Preparation for NCLEX
Effectiveness of EAQ & HESI EXIT EXAM

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Disclosure

- The authors of the study are Brenda Orazietti & Mina Singh
- There is no conflict of interest in presenting this material
- We are not receiving any sponsorship or commercial support for the endorsement of any product
- York University has provided both authors with funding for travel to present at this conference
- Objectives: To understand how course tools for learning such as Elsevier Adaptive Learning assists with HESI test results and NCLEX outcomes, and how students assessed their readiness to sit the HESI exam
Background

- A significant change in the licensing exam of nursing graduates was announced in Dec 2012

- The Canadian Council of Registered Nurse Regulators (CCRNR) announced that to be registered as a nurse within Canada applicants would be required to pass the NCLEX-RN exam, not the CRNEs
  - Computer adaptive exam
  - Change in format of questions
What does this change mean to Canadian Nursing Faculty

- Test Blueprint is different
- Curriculum needs revision
- Question formats are different from CNRE
- An Action Plan needs to be developed

- The 4 year degree program was not geared towards writing this exam: altering or changing curriculum, & faculty methods of teaching & testing do not shift that quickly
Several research studies have supported its’ validity and reliability in nursing (Zweigheit, 2013). Research studies have been published describing the use of HESI testing within nursing, health care settings and other health care professions (Nibert & Morrison, 2013). Educators have found HESI Exams to be successful measures for benchmarking program outcomes, measuring student achievement, and guiding remediation prior to licensure candidacy (Barton, Willson, Langford & Schreiner, 2014).
Purpose of Study

To evaluate the nursing students experiences using an educational tool that is designed to help them prepare for their licensing exam, NCLEX

The school of nursing purchased computer software from the company Elsevier, 66 practice tests called EAQ (Elsevier Adaptive Quizzing) & the HESI exit exam
Differences in Exam Styles

- Vast difference between the CRNE & NCLEX style exam
- CRNE: paper & pencil test, 180-210 questions, up to 4 hrs, multiple choice, 60% case based
- NCLEX: computerized adaptive exam, complex questions, min. 75 questions-265, up to 6 hrs, no cases, multiple choice, alternative format (audio, matching, fill in blank, calculations, multiple responses, drag & drop, high emphasis of safety, NANDA)
First group of York University nursing students to write the NCLEX exam

Collaborative students: spend 2 yrs at college then 2 yrs with us at York university

296 4\textsuperscript{th} year collaborative nursing students

All enrolled in a course called Integrated Practicum (IP), 9 credits

On-line work, labs & attend clinical for full time hours with a preceptor
<table>
<thead>
<tr>
<th>Passed Quizzes</th>
<th>%</th>
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<tbody>
<tr>
<td>10</td>
<td>5%</td>
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<tr>
<td>20</td>
<td>15%</td>
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<tr>
<td>30</td>
<td>20%</td>
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<tr>
<td>40</td>
<td>25%</td>
</tr>
<tr>
<td>50</td>
<td>35%</td>
</tr>
<tr>
<td>60</td>
<td>40%</td>
</tr>
<tr>
<td>66</td>
<td>45%</td>
</tr>
</tbody>
</table>
HESI Exam Grid Mark out of 30%

- Rubric from the company, Elsevier, but we modified it as worried about high amount of failures
  - Change from 900 to 875
- For the summer term, using the standard one from Elsevier
# HESI Exam Mark out of 30%

- \[ \geq 1050 \] \hspace{1cm} \text{Recommended Performance} \hspace{1cm} 95
- 1000-1050 \hspace{1cm} 90
- 950-1000 \hspace{1cm} 85
- 900-949 \hspace{1cm} 80
- 875-899 \hspace{1cm} \text{Acceptable Performance} \hspace{1cm} 75
- 850-874 \hspace{1cm} 70
- 800-849 \hspace{1cm} \text{Below Acceptable Performance} \hspace{1cm} 65
- 750-799 \hspace{1cm} 60
- 700-749 \hspace{1cm} \text{Needs Further Preparation and Retesting} \hspace{1cm} 55
- \leq 699 \hspace{1cm} 50
Our Strategy for Success

- We implemented 2 strategies in the students 4th year, last term of the program as a means to help prepare the students - EAQ & HESI
Ethics approval was obtained from the university’s ethics board, & consents obtained from 200 students to participate in the study
As a course requirement, the course director designed 66 mastery EAQ quizzes in 3 different levels of difficulty:

- **Level 1 = 25 quizzes** “easy to pass”
- **Level 2 = 22 quizzes** “average”
- **Level 3 = 19 quizzes** “challenging”

45% of course weight to pass them

30% of course weight to HESI exam
Methodology

- Asked the students to do a self assessment of their readiness to write the HESI on the 1\textsuperscript{st} day of this course
- 2\textsuperscript{nd} self assessment was done near the end of the course, after the EAQ was due in week 11
- Did HESI exit exam in week 11
Analyses

- Students self assessments were compared: 1\textsuperscript{st} to 2\textsuperscript{nd} survey
- This was also correlated to their HESI scores
- The amount of EAQ quizzes completed was compared to HESI performance
- Lastly the information will be related to their NCLEX scores- if reported by students
Self-Assessment

• Based on the competencies to practice-84 items
• Domains:
  • Safe and Effective Care Environment-16 items
  • Safety and Infection Control-10 items
  • Health Promotion and Maintenance-9 items
  • Psychosocial Integrity-16 items
  • Physiological Integrity
    • Basic Care and Comfort-7 items
    • Pharmacological and Parental Therapies-9 items
    • Reduction of Risk Potential-10 items
    • Physiological Adaptation-7 items
Scoring

- Rate yourself on the items:
  - 1-no knowledge of the item
  - 2-some knowledge of the item
  - 3-familiar with theory
  - 4-certain of the theory
  - 5-solid knowledge of both theory and practical knowledge
Results of HESI

- Group of 221 students mean 873
- Group of 73 students mean 905
- Range of HESI scores 472-1287
- NATIONAL MEAN SCORES IN USA ARE 739!
- We have captured international attention with our scores
Overwhelmingly + correlation between the amount of time spent working on the EAQ & HESI scores

- Total students in the IP course 296
- Students completing all 66 mastery level quizzes = 142
<table>
<thead>
<tr>
<th>Score Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>501-599</td>
<td>3</td>
<td>2.1%</td>
</tr>
<tr>
<td>600-699</td>
<td>10</td>
<td>7.04%</td>
</tr>
<tr>
<td>700-799</td>
<td>26</td>
<td>18.3%</td>
</tr>
<tr>
<td>800-850</td>
<td>16</td>
<td>11.26%</td>
</tr>
</tbody>
</table>

All scores < 850 are considered below acceptable performance and a fail  
Total 56/142 = 39.43%
Results: Competed 66 Quizzes & HESI Score

- Acceptable Ranges:
  - 850-899  15  10.56%
  - > 900 Recommended Range:
  - 900-949  14  9.85%
  - >950       53  37.32%
- Total in Acceptable & Recommended
  - N=82      57.73%
Interview of High Scoring Students on HESI

- Student A: “I did thousands of EAQ quizzes, I even created my own based upon my weaknesses”

- Student B: scored 1287, “I read all the rationale for each response for the EAQ questions correct and incorrect responses to learn as much as I could”
Interview of High Scoring Students on HESI

- Student C: “Besides completing all the EAQ quizzes, I studied from the Saunders book, found it helpful”

- Student D: “I also studied the content before I did a EAQ quiz, so refreshed my memory 1st”

- Student E: “I did all the level quizzes for 1 content area at a time vs all level 1,2,3 quizzes”
Results of Pre-Post Self Assessment

- N=200, completed self-report pre-test
- N= 132, completed self-report post-test, but 109 surveys used
  - Missing identifiers
## Results - 109 pairs

<table>
<thead>
<tr>
<th>Domain</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>Mean = 259.27</td>
<td>Mean = 268.61</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>(SD= 39.51)</td>
<td>(SD= 54.64)</td>
<td></td>
</tr>
<tr>
<td>Safe and Effective Care</td>
<td>Mean = 53.16</td>
<td>Mean = 53.44</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>(SD=8.37)</td>
<td>(SD=11.67)</td>
<td></td>
</tr>
<tr>
<td>Safety and Infection Control</td>
<td>Mean= 30.41</td>
<td>Mean= 32.93</td>
<td>t (106) = -3.11,</td>
</tr>
<tr>
<td></td>
<td>(SD 5.84)</td>
<td>(SD=6.31)</td>
<td>p,&gt;05</td>
</tr>
<tr>
<td>Health Promotion and Maintenance</td>
<td>Mean= 30.16</td>
<td>Mean= 30.04</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>(SD= 4.93)</td>
<td>(SD=5.49)</td>
<td></td>
</tr>
<tr>
<td>Psychosocial Integrity</td>
<td>Mean= 51.93</td>
<td>Mean = 53.87</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>(SD= 8.96)</td>
<td>(SD=10.62)</td>
<td></td>
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</tbody>
</table>
# Results

<table>
<thead>
<tr>
<th>Domain</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Care</td>
<td>Mean=25.27 (SD= 4.81)</td>
<td>Mean=25.49 (SD= 6.24)</td>
<td>ns</td>
</tr>
<tr>
<td>Pharm and Parental Therapies</td>
<td>Mean=27.48 (SD= 5.17)</td>
<td>Mean=29.35 (SD=5.39)</td>
<td>t (106) = -3.12, p,&gt;05</td>
</tr>
<tr>
<td>Reduction of Risk Potential</td>
<td>Mean=23.56 (SD=4.54)</td>
<td>Mean=26.07 (SD=4.65)</td>
<td>t (98) = -4.83, p,&gt;001</td>
</tr>
<tr>
<td>Physiological Adaptation</td>
<td>Mean=20.25 (SD=3.78)</td>
<td>Mean=22.02 (SD=4.39)</td>
<td>t (98) = -3.48, p,&gt;05</td>
</tr>
</tbody>
</table>
Discussion

- Overall, students did not feel that the tests helped them to be better prepared (increase readiness) for the writing the NCLEX

- Domains-Changes:
  - Safe and Effective Care Environment
  - **Safety and Infection Control**
  - Health Promotion and Maintenance
  - Psychosocial Integrity
  - Physiological Integrity
    - Basic Care and Comfort
    - **Pharmacological and Parental Therapies**
    - **Reduction of Risk Potential**
    - **Physiological Adaptation**
Suggestions for Success

- This summer term, same course is offered but in the 2nd degree entry program
- Developed a student ambassador program, I chose 6 students to support the summer students in this course
- Coming to speak at orientation, develop a Facebook group, have av emails, cell no
- Offer advice on IP, EAQ, HESI
- Student who scored highest in all 296 students, scored a 1287 coming to give advice
Suggestions for Success

- Specialty Exams: use EAQ to support learning
  - Mental Health
  - Paediatrics
  - Maternal
- Live Review: near end of term
  - 3 days
- Case Studies
  - Integrate into the classes: post conference in clinical
  - Group discussions
- HESI Vs CAT exams
- EAQ throughout all our courses that align with NCLEX
Timing of Testing

- Continuous
- Integrate into the Curriculum
- Testing at the end of each year - starting from 1st year