

The Relationships Among Standardized Exam Results, Remediation Time, and Licensure Success

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Learning Objectives

The learner will be able to discuss:



- How one school of nursing developed a series of classes to address the students' need to integrate current and previously learned concepts.
- The findings of a research study to investigate the relationships among standardized exam results, remediation, and success on licensure exam.



Purpose



- The purpose of this study was to explore the relationships among standardized exam scores, time spent on exam specific remediation, and licensure exam results using data from three years of senior classes.



Background

- Preparing students for rapidly changing healthcare environment
 - Knowledge Synthesis Courses – 3 one credit courses in junior year and first semester senior year, and 1 three credit course in the spring of senior year
 - Courses use an inquiry based approach with small group problem solving activities including case studies and group presentations
 - Concepts presented in Knowledge Synthesis correlate with Medical-Surgical and Pathophysiology class
- Identification of knowledge gaps and areas of weakness
 - Review of Standardized exam results
 - Formulation of plan to address gaps and weaknesses



Methods

- This quantitative research study utilized descriptive and correlational statistics to identify relationships among three years of senior student's data
 - Descriptive statistics provided means for standardized test scores, time spent on test specific remediation, score improvement, and licensure success on first attempt.
 - Analysis of Variance (ANOVA) allowed us to explore relationships among graduation year, and student success on licensure exam with standardized test scores and time spent in test remediation that accompanied the standardized exam.



Results

- Data from $N = 364$ students graduating during the 2014, 2015, and 2016 calendar years were available for analysis.

| NCLEX-RN Outcome | 2014 | 2015 | 2016 | Total |
|------------------|--------------|--------------|--------------|------------------------|
| Fail | 23 | 12 | 12 | 49 |
| Pass | 93 | 115 | 107 | 315 |
| Total | 116 | 128 | 120 | 364 |
| Pass Rate | 80.2% | 89.8% | 89.2% | 3-YR Avg: 84.4% |

- NCLEX-RN pass rates (above) were calculated based on *when the student graduated*, not when they sat for the licensure exam.
 - Generally, students sit for the exam in the same calendar year as when they graduate from the program, but students completing in the Fall semester may test in the next calendar year.



Results

| NCLEX-RN Outcome | September Custom Exam Score * <i>M (SD)</i> | Sept-Dec Remediation Clicks <i>M (SD)</i> | Sept-Dec Remediation Time <i>M (SD) hrs:min</i> | December Custom Exam Score * <i>M (SD)</i> |
|------------------|--|--|--|---|
| Pass | 768.8 (101.3) | 95.7 (108.4) | 2:16 (2:43) | 939.4 (117.2) |
| Fail | 691.5 (96.9) | 105.5 (145.8) | 2:43 (3:09) | 862.5 (141.7) |

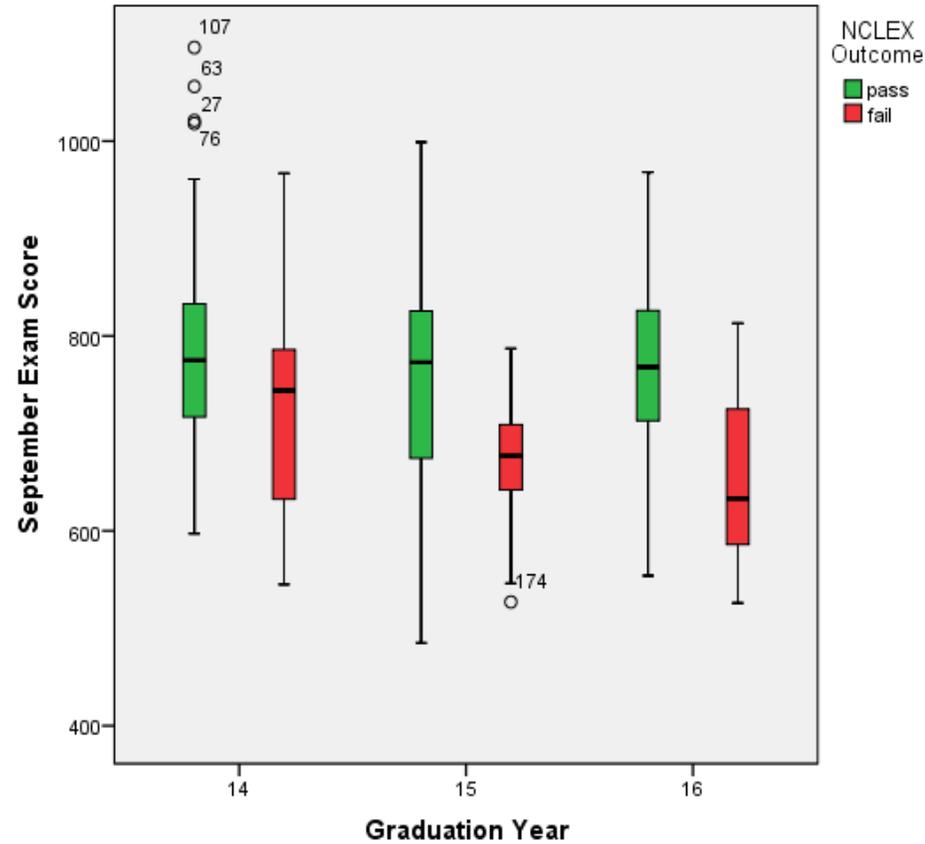
| NCLEX-RN Outcome | January Exit Exam Score <i>M (SD) *</i> | Jan-April Remediation Clicks <i>M (SD)</i> | Jan-April Remediation Time <i>M (SD) hrs:min</i> | April Exit Exam Score <i>M (SD) *</i> |
|------------------|--|---|---|--|
| Pass | 806.9 (103.8) | 23.3 (64.3) | 0:41 (2:54) | 874.7 (94.0) |
| Fail | 718.5 (93.3) | 37.8 (102.7) | 0:35 (1:25) | 796.0 (67.6) |

* = statistically significant at $p < .001$

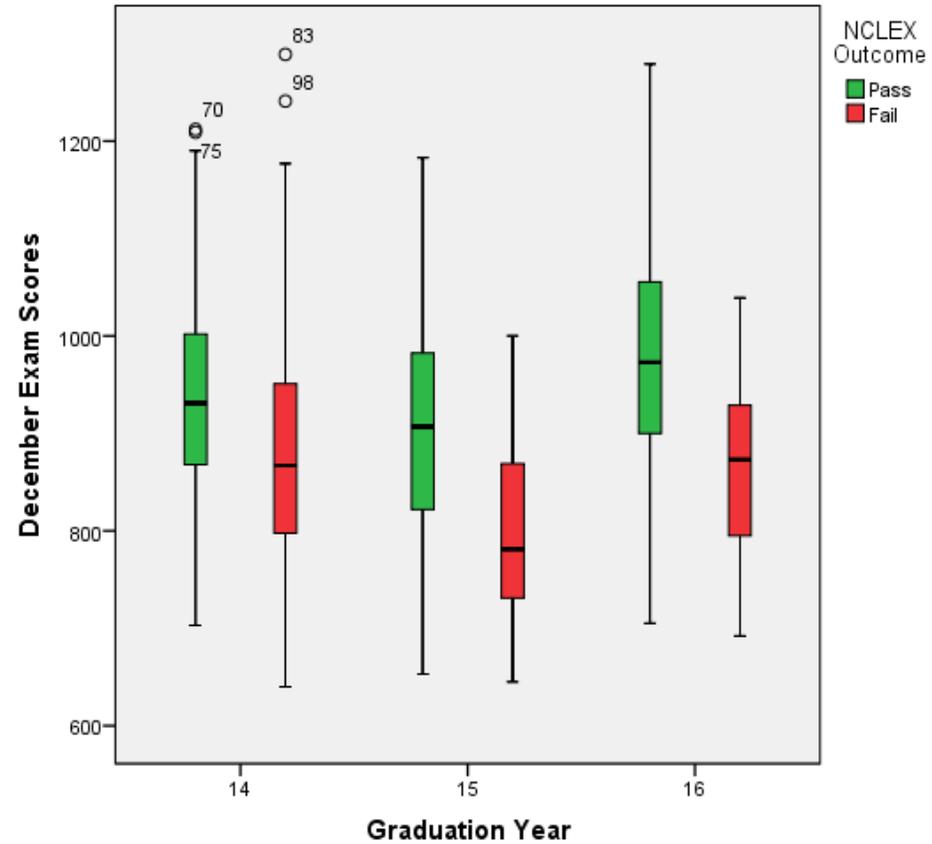


Results

Comparison of September Exam Scores by Licensure Exam Outcome and Year of Graduation (N = 364)



Comparison of December Exam Scores by Licensure Exam Outcome and Year of Graduation (N = 364)



Note that because scores were higher on average on December tests, the y-axis scale for December is adjusted accordingly.



Results

- The exam most strongly correlated with licensure exam passing was the first administration of the exit exam in the spring of the senior year ($r_{pb} = .282, p < .001$), followed closely by the first custom comprehensive exam administered at the beginning of the senior year ($r_{pb} = .261, p < .001$).
- Time spent in test-specific remediation was positively, weakly correlated with test score improvement ($r = .173, p = .001$) in the fall semester.
- Remediation time in the spring semester (between the first and repeat administrations of the exit exam) was **not** associated with exit exam score improvements or changes in NCLEX-RN outcomes.



Discussion:

Curriculum changes for knowledge synthesis course



- Specific courses designed to practice synthesizing current and previous knowledge
- Expanded these courses to include junior year with focus on thinking and learning styles



Increased use of standardized tests

- Every course has a standardized test for the final to increase comfort and confidence
- Senior year first semester starts and ends with a similar tests to identify gaps of learning with significant increase in scores
- Remediation of previously taken tests with tracking of time spent



Limitations

- Unable to accurately capture quality of time spent on remediation activities
- May download reading material for later, offline use.
- Students may remediate with other resources which aren't captured electronically.



Lack of statistical significance \neq lack of practical importance



- Faculty have to creatively approach activities to encourage first time passing
- Reinforce strategies previously added to synthesize knowledge
- Build test taking comfort and confidence
- Identify areas of learning needs
- Develop a plan for remediation throughout the curriculum



Conclusions

- Identifying at-risk students early on
- Developing a plan for addressing knowledge gaps
- Building confidence in students' test taking skills

These activities were essential in helping our students be more successful on their first attempt at the licensing exam



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