TECHNOLOGY USE PROPOSAL:
NURSING CLINICAL WITH DIGITAL SIMULATION

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Rationale

This technology proposal is requesting resources and support for the adoption of digital simulation software to be utilized in nursing education laboratories at New Jersey City University by undergraduate nursing students. The purpose of implementing this technology is to provide nursing students the ability to study concepts by way of hands-on experience in a virtual environment. Engaging students in this way will fill a void where students do not have access to live patients, instruments and software that are typical in hospitals, laboratories and doctors' offices in America. The digital simulation hardware and software will allow students to learn by trial and error; in the digital environment students will not have a fear of breaking physical equipment or harming human subjects (Berndt et al., 2015, p. 401).

Simulations provide an experience to students that they may otherwise not have opportunity to experience. As Sideras (2013) explains, "In addition to providing essential experiences and encounters with specific populations, simulations engage student learning independent of faculty and can be designed to increase the student's level of responsibility in a scenario, something that may not be possible in a traditional clinical setting" (p. 421). Students will be able to interact with the simulated content without the pressure of faculty hovering over them. At the same time, faculty will be able to review assessment data and have students revisit their areas of weakness.

The implementation of digital simulations in nursing education require resources (funding, space, personnel) as well as time to train faculty and students on the use of the application. Berndt et al. (2015) state that "[simulation] implementation barriers remain, including the extensive faculty and student time required along with a shortage of space and resources" (p. 401). With an adequate amount of training opportunities for faculty and students,

the software will likely be used effectively. With additional funding, space and resources can be allocated .toward simulation software training and implementation.

Background Research

With the use of simulations related to the Nursing Department, students will acquire the necessary skills needed for field safety. Historically, traditional simulation systems provided students with proper training on professional protocols (Winkelman et al., 2012). As Palaganas et al. (2014) explain, "original healthcare simulators facilitated changes in healthcare education toward an improvement in patient safety" (p. 111).

In traditional clinical education physical spaces (such as classrooms or academic and clinical laboratories), students use physical replicas of humans or human parts, like a torso, for assessment and hands-on training (Winkelman et al., 2012, p. e12). Palaganas et al. (2014) explain that simulation in the nursing field has grown to its current state of technology innovations due to its advantages over other education technologies (i.e., online exams, learning management systems, and instructional videos). The digital simulations closely mimic clinical practices in live laboratories, doctors offices and other healthcare facilities. These simulations offer assessment tools, varying settings to control the virtual space and more (p. 112).

Policy Consideration

Staff from New Jersey City University's Information Technology Department will be tasked with the installation and support of the simulation software. Professional development will also be provided to the faculty to ensure that the software will be properly implemented. Faculty who will utilize the software will meet to structure the use of the software into their curriculum; this software will be integrated into the first the clinical course that undergraduate students will be enrolled in. The simulation assignments will be completed before they are

exposed to an actual healthcare facility. As Strudler (2010) explains, "a consistent instructional vision, principal support for software use, teacher collaboration pertaining to the software, and satisfactory on-site technical support were all associated with higher achievement gains" (p.227).

The simulation software will include assessments which students will be able to complete after they master each simulation in a lesson. Strudler (2010) states that the simulation activities completed by students can be observed with the student performance data (p. 227). This data will be reviewed to assess the effectiveness of the software implementation after the pilot has been completed.

Description of Implementation

In the fall of 2017, digital simulation tools will be integrated into New Jersey City University's laboratory facilities in the Department of Nursing. Funds will be used from alumni donations dedicated for technology enhancement in the College of Professional Studies. The following steps will be completed sequentially and will act as a guide for the implementation process. This will ensure that all components have been effectively prepared and all necessary information has been disseminated among staff, faculty and students.

- Twenty (20) *Clinical Skills: Skills for Nursing Collection* simulation software licenses will be procured in the summer of 2017 at a cost of $6,920 (Elsevier, 2017).
- Twenty PCs will be repurposed and will be designated for operating the software.
- Documentation will be made available on the Nursing Department's on the proper use software.
- Digital simulation hardware and software components will be installed by the Department of Information Technology staff.
- Department faculty will be trained on the use of the hardware and software.

- Students will be acquainted with the digital simulation equipment by technology trainer of the IT Department.
- IT support staff will be made available to faculty and students for troubleshooting purposes for as long as the system is utilized.
- After the fall semester, students and faculty will complete a survey regarding the effectiveness of the digital simulation system. To address issues mentioned in the completed survey results, modifications will be made before the start of the spring semester.
- Student assessment data will be collected from the simulation software and analyzed to determine whether clinical learning objectives were met.
- After the spring semester, faculty and IT staff will meet to discuss the implementation and effectiveness of the tools. In addition, suggestions for further enhancements will be made during this time.

Assessment

Studies have found positive impacts due to the integration of digital simulations in nursing education. Sideras (2013) states that because of nursing simulations, "students reported high levels of confidence in their ability to recognize signs and symptoms associated with the health alterations presented, improved awareness of the stresses placed on families, and a better understanding of how family anxiety and stress affect the patient's ability to cope with the disease" (p. 424).

The implemented software will include assessment tools to measure students' comprehension of the content. This data will provide the faculty member, Nursing Department, and institution valuable information. As Strudler (2010) states, this digital simulation's

assessment tool will “ensure standardization due to consistent instruction and assessment procedures, eliminate expensive kits for hands-on tasks, improve the ease of administering and scoring assessments, alleviate safety issues and inequity due to lack of resources” (p. 228).

In traditional clinical settings, nursing students and faculty review actions that were taken during the experience and recommendations are made on what the students should have done (Nehring and Lashley, 2009, p. 542). With the digital simulation system’s assessment tool, data will be analyzed by faculty members and they will provide feedback to students regarding their strengths and weaknesses.

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