Computerized Curricular Assistive Tools for Student Academic & NCLEX-RN Success: A Retrospective and Prospective Study



Lindsey M. Schofield BSN, RN

Fort Hays State University Department of Nursing Lindsey M. Schofield BSN, RN

Abstract

A student preparation strategy of growing interest is the implementation of computerized curricular assistive tools (CCAT) into a nursing program's senior-level curriculum. This study investigated a Virginia baccalaureate nursing program's integration of a CCAT into a senior-level course to assist students in preparing for the comprehensive exit and NCLEX-RN examinations while improving the program's first-attempt NCLEX pass rate. The components that comprised the CCAT utilized were defined and further scrutinized to contribute to the knowledge a CCAT must consist of to produce improved knowledge retention and recall. A retrospective academic chart review was completed analyzing the comprehensive exit examination scores of two student cohorts, one using the CCAT and two that did not. The NCLEX-RN examination rates of the 2022 and 2023 graduates were compared to glean the impact the CCAT had on student academic success and NCLEX-RN examination success.

Keywords: NCLEX-RN exam, remediation, student engagement, standardized testing, ATI Capstone

Problem & Background

Internal and external driving forces are requiring schools of nursing (SON) to employ new teaching styles to promote student academic success and NCLEX-RN examination first attempt pass.

- Increased complexity of patient diagnoses and care required.
- 65% of patient errors are due to nurses' underdeveloped critical thinking and clinical judgment skills (Ignatavicius, 2021).
- 20% of nursing employers are not satisfied with the clinical judgment skills of their new graduate nurses (Ignatavicius, 2021).
- 2022 produced the lowest national NCLEX-RN pass rates in 10 years (Feeney, 2023).
- Digital native characteristics and preferences of Generation Z nursing students (Tiffany & Forneris, 2018).
- New NCLEX-RN test plan introduced April 2023 to more suitably test the examinee's critical thinking and clinical judgment skills.

Literature Review

SON integrating CCATs for academic success and NCLEX-RN preparation should ensure the CCAT uses the following factors: Creates student engagement

- Asynchronous usability
- Utilizes online coaching
- Faculty is transparent about expectations and usability features and weighs the learning activities to ensure student motivation.

Uses individualized remediation strategies

 Must be individualized based on the student's assessment result and focus on knowledge deficits found within the content.

❖ CCAT timing within the curriculum

- Should be integrated early in the curriculum to allow time for the student to remediate knowledge deficits.
- Faculty can identify "at-risk" students early and assist with remediation.
- Standardized formative assessments within curriculum content is a valuable strategy to produce positive program outcomes and student success (Smith & Meyer, 2021).

Methodology

Hypothesis: A CCAT comprised of components that strengthen student engagement, offer individualized remediation strategies, and are integrated early within a course will produce improved student academic success and probability of an NCLEX-RN exam first attempt pass. Context: Senior-level BSN students. 27, 2022 graduates not utilizing

the ATI Capstone CCAT & 31, 2023 graduates that did.

Independent Variable: ATI Capstone CCAT

Dependent Variable: Student *knowledge retention and recall* measured by the ATI Comprehensive exam score.

Ethics: The study was approved through FHSU IRB and the study BSN Institution's IRB. The assessment and exam scores ascertained were required learning activities for the course. No student consent was necessary. An informational session was presented to student participants.

Data Analysis

- -T-Test: Paired Two-Sample for Means for pre- and post-ATI Capstone assessment scores.
- -T-Test: Two-Sample Assuming Unequal Variance for ATI Comprehensive Predictor score analysis.

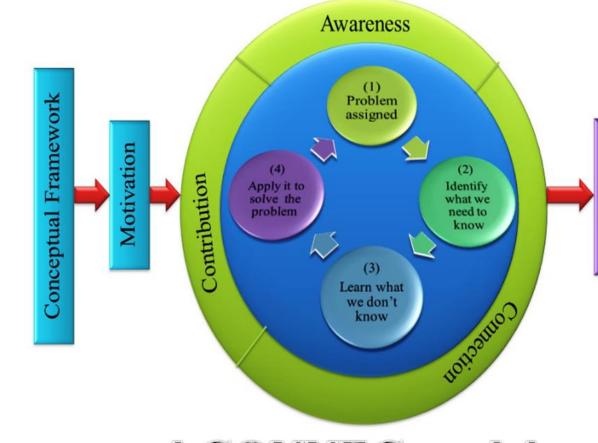
-Correlation analysis to ascertain a relationship between ATI Capstone CCAT and ATI Comprehensive Predictor.

Theoretical Framework:

Connectivism -> Connectivism occurs in the digital age in which interaction with different technologies creates a connectedness for the learner to understand, collaborate, and communicate information better (Amoia-Watters, 2022).

pbCONNEC Model by Sitti et al. (2013)

- Connectivism-based
- Concepts & student motivation = Input Online learning process
- = awareness. connection, & contribution.
- Learning Outcomes= knowledge, skills, and attitudes (Sitti et al.,



Additional Intervention

Capstone utilizing the

Brain-Based Learning

-Student orientation to ATI

pbCONNEC model

- SON provides conceptual framework and motivation
- Students develop awareness, connection, and contribution through CCAT utilization.
- Learning outcomes of improved knowledge, skill, and attitude necessary for first attempt NCLEX success.

Studied BSN Program ATI Capstone Integration Plan

ATI Capstone CCAT

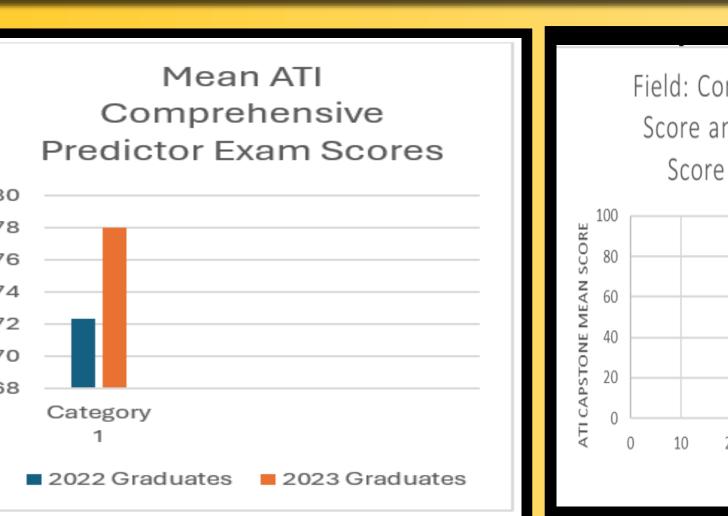
- Pre-Capstone Assessment
- Seven Content Modules
- Pre-assessment quiz
- Weekly tips & review of concepts
- Individualized post-test remediation
- Post-Capstone Assessment

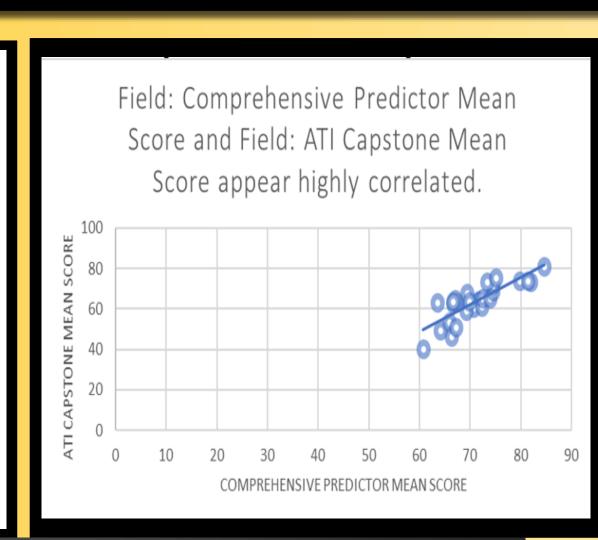
SON may choose different integration strategies to fit their curriculum

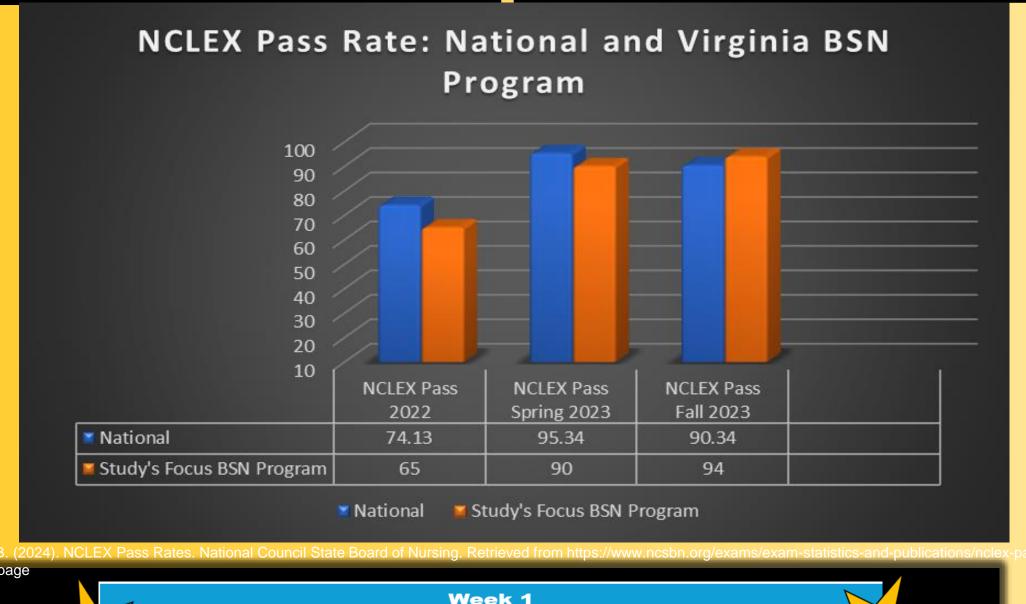
❖ What is Success [Image]. Retrieved from https://seapublication.wordpress.com/2014/01/20/what-is-success/ on

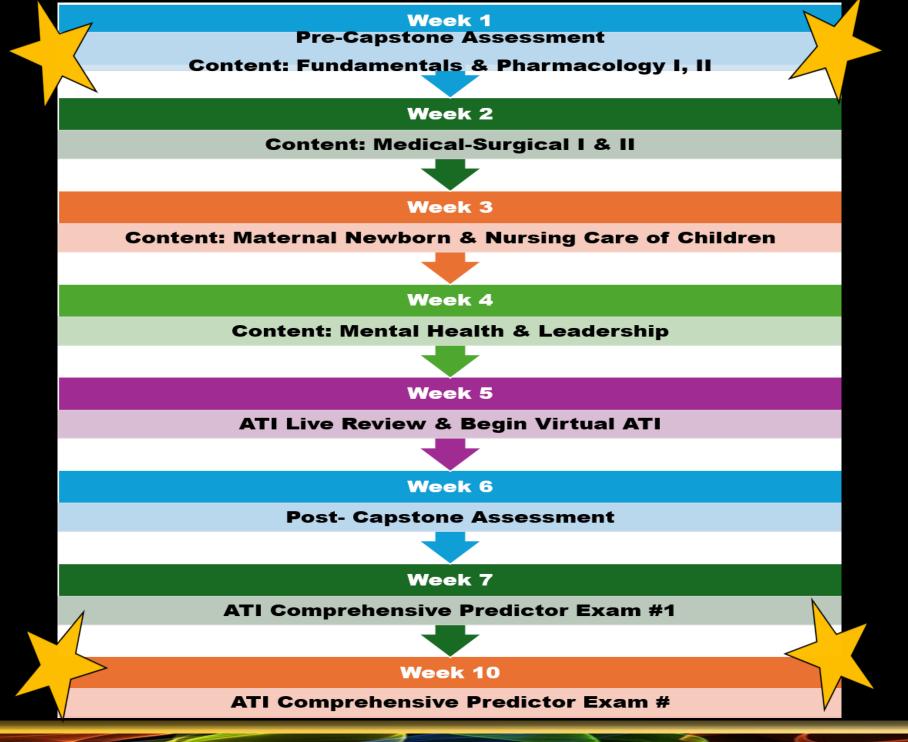
Results

- Pre- & post-ATI Capstone Assessment score analysis
 - Score Means = 96.128 &125.33
 - p= 0.65 **NO SIGNIFICANCE**
- ❖ ATI Comprehensive Predictor score comparison between 2022 Graduates and 2023 Graduates
 - Score means 2022 Graduates= 72.3%, 2023 Graduates= 78%
 - p= **0.012 SIGNIFICANT**
- Correlational Relationship between ATI Capstone CCAT and ATI Comprehensive exam
 - Correlation analysis of mean CCAT pre- and post-assessment scores and mean Comp Predictor scores #1 & #2, r= 0.83 High Correlation
- Discernment of NCLEX-RN exam pass rates
 - 2022 1st attempt pass rate = 65%
 - 2023 Spring 1st attempt = 90%
 - 2023 Fall 1st attempt = 94%









Conclusion

- Knowledge retention and recall cannot be discerned from ATI Capstone Assessments data alone.
- Students utilizing the CCAT scored higher on the ATI Comp. Predictor exam.
- High positive correlational relationship between ATI Capstone CCAT and ATI Comp Predictor scores.
- ◆ 1st attempt NCLEX-RN pass rate is improved with the use of the ATI Capstone CCAT.
- Utilization of a CCAT that comprises student engagement strategies, individualized remediation, and is timed early within the curriculum nas positive student academic outcomes and NCLEX-RN 1st attempt pass success.



Recommendations

- ❖ SON must choose CCATs that prioritize **STUDENT ENGAGEMENT**, offer INDIVIDUALIZED REMEDIATION, & INTEGRATE the CCAT **EARLY** into the curriculum for prime student results.
- Faculty must foster clear communication with outsourced nurse coaches to understand students' learning progression & knowledge retention with asynchronous CCATs.
- Face-to-face instruction must remain prime pedagogy as this method provides students opportunities to engage, problem-solve, & collaborate. CCAT is an adjunct teaching strategy.
- Time commitment and its impact on deep learning should be further. studied to understand how to chunk content modules & when to integrate the CCAT appropriately.
- Financial investment in CCAT purchase, additional IT support, and faculty superusers must be considered.

Acknowledgements

Amoia-Watters, L. (2022). The effects of the technology application "Socrative" on student engagement in a baccalaureate nursing program. Teaching and Learning in Nursing, S1557308722001317. https://doi.org/10.1016/j.teln.2022.10.00

Feeney, A. (2023). NCLEX-RN pass rates fall to lowest point in the past decade, [Image]. Nurse Journal. Retrieved from https://nursejournal.org/articles/2022-nclex-pass-rates/ on 5, March 2023

Ignatavicius, D. D. (2021). Preparing for the new nursing licensure exam: The next-generation NCLEX. Nursing2024, 51(5), 34.

https://doi.org/10.1097/01.NURSE.0000743100.95536.9b NCSBN. (2024). NCLEX Pass Rates. National Council of State Boards of Nursing. Retrieved from https://www.ncsbn.org/exams/exam-statistics-and-

<u>publications/nclex-pass-rates.page on April 4</u>, 2024. Sitti, S., Sopeerak, S., & Sompong, N. (2013). Development of Instructional Model based on Connectivism Learning Theory to Enhance Problem-solving Skills in ICT for Daily Life of Higher Education Students. Procedia - Social and

Behavioral Sciences, 103, 315–322. https://doi.org/10.1016/j.sbspro.2013.10.339

Tiffany, J., & Forneris, S. (2018). What's Driving the Adoption of Technology in Nursing Education?

Smith, A. L., & Meyer, L. A. (2021). A quality initiative for comprehensive integration of a standardized assessment product in nursing education. Teaching and Learning in Nursing, 16(1), p. 68–73. https://doi.org/10.1016/j.teln.2020.05.006

Student Learners [Image]. Retrieved from https://media.licdn.com/dms/image/C5612AQEiPCTZWSZ7gw/article-inline_image- shrink 400 744/0/1615663750471?e=1716422400&v=beta&t=2ckykol5UqiHtDsZQTFD7fjtfrALwzs_jptXJn_rBi8_on March 25, 2024.

Part 3 of the series The Future of Technology in Nursing Education. NLN Nursing Edge. Retrieved