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Transforming Nursing Education: Utilization of the iPad in Laboratory and Clinical Settings

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Abstract:

Healthcare has undergone tremendous changes in the last ten years. The implementation of electronic medical records, digital imaging, electronic scheduling, and programs such as EPIC and Care Everywhere have permanently changed the healthcare work environment. However, despite fundamental changes to the clinical environment, nursing education often utilizes little digital technology in the skills lab. The utilization of handouts, mock paper charts, and worksheets continued to be a costly standard, although most students will never utilize paper documentation in their career.

In fall of 2017 we utilized the iPad with sophomore Bachelor of Nursing students in skills lab to simulate the collection and documentation of patient data, retrieve information, and upload assignments. Further implementation continued the subsequent semester, with utilization of the iPad in the clinical setting.

Our goals were two-fold: first to develop information technology (IT) competency in undergraduate nursing students, secondly to reduce printing costs for both the student and the college. Although innovation is invigorating to some, change is also met with a fair amount of skepticism. In our first year there were challenges, rewards, and lessons learned for future success.

Overview:

The integration of information technology in nursing education has been increasing in recent years. Technology in nursing is changing at a rapid pace, and nursing students need to enter the workforce with an informatics skill set that provides a foundation to be leaders at the bedside as telehealth, patient education, and other technologically enhanced health care delivery models emerge. Evidence suggests that nursing students must not only be exposed to information technology (IT), but also taught to utilize IT as a means to improve patient outcomes (Ramen, 2015). Therefore, the mobile computing devices (MCD) provide opportunities to develop their informatics skills continuously throughout the program instead of only in a single course. George, Murphy, DiCristofaro, and Sims (2017) argue that “the implementation of apps early in the nursing curriculum encourages active learning and the use of current, evidence-based resources when providing nursing care” (p. 5).

Our College of Nursing (UC CoN) has utilized iPads in lectures and self-directed learning since 2013. During fall semester of 2016 we converted to iPad testing formats eliminating the costs of printing exams. In the fall of 2017 we sought to increase utilization of the iPad and decrease costs with sophomore nursing students. In the Fundamentals Skills Lab we choose to move away from paper-and-pencil worksheets to electronically submitted worksheets that would require both students and faculty to embrace the use of mobile technology. Implementation continued in the subsequent semester in the clinical setting.

We will discuss the unique challenges and rewards experienced by faculty and students during the implementation process. Implications for future success include the wisdom one gains from doing something the first time. Throughout the process we identified ways we could improve implementation in coming years.
Implementation required identification of mobile applications for use, orientation of faculty and staff on the use of applications, and ensure adequate support for all. We met with lab faculty, many of whom were adjuncts, and provided an orientation to the applications students would be using and the blackboard-grading platform for grading electronically submitted assignments. A user guide to blackboard grading was developed and sent to lab faculty via email. Strategies for future faculty development should include mentoring, time to learn new technologies, workshops, individual training, and providing the necessary technical support. (Dickerson, 2012)

It is important to note that both course lead faculty were implementing the paperless model for the first time. From the perspective of course lead faculty, the electronic format provided continuous access to all aspects of student work and faculty grading. This provided an opportunity to review student work periodically and identify issues as they arose rather than at the end of the course. For example, we were able to identify faculty who were not providing feedback to students in a timely manner and address the issue by offering support to the faculty. We were also available to easily provide support and feedback to lab adjuncts when issues arose where they were unsure regarding grading.

Students received iPad orientation from the College of Nursing as part of their orientation. The student’s IT orientation included information and instruction on mobile applications frequently utilized in the College of Nursing. Course lead faculty in lecture reinforced orientation. Despite attending iPad orientation many students lacked a basic understanding of how to use their iPad. Course lead faculty identified several students who were unable to access information on their iPad weeks into the semester. In week 5 of the semester misconceptions and misunderstandings related to the use of mobile applications to create and submit assignments were common among students.

There were early adopters among the student groups. Many students enjoyed the format and shared their enthusiasm with others. Some students emerged as leaders and were able to help other students when issues arose during lab time. Like Rubenstein and Shubert in their 2017 article Student and Faculty Perceptions of iPad Integration in a Prelicensure Program we identified through informal student feedback that student retention from the iPad orientation course was poor. Many students reported “information overload” and that the information was “too much”. Future success could be improved with small group orientations with sophomore course lead faculty and instructional designers. Having the students in smaller groups using their iPad in real time could help faculty identify individuals who need assistance prior to the first day of classes.

Faculty also struggled with the use of the iPad in the skills lab. Faculty challenges included the utilization of e-books, mobile applications, and blackboard grading. An impromptu question and answer session was provided for lab faculty and students in week six. An instructional designer joined course lead faculty to answer questions and address issues. Through this process, we identified that there was a lack of buy-in among some lab faculty. Lack of buy-in among lab faculty emerged as our greatest challenge to implementation.

Although there were many challenges in implementation, we also experienced success. Although some faculty struggled with implementation, many faculty embraced the new format early on in the process. These faculty members cited decreased time lapse for students to receive feedback, decreased time spent grading, and the personal convenience of grading electronically as advantages to the new format.

Additional successes included cost savings. To date the cost savings for lab and clinical paper-to-digital conversion has been an estimated $2200 just for printing. This estimate does not include reduced cost in human resource time related to reduced grading time and eliminated trips to the college to return assignments to students.

Title:
Transforming Nursing Education: Utilization of the iPad in Laboratory and Clinical Settings
Keywords: Information technology, Mobile computing device and Undergraduate nursing education

References:


Abstract Summary:
Utilization of iPad with sophomore BSN students in skills lab and clinical sites to document patient data, and upload assignments. Our goal was to simulate the electronic medium utilized in the clinical setting, improve IT literacy and reduce overall expenses. There were challenges, rewards, and lessons learned for future success.

Content Outline:

1. Introduction
   1. One goal was to develop information technology (IT) competency in undergraduate nursing students,
   2. Second goal was to reduce printing costs for both the student and the college

2. Body
   1. Challenges
      A. Faculty also struggled with the use of the iPad in the skills lab.
         1. Faculty challenges included the utilization of e-books, mobile applications, and blackboard grading
         2. Lack of buy-in among some faculty
      B. Students struggled with use of iPad
         A. Despite attending iPad orientation many students lacked a basic understanding of how to use their iPad
B. Misconceptions and misunderstandings related to the use of mobile applications to create and submit assignments were common among students

2. Rewards
   1. Students
      1. Many students enjoyed the format and shared their enthusiasm with others. Some students emerged as leaders and were able to help other students when issues arose during lab time
      2. Immediate feedback to students

   2. Faculty
      1. Most of the faculty embraced the new format early on in the process. These faculty members cited decreased time lapse for students to receive feedback, decreased time spent grading, and the personal convenience of grading electronically as advantages to the new format.
      2. Identify faculty who were not providing feedback to students in a timely manner and address the issue by offering support to the faculty. We were also available to easily provide support and feedback to lab adjuncts when issues arose where they were unsure regarding grading

3. Lessons learned
   1. Students
      1. Small group orientations with sophomore course lead faculty and instructional designers. Having the students in smaller groups using their iPad in real time could help faculty identify individuals who need assistance prior to the first day of classes.
      2. Specific directions are needed for student submission of assignments

   2. Faculty
      1. Strategies for future faculty development should include mentoring, time to learn new technologies, workshops, individual training, and providing the necessary technical support

4. Cost Savings
   1. Cost savings for lab and clinical paper-to-digital conversion has been an estimated $2200 just for printing.
   2. Estimate does not include reduced cost in human resource time related to reduced grading time and eliminated trips to the college to return assignments to students

III. Conclusion

1. Many students enjoyed the format and shared their enthusiasm with others and most of the faculty embraced the new format early on in the process
2. Cost savings occurred in printing and in human resource time

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**Professional Experience:** RN-1986-to present, During this time responsible for many educational opportunities to peers Completed Nurse Educator Certificate in 2015 Currently enrolled in DNP program in Nursing Administration.

**Author Summary:** As a 5-year instructor at the University of Cincinnati College of Nursing, she always
looking for new ways to utilize technology in lecture and lab. As course coordinator she likes to challenge the students in their way of learning. Whereas, as the clinical coordinator in the lab my goal is to provide students with the tools needed to provide quality safe patient care. Her areas of interest: gerontology, rehabilitation and wound care

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Author Summary: In her sixth year of teaching, she continues to grow as an educator. She enjoys innovative teaching strategies that challenge both students and faculty to think on their feet. As a facilitator, she strives to provide her students with the tools necessary to think critically and solve problems. Her goal is to provide an engaging classroom experience that encourages each student to become an active participant.