



# sentara nurse

## Impact of Hybrid Teaching on Pre-Licensure Baccalaureate Nursing Students

Jennifer Bialk, MSN, RN, Georganne Poole, MSN, RN,  
Victoria Briosso-Ang, MSN, RN, Jean Madden MSN, RN, Barbera Radford, MS, RN, Leslie Reifel, MSN, RN

Acknowledgements: Kathie Zimbrow, PhD, RN, Ralitsa Maduro, PhD, Kristi Morgan, DNP, Jennie Pond, M Ed, Kay Peemoeller, BA



### Introduction:

Aims of this study were threefold: (1) to test whether there were associations between student characteristics and NCLEX pass/fail rates; (2) to test whether there were associations between academic performance in didactic and clinical courses; and (3) to test whether scores in both didactic and clinical courses were significant predictors of NCLEX success. The nursing program adopted hybrid teaching and classroom technology after data collection began. High fidelity clinical simulations were also developed at this time. These changes also may have affected our findings.

### Background and Significance

Nursing programs use first-pass NCLEX-RN as a measure of curricular adequacy and as a measurement used by accrediting agencies to ensure a program is graduating practitioners who meet minimum safety standards for a registered nurse. “Ensuring success on the NCLEX is a complex role for nurse educators. It is vital that nurse educators attain knowledge about the predictors of NCLEX success so that they can design strategies and interventions to optimize student performance” (Silvestri, 2010). Although this measure of success is not without controversy (Foreman, 2017), the standard remains. In the face of the current and forecasted shortage of registered nurses in the United States, the ability of nursing programs to graduate students prepared for NCLEX-RN is vital.

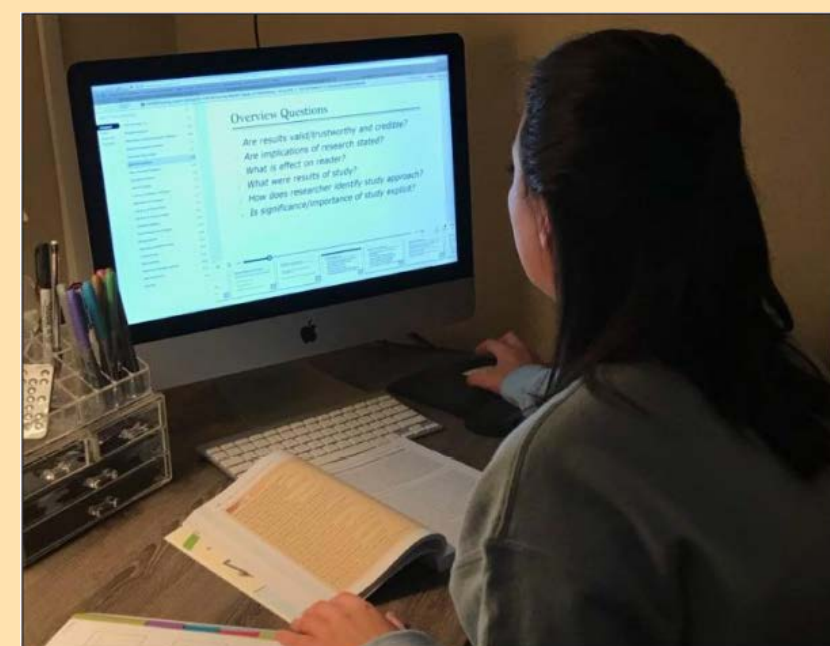
### Research Design and Sampling

This study utilized a closed cohort design studying graduating classes of 2012-2015 from admission to graduation and their performance on the National Council Licensure Examination (NCLEX) following graduation.



### Methods

Data for this cohort of 253 students was collected retrospectively from existing school records for the Sentara College of Health Sciences. This quantitative study used de-identified data acquired through subjects’ academic and financial aid records while in the nursing program. Student characteristics (race, age, gender, marital status, military experience, VA eligibility, and scholarship), as well as clinical and didactic course performance were examined. Student data was protected as required by Sentara’s *Use of PHI in Research Policy and Procedure* and the Family Educational Rights and Privacy Act.



### Results

Aim 1: Chi-square tests tested differences in NCLEX and found no statistically significant differences in pass/fail rates based on student characteristics (race, age, gender, marital status, military experience, VA eligible, and scholarship).

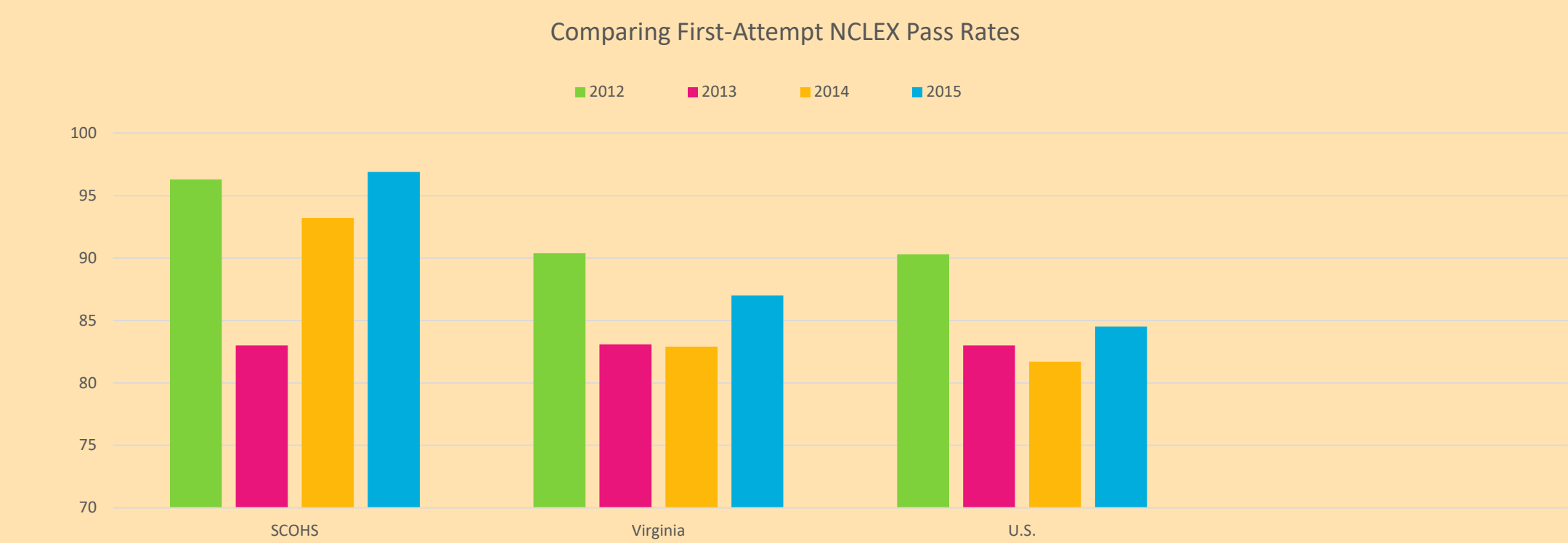
Aim 2: Bivariate correlation showed statistically significant positive association between average didactic and clinical scores. Higher scores in didactic classes associated with higher scores in clinical classes,  $r = .545$ ,  $p < .001$ ,  $R^2 = .297$ .

Aim 3: Binary logistic regression tested hypotheses that scores in both didactic and clinical courses were significant predictors of NCLEX success. When included separately in model, average didactic variable was significant predictor of NCLEX pass/fail (OR = 1.21, 95% CI [1.03 1.43], with 6% NCLEX variance explained); while average clinical variable was not a significant predictor (OR = 1.10, 95% CI [.88 1.38], with less than 1% NCLEX variance explained).

Post-hoc exploratory analyses of each course individually: Higher final numeric grade in course, Adult Nursing II was statistically significantly associated with greater likelihood of passing the NCLEX, OR = 1.36, 95% CI [1.09 1.70]. Finally, although course, Fundamentals of Nursing Practice final numeric grades were not statistically significantly associated with NCLEX pass/fail rate, performance in NUR 315 correlated to 9.4% of NCLEX success, which may be relevant.

### Conclusion

What accounted for the differences in Adult Nursing II from other nursing courses? Why did it correlate to NCLEX success? Comparison was made of our first-attempt NCLEX pass rates to state and national rates for the time period of 2012 to 2015.



As a result, many changes were made. Sentara’s School of Nursing adopted hybrid teaching, which mixes teaching techniques, learning styles and delivery methods (Linder, 2017). In our program, didactic content is delivered online via lecture capture. This content is reviewed and applied during face-to-face classroom time. Up to 49% of didactic material can be delivered online. Classroom technology (lecture capture videos, Assessment Technology Institute modules, One-Link learning modules, games, polling, blogs, discussion boards, webcams and smartphones for recording student videos, computer-based concept mapping, Quizlet, WebQuest and voice-over PowerPoint) was also adopted. High fidelity simulations were developed and added to clinical courses.

On examining course results, Nursing Fundamentals and Adult Nursing II correlated with student success on NCLEX. Nursing Fundamentals reinforces lecture capture concepts with classroom activities, ATI modules and Sentara Healthcare online One-Link modules. Students learn nursing process and practice application. Adult Nursing II reinforces lecture capture videos with multiple case studies requiring critical thinking and application during classroom time. Additionally, NCLEX-style questions and use of ATI modules reinforce learning. In conclusion, while grades in Adult Nursing II appear to correlate to passing NCLEX, the changes in teaching methods and increased use of technology also influenced these positive results.

