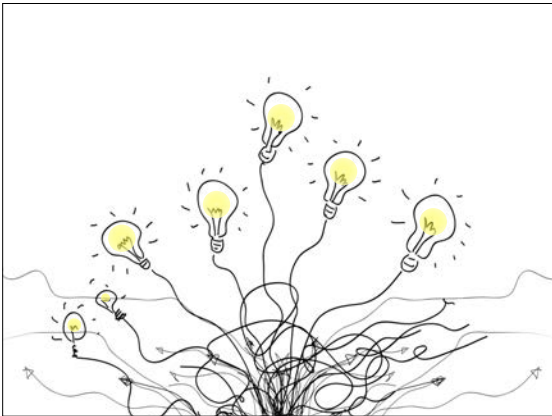
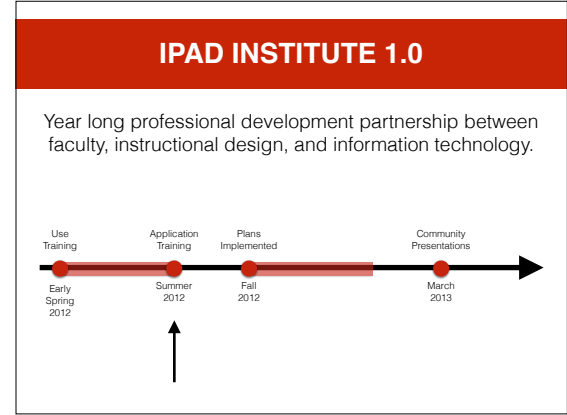
Tech acts as a direct tool substitute, with functional improvement

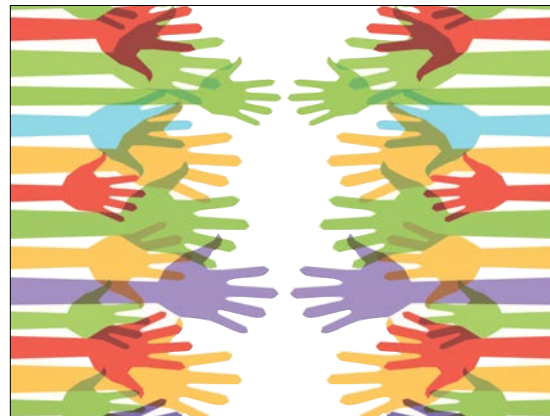
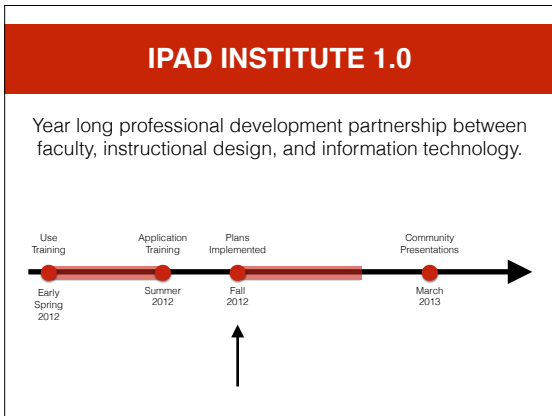


Substitution

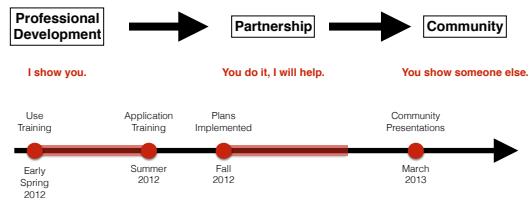
Tech acts as a direct tool substitute, with no functional change





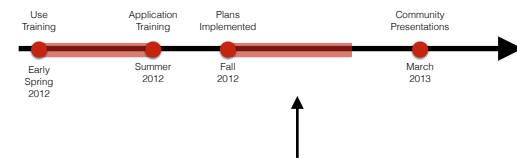


DEVELOPMENT APPROACH



IPAD INSTITUTE 1.0

Year long professional development partnership between faculty, instructional design, and information technology.



COMMUNITY PRESENTATIONS

- The 3D Heart
- iPad in Simulation
- Bringing Research Alive!
- Efficiency In and Out of Classroom
- iPad in the classroom allows for spontaneity!
- iPad in Genetics
- Competitive Learning
- Using the iPad everywhere!
- Course Design with iPad
- Team Based Learning with the iPad
- Nursing Central
- Grading with the iPad
- Research Documentation
- Use of iPad in Simulation

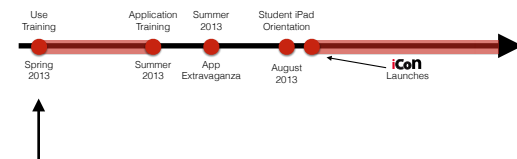
IPAD INSTITUTE 2.0

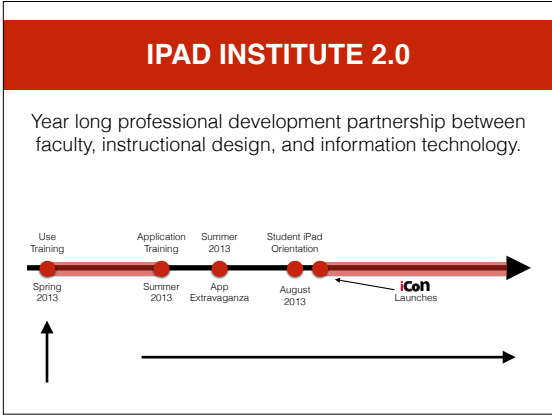
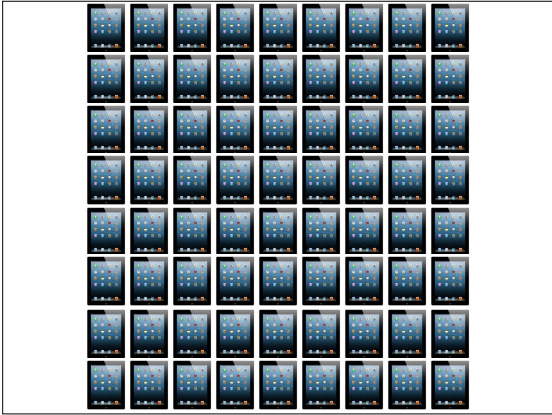
Year long professional development partnership between faculty, instructional design, **student services**, and information technology.

- 2 days of iPad how to training
- 2 days of app, classroom, and pedagogy training
- 1 day of app (App Extravaganza) and simulated electronic medical record training
- Preparation for iPads in the hands of students:
 - Formalized skills and simulation use
 - Clinical site use (partnership development, simulated EHR)
 - Virtual computers (Windows on an iPad)
 - eTextbooks
- **iBooks**
- **iTunes U**
- Nursing Central (reference eTextbooks)
- App-based assignments
- Personal response system

IPAD INSTITUTE 2.0

Year long professional development partnership between faculty, instructional design, and information technology.





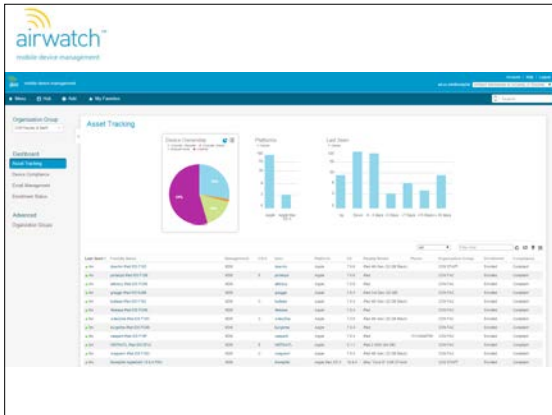
INFRASTRUCTURE 2.0

Refined infrastructure to embrace and support iPads

- AirServer for AirPlay in large classroom (multiple iPads at once)
- Projectors upgraded to support HD
- Fully implemented AirGroup
- Adopted AirWatch MDM solution

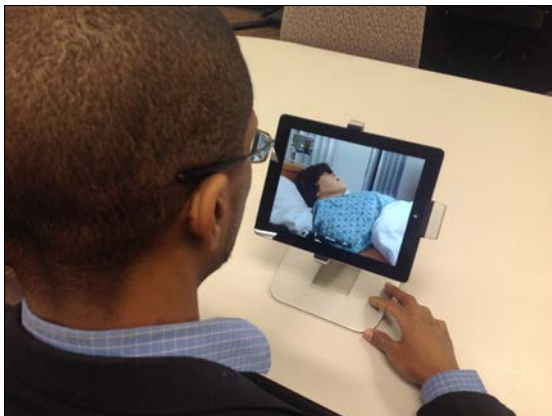
Expanded Use

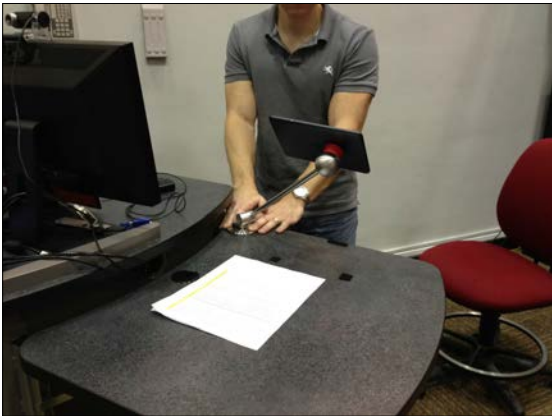
- Faculty recruitment booth
- Student recruitment booth
- Lecture capture
- Telehealth
- Room scheduling
- Student communication portal
- Kaltura - video capture, posting, streaming
- **Course and content redesign**



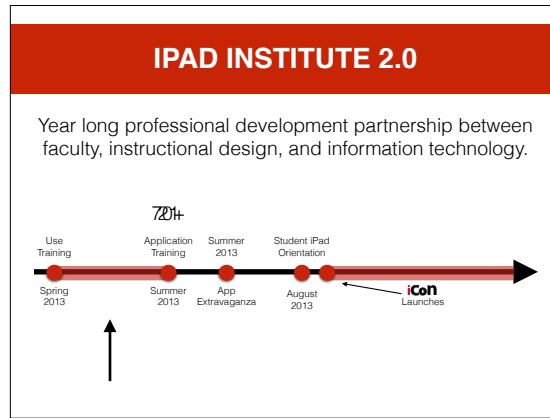
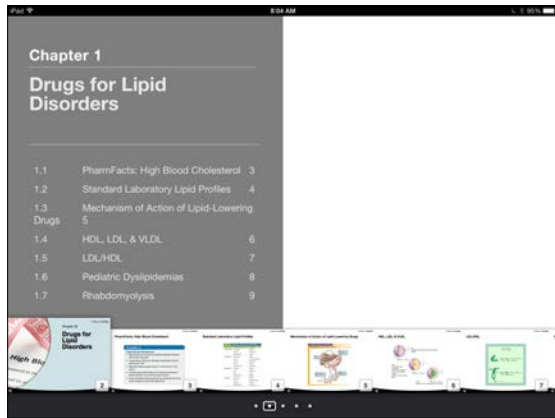
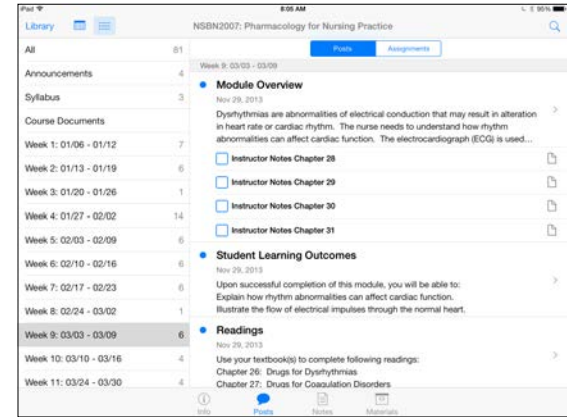
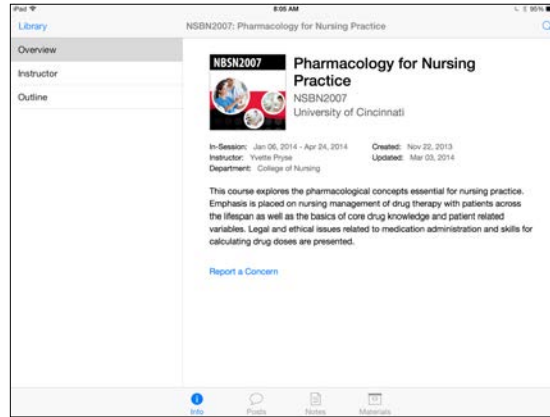
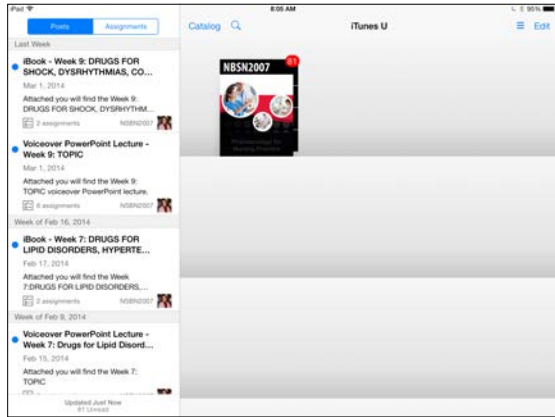
The screenshot shows the 'Exchange ActiveSync' configuration page for a 'Nursing Faculty Staff Device'. The page includes fields for Exchange Server Name, Organization Name, and Login Information. The interface also features a navigation menu on the left with options like Device, Exchange ActiveSync, and Settings & Security.

The screenshot displays the 'App Store' section of the Airwatch mobile device management interface. The App Store lists various applications with details such as Name, Price, and Rating. An inset image shows a tablet displaying the app store interface.

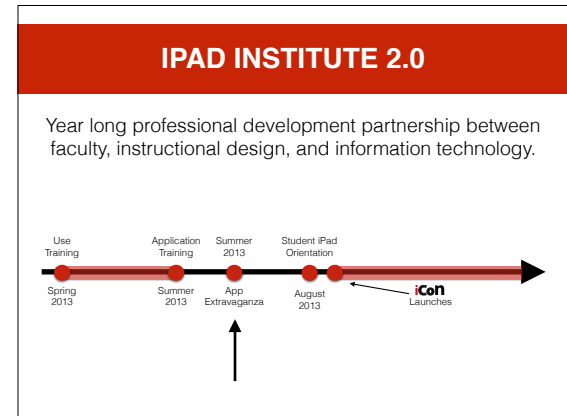
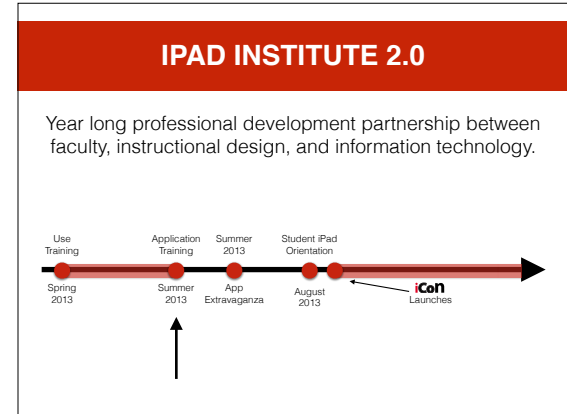


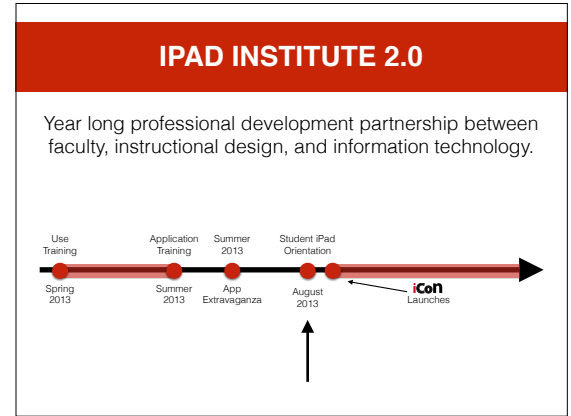














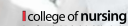


IPAD IN A DNP PROGRAM

iPads in the Classroom and Beyond


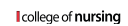
Missi Willmarth, DNP, APRN, CNM
Associate Professor of Clinical Nursing
Director, DNP Program



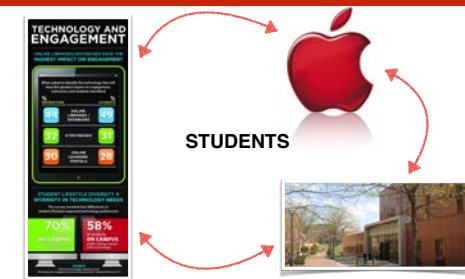



THE WHY


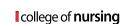
- The Essentials (AACN, 2006)
 - Essential 4
- NONPF criteria
 - Technology and Information Literacy Competencies

UNIVERSITY OF CINCINNATI



STUDENTS



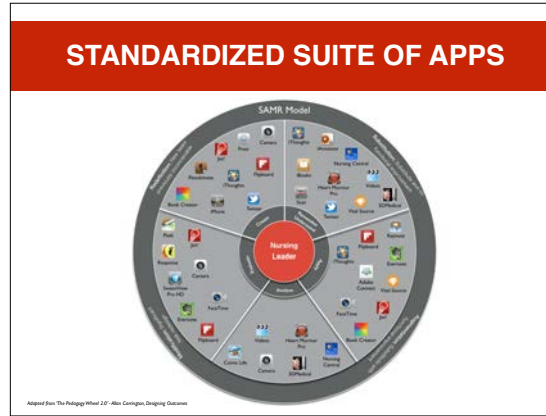
Students →

WHAT DO YOU WANT KIDS TO DO WITH TECHNOLOGY?

WRONG ANSWERS	RIGHT ANSWERS
<ul style="list-style-type: none"> • MAKE PREZIS • START BLOGS • CREATE WEBSITES • REWRITE ANSWERS • DESIGN FLIPCHARTS • PRODUCE VIDEOS • PUT TO EDITORIALS • USE WHITEBOARD • DEVELOP APPS 	<ul style="list-style-type: none"> • RAISE AWARENESS • START CONVERSATIONS • FIND ANSWERS • FIND QUESTIONS • JOIN PARTNERS • CHANGE MINDS • MAKE A DIFFERENCE • TAKE ACTION • DRIVE CHANGE

TECHNOLOGY IS A TOOL, NOT A LEARNING OUTCOME.

How does this translate to the classroom?



DNP PROGRAM APPS

UNIVERSITY OF Cincinnati College of nursing



STUDENT TOOLS


Domain 1: Article Critique
 Domain 1: Photo Journal
 Domain 2: DNP Project Plan
 Domain 2: Photo Journal
 Domain 3: SNORNY Reflective Paper
 Domain 3: SNORNY Reflective Paper: graded

STUDENT TOOLS

CLINICAL HOURS	DATE	HOURS	NAME
CLINICAL HOURS	10/10/2016	8:00	...
CLINICAL HOURS	10/11/2016	8:00	...
CLINICAL HOURS	10/12/2016	8:00	...
CLINICAL HOURS	10/13/2016	8:00	...
CLINICAL HOURS	10/14/2016	8:00	...
CLINICAL HOURS	10/15/2016	8:00	...
CLINICAL HOURS	10/16/2016	8:00	...
CLINICAL HOURS	10/17/2016	8:00	...
CLINICAL HOURS	10/18/2016	8:00	...
CLINICAL HOURS	10/19/2016	8:00	...
CLINICAL HOURS	10/20/2016	8:00	...
CLINICAL HOURS	10/21/2016	8:00	...
CLINICAL HOURS	10/22/2016	8:00	...
CLINICAL HOURS	10/23/2016	8:00	...
CLINICAL HOURS	10/24/2016	8:00	...
CLINICAL HOURS	10/25/2016	8:00	...
CLINICAL HOURS	10/26/2016	8:00	...
CLINICAL HOURS	10/27/2016	8:00	...
CLINICAL HOURS	10/28/2016	8:00	...
CLINICAL HOURS	10/29/2016	8:00	...
CLINICAL HOURS	10/30/2016	8:00	...
CLINICAL HOURS	10/31/2016	8:00	...



FACULTY TOOLS

 college of nursing

FACULTY TOOLS

 college of nursing

