VERIFYING THE RELIABILITY OF INFORMATICS COMPETENCY ASSESSMENT TOOL

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OBJECTIVES

- Define informatics
- Explain informatics competencies
- Understand study outcomes
- Identify key challenges and lessons learned
INFORMATICS DEFINED

- Informatics: application of information technology, any field, impact
  
  (Tolliver, 2011)

- Nursing informatics:
  -nursing, computer, information science
  -data, information, knowledge, wisdom

  (American Nursing Association, 2008)
LITERATURE REVIEW

Informatics competency tools

- Kaminski (2010-2012)
  -- self assessment tool
  -- Technical, Utility, Leadership

- Schleyer, Burch and Schoessler’s (2011)
  -- five level measurement tool
  -- Novice, advanced beginner, competent,
LITERATURE REVIEW CONTINUED

- Staggers’ four level measurement tool
- Technology Informatics Guiding Education Reform
- Public Healthcare
- American Association of Colleges of Nursing
- Differences
- Content & face validity
Nursing Informatics Competencies

- Computer literacy
- Information management
  - Search, Use, and Create Databases
- Technology skills—Electronic Health Records, Personal Health Records and multiple others
- Nurses must demonstrate informatics skills.
INFORMATICS COMPETENCES ARE ESSENTIAL

- Improve quality of patient care (Havens, Vasey, Gittell, & Lin, 2010)
- Reduce medical error
- Improve patient safety (Dingley, Daugherty, Derieg, & Persing, 2008)
STUDY PURPOSE AND AIMS

- Dr. Falan’s data

- Reliability of nursing informatics self assessment tool.

- Hypothesis:
  No significant difference in test/retest scores.
METHODODOLOGY

- Repeated measures design—test/retest
- 2 week interval
- Dichotomous → Likert scale
- Classified: no experience, beginner, competent, proficient, expert

(Benner, 1982)
Population

- Convenience sample of university students
- N=25
**Table 1. Demographics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender-female</td>
<td>22 (78%)</td>
</tr>
</tbody>
</table>
| Race            | 24 (96%) Caucasian  
                  | 1 (4%) African American |
Table 2. Sample characteristics

<table>
<thead>
<tr>
<th>Years in nursing program</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>2 (8)</td>
</tr>
<tr>
<td>2 years</td>
<td>9 (36)</td>
</tr>
<tr>
<td>3 years</td>
<td>10 (40)</td>
</tr>
<tr>
<td>4 years</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
</tr>
<tr>
<td>Highest academic degree</td>
<td>N (%)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>No degree</td>
<td>16 (64)</td>
</tr>
<tr>
<td>Associate’s</td>
<td>4 (16)</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>4 (16)</td>
</tr>
<tr>
<td>Master’s</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
</tr>
</tbody>
</table>
RESULTS
- T-test analysis
- Overall means were compared.
- See table below:

**Table 4. Examples of competency statement with results**

<table>
<thead>
<tr>
<th>Competency</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>uses word processing applications</td>
<td>-1.541</td>
<td>.136</td>
</tr>
<tr>
<td>demonstrates keyboarding skills</td>
<td>-1.549</td>
<td>.134</td>
</tr>
<tr>
<td>uses spreadsheet applications</td>
<td>-1.414</td>
<td>.170</td>
</tr>
<tr>
<td>uses presentation applications to create slides, displays, overheads</td>
<td>-1.769</td>
<td>.090</td>
</tr>
</tbody>
</table>
**RESULTS**

- P values results: Most p values > 0.05
- 82/104
- Examples:

**Table 5. Examples of competency with p values less than 0.05**

<table>
<thead>
<tr>
<th>Competency</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>uses multimedia presentations</td>
<td>-2.400</td>
<td>.024</td>
</tr>
<tr>
<td>uses operating systems</td>
<td>-2.493</td>
<td>.020</td>
</tr>
<tr>
<td>uses computer technology safely</td>
<td>-2.388</td>
<td>.025</td>
</tr>
<tr>
<td>develops inventive ways to access data and interact with information systems</td>
<td>-2.138</td>
<td>.043</td>
</tr>
</tbody>
</table>
DISCUSSION

- $p > 0.05$: not significantly different, consistent
- $p<0.05$: significantly different

- Learning
- Attention on new competencies
- Realization
CONCLUSIONS

- Pilot study to determine survey reliability.
- Nursing informatics assessment tool expanded from Kaminski’s self assessment tool.
- Majority of the competency statements were answered consistently.
IMPLICATION AND RECOMMENDATIONS

- Help educators understand students’ skill level.
- Shorter interval period—reduce significant difference
- Increase subject pool
Questions?
REFERENCES


At the end

- 4 values missing after data cleansing.
- Missed values filled with the mode of other 24 values.
- For example, uses computer applications to document client care, subject 17 had a missing value. The other 24 subjects’ responses were analyzed and the mode 3 was filled.
### AT THE END

- For the same question, means higher.
- The values not jump into other categories: ‘no experience’ 1 point and ‘expert’ 5 point.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Mean for first time</th>
<th>Mean for second time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation graphics</td>
<td>2.68</td>
<td>2.96</td>
</tr>
<tr>
<td>Telecommunication devices</td>
<td>2.40</td>
<td>2.96</td>
</tr>
<tr>
<td>Uses operating systems</td>
<td>2.16</td>
<td>2.64</td>
</tr>
<tr>
<td>Uses computer technology safety</td>
<td>3.24</td>
<td>3.72</td>
</tr>
<tr>
<td>Develops inventive ways to access data and interact with systems</td>
<td>1.36</td>
<td>1.68</td>
</tr>
</tbody>
</table>