Effectiveness of an Adaptive Quizzing System to Improve Student Learning

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Translational Research Study
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School of Nursing
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National Center for Research on Evaluation, Standards, and Student Testing (CRESST)
EFFECTIVENESS OF AN ADAPTIVE QUIZZING SYSTEM AS AN INSTITUTIONAL-WIDE STRATEGY TO IMPROVE STUDENT LEARNING AND RETENTION

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Purpose of this study

Utilization of a technological strategy which:

- Provides ongoing learning and remediation
- Capable of both Faculty and Student led activities
- Delivers NCLEX style and alternative style test items
Method

- Retrospective study
- Southeast Texas, BSN Program
- Low stakes environment
- Descriptive and Correlational Design
- Explore the relationship between Usage & Mastery in AQS and
  - Course Outcomes, ATI, and NCLEX
National Council State Boards of Nursing

NCLEX 1st Time Pass Rates

• Indicator of Quality
• Contributors to Failure Rates
• Consequences
• Challenges in Predicting Success
Standardized Tests


• High Stakes Testing
  • Spurlock (2006) “Do no harm”
  • Little or no guidance or validity evidence to support

• National League of Nursing (2012)
  • Support student learning
  • Improve & evaluate teaching and program effectiveness
Utilization of Standardized Testing

Texas Approved Nursing Programs
• 98.8% utilize standardized testing
• 47.9% used to determine progression (20%)

Heath Education Systems, Inc. (HESI)
• HESI Exit Exam – HESI E2

Assessment Technologies Institute (ATI)
• Comprehensive Exam RN
Generational Differences

Generation X
1. Motivated by security
2. More competitive
3. Wants Independence
4. Better multi-taskers
5. More entrepreneurial
6. Wants face to face communication
7. True digital natives
8. Want to be catered to

Millennials
1. Technologically Savvy
2. Goal Oriented
3. Connection with Others
4. Multi-takers
5. Team Oriented
6. Expect Diversity
7. Teaching and Learning

AACN, 2005; Juraschek et al., 2012
Nursing Student Body

- Diversity
  - Ethnicity
  - English as a Second language
  - 2nd Degree
  - Age

AACN, 2005; Juraschek, et al., 2012
Transition from Knowledge to Evaluation

BLOOMS TAXONOMY

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

STUDENT’S RESPONSE

- “....that wasn’t in the book
- “They trying to weed us out!”
- “Those were tricky questions”
- “All the answers were correct”

AACN, 2005; Juraschek et al., 2012
One on One Meeting – Faculty & Student

• Less than 75% on unit exam
• Review of exam performance and test taking skills
• Student Concerns
• Faculty Recommendations
• Evaluation
Prior to Adoption of Prep U

Students
Overwhelmed & frustrated

Faculty
Bending over backward
Prep U PassPoint
Adaptive Quizzing Software (AQS)
Lippincott, Williams, and Wilkins

- Prep U has partnered with higher education publishers in the following:
  - Biology
  - **Nursing**
  - Allied Health

- Created by UCLA faculty
- Individualized
- Easy to Difficult
- Win-Win

Faculty, Student, Benchmarks
## Comparison of Benefits

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>FACULTY</th>
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</thead>
<tbody>
<tr>
<td>Individualized</td>
<td>Comprehensive</td>
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<td>Immediate Feedback</td>
<td>Evaluation</td>
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<tr>
<td>Positive Outcomes</td>
<td>Time Effective</td>
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</tbody>
</table>

A WIN-WIN for everyone!

AACN, 2005; Juraschek et al., 2012
Challenges when Implementing Adaptive Quizzing Software (AQS)

- Education
- Acceptance
- Modification
- Adoption
Results

Quizzes
- Average of 574 questions answered
- Overall mastery level of 3.48 (max=8)

Practice Mock Exams
- Average of 5.94 Practice “Mock” exams
- Overall exam mastery level of 6.62

Correlations
- Positive correlation between number of questions and mastery level
NCLEX RN – 1st Time Pass Rate

88.9%

NCLEX Success

- 1st attempt
- 2nd attempt

AACN, 2005; Juraschek et al., 2012
Results – Surveys

- Motivation and Study Habits
  - Beginning of course

- Usage and Opinion of AQS
  - End of Course

- NCLEX Experience
  - After taking the NCLEX-RN exam

AACN, 2005; Juraschek et al., 2012
Thank You for your time and consideration

Question & Answer Session