

Skill Retention and Deliberate Practice with First-Year Nursing Students



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Purpose

- This project explores the relationship between deliberate practice and skill retention through a pilot study with first-year pre-licensure nursing students.
- Research question: What is the impact of deliberate practice on skill retention for first-year nursing students performing a sterile technique?

Background

- Sterile technique is a foundational skill and a component of many complex skills such as urinary catheter insertion, surgical dressing changes, tracheostomy care, and central line care.
- Inaccurately performed sterile technique negatively impacts patient safety and outcomes.

Introduction

- Nursing programs stack instruction of up to 100 skills toward the beginning of pre-licensure programs (Giddens & Eddy, 2009).
- Traditionally, nursing programs rely on one-time skill checkoff (McNett, 2012).
- Nursing students demonstrate skill decay (Gonzalez & Sole, 2014)
- Traditional methods may not allow students to transfer a skill from working memory to long term memory before presenting the next skill.
- Lack of skill retention related to high cognitive load.
- There is a gap in the literature regarding the use of deliberate practice to promote skill retention in nursing programs.

Methodology

- A prospective, quasi-experimental study with one group pretest/post-test design with IRB approval.
- All participant contact involved the use of proxies.
- Conducted in the skills lab of a community college in the Northwest United States.

Dichotomous variables

- Independent variable – a deliberate practice session,
- Dependent variable – retention of the sterile technique skill.

Participants

- Associate degree nursing program
- Convenience sample from 47 available students in the cohort
- First-year nursing student volunteers (N = 11)
- All participants had passed the sterile technique skill in a lab course.

Pretest

- Opening and placing a sterile drape on a table
- Opening then dropping a sterile gauze on the drape
- Opening package then donning sterile gloves.

Proxy observation criteria

- One non-sterile to sterile contact was considered contamination of the field
- Included loosing site of the sterile field and reaching over the field.
- Below the table service was also non-sterile.

Deliberate practice session

- One-on-one cuing and coaching of same skill with a proxy immediately following the pretest.
- Session ended when mastery of the skill was achieved.

Mastery

- The participant stated they no longer had to think through each step.
- The proxy noted no more errors were occurring.

Post-test of the same skill two weeks later.

Results

- An exact McNemar's test was conducted to evaluate the impact of the intervention on skill retention, comparing the pre and post-tests from the same participant.
- All participants (N = 11) contaminated the sterile field in the pretest
- The deliberate practice sessions ranged from 15 - 35 minutes, with a mean of 20 minutes.
- All participants stated they achieved mastery after the deliberate practice session and this was confirmed by the proxy.
- In post-test two weeks later, over half ($n = 6$) contaminated the sterile field, and the remaining ($n = 5$) maintained sterility.
- The alpha for the data was .062, higher than $p = .05$, indicating non-statistically significant results.
- The modest increase in skill retention (46% of participants) supported some benefit from the deliberate practice session.

Conclusion

- The decay of sterile technique with nursing students occurs and can impact patient safety causing Healthcare Associated Infections.
- Nurse educators need to explore the effectiveness of traditional and innovative teaching methods of critical skills.
- Deliberate practice may be an instructional method to promote skill retention.
- Nurse educators should ensure the mastery of sterile technique before introducing more complex skills such as urinary catheter insertion, surgical dressing changes, and central line care.

References

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