Purpose:

Nurse educators continue to seek the most effective methods to teach psychomotor skills to nursing students. Effective skill performance can decrease costly medical errors and infections, thereby improving patient safety (Gonzalez & Sole, 2014; Taylor, 2012). Much of the recent research about skill acquisition involves simulation (Bowling, 2015; Cason et al., 2015) and deliberate practice (Oermann, Molloy, & Vaughn, 2015). In order to develop effective teaching methods, it is also important to understand students’ perceptions about how they learn nursing skills. Prior qualitative studies about skill acquisition have found common themes, including the importance of peers, the role of positive support and teaching, and the necessity of practicing skills on real people; however, in these studies technology did not emerge as a strong theme (Aldridge, 2017). The purpose of this presentation is to discuss findings from a phenomenological study conducted with nursing students about their perceptions of learning psychomotor skills including innovations of readily available technology to facilitate and enhance their learning and competency.

Methods:

Descriptive phenomenology was used. A purposive sample of nine senior nursing students was recruited from a small liberal arts university in the Southwest United States. Participants were interviewed using open-ended questions. Interviews were designed to examine and explore how nursing students describe the process of learning nursing skills. Six themes emerged from the voices of the students; however, this presentation will elaborate on three: “the umbrella of emotion,” “practice, practice, practice,” and “learning through technology.”

Results:

Student nurses experience an ever-present stream of emotions during the skills learning process. Emotions described ranged from anxiety and inadequacy to confidence, fear and worry to relief, confusion and uncertainty to a sense of accomplishment. Nursing students believed nursing skills were learned most effectively with repetitive practice several times in short sessions. They described barriers to practicing psychomotor skills outside scheduled lab times. These emotions and the need for frequent practice drove nursing students to develop innovative and efficient methods to learn skills. Nursing students’ stories revealed the significant role technology played in how they learned skills. Technology was viewed as superior to other sources of information, such as textbooks. Students incorporated innovative uses of readily available technology to enhance their skills learning. Nursing students used smart phones and webcams to create learning materials to practice skill development in settings outside the lab. Nursing students discussed their perceived limitations of professionally developed video learning materials. They preferred self-made videos of their clinical instructor demonstrating a skill in the lab setting. Nursing students used webcams at home when practicing for skills examinations by recording themselves performing a skill with subsequent self-evaluation of their performance. This was reported as an effective strategy to detect errors in their performance, such as omitting steps or contaminating the sterile field. In the clinical setting, nursing students used their smart phones to review skills videos, skills checklists, and search for relevant patient information online. The smart phone became their mobile source of information.
Conclusions and Policy Implications for Educators:

Results of this research showed nursing students report a wide range of emotions in their learning and competency development of psychomotor nursing skills. Nursing students are innovative and effortlessly use available technology to enhance their skill development and enhance opportunities for practice of new skills. Given the presence of technology in nursing schools around the world, these findings have implications for nurse educators. Nursing schools should develop policies around smartphone use in the clinical setting, including Internet use, confidentiality, and not taking pictures. There is also little evidence that smartphones are a vector for bacteria in the clinical setting (Mark et al., 2014).

Research about how nursing students use technology to learn nursing skills is extremely limited. Given the pervasive nature of technology among nursing students around the world, it is important for nurse educators to develop evidence about how to best use technology to teach nursing skills. This study provides initial evidence about how current students are using technology when learning nursing skills, and serves to guide future studies. Ultimately, teaching students how to perform skills well could make healthcare systems safer and decrease costs as errors and infections are prevented.

Title:
Learning Psychomotor Skills Through Technology: Findings From a Phenomenological Study of Undergraduate Nursing Students

Keywords:
Nursing education, Skill acquisition and Technology Innovation

References:

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**Abstract Summary:**
Competent skill performance is essential for patient safety, yet little is known about best practices for nursing student psychomotor skill development. Results of a phenomenological study conducted with undergraduate nursing students revealed technology innovation and ingenuity used by students to enhance skill competency. Implications for nursing education will be discussed.

**Content Outline:**
I. Introduction and Purpose
   A. Importance of studying psychomotor skill teaching methods
      1. Effective skill performance can improve patient safety by decreasing medical errors and infections (bloodstream infections; catheter-associated urinary tract infections)
   B. Brief overview of prior research
      1. Simulation: focuses on methodology, fidelity
      2. Deliberate practice: role of focused practice with feedback; most common skill studied thus far is CPR.
      3. Common themes from qualitative studies about nursing students’ perceptions of learning skills: importance of peers, the role of positive support and teaching, and the necessity of practicing skills on real people.
   C. Purpose of this study: gain in-depth understanding of nursing students’ perceptions of learning skills
   D. Purpose of this presentation: elaborate on three of the six themes:
      1. Umbrella of emotion
2. Practice, practice, practice

3. Learning through technology

II. Study Methods

A. Descriptive phenomenology

B. Purposive sample of nine senior nursing students

C. Interviewed using open-ended questions

D. Data analysis

III. Results

A. Umbrella of emotion

1. Ever-present stream of emotions during the skills learning process (anxiety; inadequacy; confidence; fear; worry; relief; confusion; uncertainty; sense of accomplishment).

2. Quote to illustrate

B. Practice, practice, practice

1. Skills were learned most effectively with repetitive practice several times in short sessions.

2. Quote to illustrate

C. Learning through technology

1. Ever-present emotions and need for frequent practice led to development of innovative and efficient practice methods that centered on technology

2. Technology was viewed as superior to other sources of information, such as textbooks.

   a. Considerations about where students get information that is only found in the textbook

3. Videos:

   a. Made by students with smart phones and webcams

   b. Perceived limitations of professionally developed video learning materials and online videos.

   1. Research does validate that many online videos show inaccurate techniques and may not match what students are expected to do in their own lab.
c. Used webcams at home to practice performing a skill with subsequent self-evaluation of their performance.

1. Use of rubrics for self-evaluation

d. In the clinical setting, nursing students used their smart phones to review skills videos, skills checklists, and search for relevant patient information online.

IV. Conclusions and Policy Implications for Educators

A. Ever-present emotions and need for frequent practice necessitated students to develop innovative methods to learn skills that centered on technology

B. Technology is present globally and students are generally comfortable with it.

C. Need for policies regarding the use of smart phones in clinical setting

   1. Privacy issues / confidentiality / HIPAA

   2. Internet issues

   3. Generally not a vector for infection

D. Evidence-based skills teaching could improve safety in the healthcare system

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