Reducing Disparities to Transform Practice: Connecting the Dots Between Student Success and Linguistically Modified Exams

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Disclosure

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Learning Objectives

• Examine the findings of a nursing education research study addressing student perceptions of non-native speakers of English about multiple-choice type items on teacher-made exams.

• Relate this current evidence to best practices for improving educational outcomes of non-native speakers of English and diversifying the nursing workforce, locally and globally.

• Value the need for research collaboration in funding future studies, advancing the science of nursing education, and transforming practice.
Greetings from University of Massachusetts Boston, Massachusetts  “50 years in 2015”
2010 Population by Race in Boston
(Hispanics and Latinos may be of any race) Source: 2010 U.S. Census

<table>
<thead>
<tr>
<th>Race</th>
<th>2000</th>
<th>2010</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian American (alone)</td>
<td>44,284</td>
<td>55,235</td>
<td>24.7%</td>
</tr>
<tr>
<td>Hispanic or Latino (combine)</td>
<td>85,089</td>
<td>107,917</td>
<td>26.8%</td>
</tr>
</tbody>
</table>

Asian American (alone) 2000: 44,284 2010: 55,235 24.7% = 8.9%
Hispanic or Latino (combine) 2000: 85,089 2010: 107,917 26.8% = 17.5%

Source: 2010 U.S. Census
Demographics- UMass Boston U.S. Students

- Asian students are the racial/ethnic group that has the highest percentage of students who speak another language at home (91%); (Hispanic/Latino (80%).

- Half of the U.S. students at UMB speak a language other than English at home.

- Three quarters of U.S. students of color and 19 percent of white U.S. students at UMB speak another language with their family.

- When broken down by citizenship status, most naturalized citizens and permanent residents speak another language at home or with their family (92% of both groups).

- Thirty-nine percent of native citizens reported speaking a language other than English at home.

(The Office of Institutional Research and Policy Studies, December 17, 2013)
Literature Review

- Language and communication barriers identified as the single most important obstacle facing ESL nursing students. (Olson, 2012, literature review- ESL students; Scheele, et al., 2011, literature review- Asian ESL students)

- Students with lowest English language acculturation had lowest first year course grades. (Salamonson, et al., 2008, prospective correlational study, 273 students AU)

- Domestic EAL students had higher attrition rates and poorer academic performance compared to internal students. EAL students are not a homogeneous group. (Zheng, et al., 2014, prospective correlational study, 1091 students AU)
Literature Review

- Lower NCLEX pass rates- NCSBN study (O’Neill, Marks, & Liu, 2006)

- Difficulties taking nursing exams (Coddington & Karsten, 2014)
  
  **Irrelevant Difficulty (61%)**  **Structural/Linguistic Bias (35%)**
  Construct-irrelevant Variance associated with concerns about validity, reliability, and equity
  Strategy: Linguistic Modification for semantic and linguistic complexity reduction (Bosher, 2009)

- Rigorous examination of improvement strategies and practices remains absent (Dudas, 2011; Mulready-Shick, 2013, ...)

*The Impact of Linguistic Modification of Multiple Choice Exam-type Test Items on Nursing Student Test Performance and Faculty Exam Writing Improvement: An Exploratory Study (2014-2015)* Mulready-Shick & Edward research study
Study Purpose and Question

To explore the impact of linguistic modification of multiple-choice exam-type test items for Asian American students who are non-native speakers of English (NNS).

How do non-native speakers of English from Asian descent perceive differences on exams that have been linguistically modified?

To explore the impact of a faculty development program on changing faculty practices in writing multiple choice test items (secondary purpose)
Methods

- Recruited faculty and student participants: Sophomore (NU 226, 220 & 201), Junior (NU 310, 314, 345), Senior (NU 440)

- **Sample** questions were obtained from six faculty participants based on exam item analyses- those that proved most difficult upon item analyses

- Selected questions were linguistically modified by expert consultant

- Faculty reviewed modified version for content integrity

- Student participants completed Exam Question Survey- Original and Modified Questions were *randomly positioned*
  - Difficulty (Scale 1-4 from “very difficult...” to “not at all...”)
  - Number of times read
  - Difficult/confusing words/phrases
  - Version preference  
    
    (Bosher, 2009)
Results: Demographic Data

- **Student Participants:** 26 Soph 5; Jr 9; Sr 12
- **Age:** 26.4 yrs (range 21-42)
- **Gender:** F 24; M 2
- **Race/Ethnicity:** Asian 16; White 2; Other 8
- **Speaking and Writing English:** 15.2 yrs
- **Age English learned:** 9.6 yrs
- **Primary lang childhood:** Chin 5; Viet 5; Kor 1; Rus 1
- **English proficiency:** Excel 7; Good 10; Moderate 9
- **Work in healthcare:** Yes 14; No 12
Results- Confusing and Difficult Words or Phrases

“What does the nurse do?”
“How does the nurse ‘label’ this pain? (label)
“Which statement BEST describes what cancer is?”

- Soph: necrotic, edematous, medication reconciliation, principles of, febrile
- Jr: outpatient, discharge instructions, complication of/prevent atelectasis, action of anticholinergic agents, first vs. best response
- Sr: Supervision, delegation processes, delegated, ever-changing health care environments and systems, leadership attributes/skills, engaging and managing conflict, barriers, rate is 20bpm higher, indicates a readiness by the nurse to take a leadership role
### Results - Difficulty Level

**Seniors (12) Five Questions**

**NU440**

<table>
<thead>
<tr>
<th></th>
<th>Original Question (N)(%)</th>
<th>Revised Question (N)(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Difficult to Understand</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very</td>
<td>1(1.7)</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat</td>
<td>9(15)</td>
<td>2(3.3)</td>
</tr>
<tr>
<td>A little</td>
<td>18(30)</td>
<td>5(8.3)</td>
</tr>
<tr>
<td>Not at all</td>
<td>31(51.7)</td>
<td>49(81.7)</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>1(1.7)</td>
<td>4(6.7)</td>
</tr>
<tr>
<td><strong>Number of times question read (mean)</strong></td>
<td>1.75</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>(SD=0.66)</td>
<td>(SD=0.45)</td>
</tr>
</tbody>
</table>
## Results - Version Preference

<table>
<thead>
<tr>
<th></th>
<th>NU 201/220/226 (n=5)</th>
<th>NU310/314 (n=5)</th>
<th>NU345 (n=4)</th>
<th>NU440 (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N)(%)</td>
<td>(N)(%)</td>
<td>(N)(%)</td>
<td>(N)(%)</td>
<td>(N)(%)</td>
</tr>
<tr>
<td>Number of questions (items)</td>
<td>14 (70.5)</td>
<td>11 (74.1)</td>
<td>5 (100)</td>
<td>5 (12.5)</td>
</tr>
<tr>
<td>Question preferred*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original</td>
<td>29 (41.4)</td>
<td>24 (43.6)</td>
<td>4 (20)</td>
<td>18 (30)</td>
</tr>
<tr>
<td>Revised</td>
<td>37 (52.9)</td>
<td>31 (56.4)</td>
<td>15 (75)</td>
<td>39 (65)</td>
</tr>
<tr>
<td>Both Questions</td>
<td>1 (1.4)</td>
<td>0</td>
<td>0</td>
<td>1 (1.7)</td>
</tr>
<tr>
<td>*Missing</td>
<td>3 (4.3)</td>
<td>0</td>
<td>1 (5)</td>
<td>2 (3.3)</td>
</tr>
</tbody>
</table>
Results- Revised Version Preferred

QUESTION CONTENT

- Concise, straightforward/direct, active vs. passive, objective vs. subjective answers, descriptive
- “Inputting unnecessary big words that students may or may not know can cause confusion and make them possibly over analyze.”

QUESTION STRUCTURE

- Shorter questions, fewer sentences, organized sentence structure, less redundant
- “I lose focus when it’s too wordy.”

QUESTION PRESENTATION

- Emphasis (use of bolding, capitalizing and underlining); abbreviations and parentheses are distracting
Conclusions

- The linguistically modified questions were preferred 62% of the time by student participants.

- Linguistic modification of exam questions may promote understanding and assist in test-taking abilities among nursing students who identify as non-native speakers of English from Asian descent.

- Further research is recommended to address modification of exam questions, while maintaining linguistic standards in preparation for standardized and licensure exams.
Going Forward

• Connect to Current Evidence to build the science, provide best practices, and impact Ns Education Policy
  -- Validation of English Language Acculturation Scale (ELAS)  
    (Salamonson, Y, Everett, B., Koch, J., Andres, S., & Davidson, P., 2008-Prospective Correlational Studies)
  -- More Integrative Reviews (Murray, T., 2015- African American students)
  -- Case-Control Studies needed (NS and NNS groups)

• Support for Nursing Education Research for Doctoral Students and Faculty; with Database Development  (Jonas Center for Nursing, Excellence, Josiah Macy Foundation…)

• Implications for Nursing Practice and Education worldwide in addressing global shortages  (NLN, STTI, ICN Ns Educ Network, WHO, International Journal of Nursing Education Scholarship)
Acting on the Core Value and Hallmark of Diversity

**NLN**

One of NLN’s four **Core Values**

DIVERSITY- Affirming the uniqueness of and differences among persons, ideas, values, and ethnicities.

*Achieving Diversity and Meaningful Inclusion in Nursing Education: A Living Document* (Feb 2016)

**STTI**

**Hallmark** of Global Diversity

DIVERSITY- is a means to provide different perspectives in support of STTI's vision, mission and goals, to foster creativity, build community and promote excellence in nursing practice, education and research.
New Research Collaborations and Funding Sources

• Collaborate with institutions with common goals- to increase success of students from underserved and diverse backgrounds (recruitment, retention, persistence)

  Exemplar: AANAPISI grants (US Dept of Education)

  *Enhancing Asian American Student Success: Linking Research and Practice* Annual Conference Jan 2015

• Interdisciplinary work- to share concerns and pool expertise and to enhance rigor of research and scholarship (*Journal of Interdisciplinary Education*)
References


References


Questions?

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STTI/NLN Nursing Education Research Conference
Research as a Catalyst for Transformative Practice
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