Creatively Leveraging Technology to Become an iCon for Innovative Nursing Education

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

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

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Coordinator AG ACNP Program

TeleHealth:
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)

HOW IS TELEHEALTH USED?

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

WHAT IS TELEHEALTH?
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
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 Vgo
- 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
### 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 Tele-Health used where you work

### Tele-ICU Rotation

- Cincinnati Veteran’s Administration Medical Center

### Sharing the Lessons Learned

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

### Utilizing Telehealth for Site Visits
• 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


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
- Ensuring 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
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

KOLB’S CYCLE OF LEARNING AS A FOUNDATION

<table>
<thead>
<tr>
<th>Stages in cycle</th>
<th>Purpose</th>
<th>Function in Learning</th>
<th>ICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Experience (CE)</td>
<td>Provides the basis for learning and relates to previous experience</td>
<td>Enable learners to grasp the experience</td>
<td>Patient interview, Lab review</td>
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<tr>
<td>Reflective Observation (RO)</td>
<td>Makes sense of the concrete experience as a variety of perspectives are explored</td>
<td>• Comparison of novice to expert (questions) • Document opportunity • Journal reflective</td>
<td>Knowledge check opportunity to change questions</td>
</tr>
<tr>
<td>Abstract Conceptualization (AC)</td>
<td>Uses logic and ideas to understand the situation and problems</td>
<td>Knowledge test for transformation of experience into something meaningful</td>
<td>Knowledge test opportunity to change questions</td>
</tr>
<tr>
<td>Active Experimentation (AE)</td>
<td>Is where the learner tests their ideas and theories which leads to a new concrete experience, thus perpetuating the cycle</td>
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</tbody>
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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.
**THE EXPERIENCE**

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)
  - Defending choice (161)
  - Values (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

**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 showed 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 demand for learning and teaching at a distance is increasing and the results of this study indicate that technology can be utilized 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, and a timeline for development and implementation. Utilization of technology that makes this accessible to faculty is crucial.

REFERENCES


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"

- **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"

THE RESULTS

- **Role Modeling**
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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.

THE FUTURE

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

REFERENCES


Using the iPad and Supporting Technologies to Transform Nursing Education

Emanuel Lewis
Information Technology & 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)

**IPAD INITIATIVE**

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 deliver content
  - Manage faculty life
  - Develop personal strategic plans
  - Deliver community presentation on outcomes
IPAD INSTITUTE 1.0

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

- Use Training: Spring 2012
- Application Training: Summer 2012
- Plans Implemented: Fall 2012
- Community Presentations: March 2013
INFRASTRUCTURE 1.0

Began readying 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

- 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 synthesize 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.

Redefinition
Tech allows for the creation of new tasks, previously impossible

Modification
Tech allows for significant task redesign

Augmentation
Tech acts as a direct tool substitute, with limited improvement

Substitution
Tech acts as a direct tool substitute, with no functional change
IPAD INSTITUTE 1.0

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

Use Training
Spring 2012

Application Training
Summer 2012

Plans Implemented
Fall 2012

Community Presentations
March 2013

Spring 2012
Summer 2012
Fall 2012
March 2013
IPAD INSTITUTE 1.0

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

- **Use Training**: Early Spring 2012
- **Application Training**: Summer 2012
- **Plans Implemented**: Fall 2012
- **Community Presentations**: March 2013
IPAD INSTITUTE 1.0

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

Professional Development
You show you.

Partnership
You do it. I will help.

Community
You show someone else.

Using Training
Spring 2012
Application Training
Summer 2012
Plans Implemented
Fall 2012
Community Presentations
March 2013

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 1.0

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

Early Spring 2012
Use Training

Summer 2012
Application Training

Fall 2012
Plans Implemented

March 2013
Community Presentations

IPAD INSTITUTE 2.0

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

Spring 2013
Use Training

Summer 2013
Application Training

Fall 2013
Plans Implemented

August 2013
Community Presentations

IPAD INSTITUTE 2.0

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

Spring 2013
Use Training

Summer 2013
Application Training

Entwerga

Fall 2013
Preparation for iPads in the hands of students:

− Formalized skills and simulation use
− Clinical site use (partnership development, simulated EHR)
− Documentation (Windows on an iPad)
− eTextbooks
− iBooks
− iTunes U
− Nursing Central reference eTextbooks
− Apps-based assignments
− Personal response system

− 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)
  − Documentation (Windows on an iPad)
  − eTextbooks
  − iBooks
  − iTunes U
  − Nursing Central reference eTextbooks
  − Apps-based assignments
  − Personal response system

− Use of iPad in Simulation
IPAD INSTITUTE 2.0

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

APPLICATION TRAINING

Spring 2013

SUMMER 2013

EXTRAVAGANZA

Summer 2013

LAUNCHES

Student iPad Orientation

August 2013

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
iBOOK & ITUNES U DEVELOPMENT
IPAD INSTITUTE 2.0

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

- Spring 2013 Application
- Summer 2013 Training
- Extravaganza Summer 2013 Launches Student iPad Orientation August 2013

2170+
IPAD INSTITUTE 2.0
Year long professional development partnership between faculty, instructional design, and information technology.

- Use Training: Spring 2013
- Application Training: Summer 2013
- App Extravaganza: Summer 2013
- Student iPad Orientation: August 2013

Launches Student iPad Orientation August 2013.
IPAD INSTITUTE 2.0

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

- Use Training
  - Spring 2013

- Application Training
  - Summer 2013

- Extravaganza
  - Summer 2013

- Student iPad Orientation
  - August 2013
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

How does this translate to the classroom?

STANDARDIZED SUITE OF APPS

DNP PROGRAM APPS

STUDENT TOOLS

STUDENT TOOLS