Technology Integration in Nursing Education: A Case Study in Higher Education

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Session Title: Technology Integration Into Nursing Education
Slot: F 12: Monday, 30 October 2017: 9:30 AM-10:15 AM
Scheduled Time: 9:50 AM

Keywords: Education, Evidence based Practice and Technology

References:


Web based references

ADE, Worldwide Institute 2016; Bretschneider, Bosch, Kelly, Kraft, Moore, Stoltzfus, Tuscano, Wesner


https://francisjimtuscano.com/tech-integration-in-education/5dsframework/

**Abstract Summary:**
Technology enhanced pedagogy allows faculty to transform the classroom into a unique, creative opportunity for learning. Technology allows students to demonstrate higher level of Bloom’s taxonomy while producing content that’s replicable in their future EBP endeavors. This session will focus on educational innovations and the translation from classroom to practice.

**Learning Activity:**

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<thead>
<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
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<tr>
<td>Identify traditional evidence based teaching pedagogies that may be enhanced using technology</td>
<td>1. Pedagogy a. Evidence based teaching pedagogy and theory b. Technology enhanced pedagogy</td>
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<td>Conceptualize the integration of technology tools in the classroom using a case study</td>
<td>1. Technology tools via Case Study a. SAMR model (substitution, augmentation, modification, redefinition b. Examples of technology integration in the DNP</td>
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<td>Demonstrate the translation of technology integration in the classroom to practical application in nursing practice</td>
<td>1. Tools to improve cognition 2. Tools for demonstrating learning 3. Translating tools from the classroom to nursing practice</td>
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<td>Evaluate the mediators and moderators of success in integrating technology</td>
<td>1. Success in technology integration a. Gaining buy in b. Drivers, moderators and speed bumps c. Tips for success in integrating technology</td>
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**Abstract Text:**

The emergence of innovative technology has forced the education community to re-examine traditional teaching methods. Transforming evidence based pedagogies such as student collaboration, mastery learning, feedback, meta-cognition and self regulation (Educational Endowment Fund, 2016) can be accomplished through the thoughtful integration of technology in the classroom. Beetham and Sharpe (2013) state that “these technologies represent a paradigm shift with specific and multiple impacts on the nature of knowledge in society, and therefore on the nature of learning” (p. 4).

**Background and Literature**

Siemens provides a theoretical framework of connectivism to collaborative learning and his work offers a perspective that ‘learning in the digital age is no longer dependent on individual knowledge acquisition, storage, and retrieval; rather, it relies on the connected learning that occurs through interaction with various sources of knowledge and participation in communities of common interest, social networks, and group tasks’ (Siemens, 2005, pg). Siemens definition lays a foundation for the inclusion of tablets and smartphones into technology enhanced evidence based pedagogy. Use of the tablets and smart phones in education is an emerging topic in the literature. Health sciences, including medicine and nursing, have begun implementing tablet-based learning programs to varying degrees, in both didactic and clinical experiences. Hand held devices offer a unique platform for developing collaborative, creative, engaging assignments that elevate the student’s understanding of the course content and result in higher level learning. Using tablet computers is by nature interactive and appeals to a variety of student learning preferences. Possibilities for creative teaching are limitless because of the range of existing applications and the potential to develop unique new software for a given program (Rossing et al., 2012; Naimie, Siraj, Ahmed Abuzaid, & Shagholi, 2010). Students benefit from hand held technology integration due to its flexibility, accessibility, and portability. Tablets make it easy to access learning resources in almost any setting (Rossing, Miller, Cecil, & Stamper, 2012; Dew, 2010; Johnson, Levine, Smith, & Stone, 2010). Tablet technology, including applications and Internet access, adds immediate value for students, not only in the classroom, but also in the clinical setting. (Rossing et al., 2012; Berkowitz et al., 2014, Wallace et al., 2012). Tablets and similar devices are used for communication and information management related to patient care and education (Wallace, Clark, & White, 2012) demonstrating the translation from education to nursing practice.

**Integration of Technology in a Large Midwestern University**

Several technology tools exist to improve cognition, assist students in demonstrating learning and encourage active learning strategies. The focus of these tools is changing how faculty educate students. Technology can place the responsibility for learning on the student while increasing the level of Bloom’s taxonomy that the student can achieve. Students can be encouraged to create unique content to demonstrate mastery or to reinforce learning on difficult concepts. Faculty can utilize technology to assist in the digital transformation of nursing care plans, concepts maps or logic models. Students can work collaboratively on project plans, share resources and develop evidence base practice project with the assistance of emerging technology tools. Our University’s nursing education program embarked upon a journey to incorporate iPads in the content delivery of Doctor of Nursing Practice program. The integration of iPads into doctoral education has offered a unique opportunity to use technology as students work to
attain the AACN essentials for doctoral education. These essentials include theory, leadership, scholarship, informatics, health policy, interprofessional collaboration, population health and advanced practice nursing (AACN, 2006). Each essential is interwoven into the curriculum delivered via iPad and each component and assignment that utilizes the iPad also utilizes the SAMR model. SAMR is a model developed to describe levels of technologic transformation. Substitution is using technology to simply replace a course tool with no functional change. Augmentation describes using technology in as a replacement that then enhances the user experience or functional improvement. Modification allows for significant task redefinition. Redefinition uses technology to create new, unimagined tasks.

Substitution: iPhoto and Keynote as used for discussion boards

The iPhoto and Keynote apps for the iOS have been used as a substitution for traditional discussion boards at the doctoral level. Students are able to use the apps to create image driven discussion based on a set of questions provided by the faculty. Students provide at least one text box describing the topic and use images and video to supplement their attainment of comprehension of the topic.

Augmentation: Planning Pro as used for project planning and implementation

Planning Pro is an iOS app used for project planning, process improvement, Gantt charts and resource management. DNP students complete a scholarly project within their program of study and previously wrote an extensive project planning paper. The issue is that the paper, once completed, is static. With the replacement of the paper with Planning pro, student get an interactive project plan that moves with them through planning, implementation and evaluation.

Modification: Evernote iPad app as used for DNP e-portfolios

Evernote is a web-based digital workspace that allows the user to collect, store and organize notes in digital user created notebooks. Evernote is accessible via the web and is device agnostic. Evernote allows for notebook items to be imported and exported via customizable email linked to a secure sign in. Notebooks can be established by the user to collect and store information in an organized fashion, in this case, users can create a notebook containing e-portfolio criteria. Evernote is a good option for large, competency based portfolios and for programs utilizing handheld technology.

Redefinition: iMovie and TED as a redefinition of role attainment

In previous years, student have been asked to write a paper explaining the DNP role and its place in advanced practice nursing. This was a good assignment for evaluating student attainment of professional roles. The concept of TED talks were integrated into the assignment to allow the student to shoot a 2 minute movie and narrative that explained how the student planned to use the DNP degree in their professional role. This assignment has been highlighted at the National Organization of Nurse Practitioner Faculties (NONPF) national conference, the AACN conference as well as widely published across the our university setting.

Student engagement and improved student learning

Traditional teaching methods in doctoral education tend to limit engagement and opportunity for innovation. The addition of the iPad has allowed faculty to conceptualize the delivery of content differently in this practice driven program while increasing the engagement of students. Students are putting effort into projects and assignments that move away from writing papers and focus on application of concepts in a real world way. Using the iPad, the students create presentations, project plans and media that capture the essence of assignment rather than an academic exercise. Student report that this technology has changed their approach to practice problems, communication and collaboration. This is evident by the student letters of support that are attached to this nomination.
Sustainability and Replication

The sustainability of this technology is directly related to the infrastructure of IT, instructional design and administrative support. The integration of this technology is reviewed yearly and improvements to processes, app selection and achievement of outcomes are mapped through student evaluation, faculty analysis and other feedback mechanisms. The iPad initiative is already being discussed in other colleges in the University community and although the scale of the initiative may not be easily replicated, the engagement of students through selective use of apps and the use of the SAMR model can be accomplished. Thoughtful and intentional use of application to enhance learning will be part of a trend with new generations of learners in higher education.

Thoughtful Integration

Technology has also become an undeniable force in nursing practice. The transformation of what a student has learned in their educational practice and be directly applicable to their nursing practice. Handheld technology allows the nurse bedside access to electronic medical records, pharmacology guidebooks and other technologies used for patient education. Nurses are equipped to manage EBP projects, to create care plans and operationalize follow through using technology. As more technologies are developed, more and more opportunities will exist.

Moderators

Several moderators of successful integration have been identified. These moderators include the student’s emotional response, communication to students concerning technology, the technology learning curve as well as the student’s learning preferences (Stec, et al, 2017). A recent study demonstrated that how the faculty use technology in the classroom is the strongest predictor of the student experience with technology integration (Stec, et al, 2017). This finding demonstrates that faculty must take a thoughtful, well executed approach to integration in order to be successful.

Conclusion

Initiatives incorporating tablets into educational programs are largely aimed at improving the student experience through increased engagement, collaboration, and interactivity (Wong, 2012; Bond-Raacke & Raacke, 2008). It is imperative that faculty begin to transform their classrooms using technology aimed at not only improving student outcomes, but ultimately advance the triple aim of healthcare by improving patient outcomes, decreasing health care spending and improving patient satisfaction.