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TIGER-based Assessment of Nursing Informatics Competencies (TANIC)• Chamberlain College of Nursing
Objectives

• Define key terms associated with nursing-informatics competencies

• Describe the TIGER Initiative's work on informatics competencies

• Discuss the results of the research described in this presentation

• Identify one use of the TANIC instrument
Overview

• Research problem
• Definitions
• Background
• Instrument development
• Pilot test
• Conclusions
Research Problem

• Nursing Informatics (N.I.) competencies for all nurses
• Instruments needed for measuring NI competencies
Competency Definitions

• Knowledge, judgment, skill, or strength sufficient for a task (Grobe, 1989)

• The Joint Commission – skills, knowledge, and capability necessary for defined expectations (2005)

• Knowledge-skill-attitude sets correlated with performance on the job, measurable against accepted standards and improvable by training or development (Lucia & Lepsinger, 1999)
Competency – A General Look

• Widely applicable concept
• No agreement on one definition
• Knowledge, skills, ability
• Task, act, job
• Context – adequate, effective, or expert
• Prescriptive
Research Definition

Competency

Adequate knowledge, skills, and ability for specific informatics tasks.
NI Competencies Sources - Research

- Androwich et al. (2003)
- Curran (2003)
- Desjardins et al. (2003)
- McNeil et al. (2005)
NI Competencies Sources - Organizations

- ANA
- AMIA
- HIMSS
- NLN
- TIGER
About TIGER

Technology Informatics Guiding Educational Reform (TIGER)

• NI leaders
  – ANI
  – ANA
  – AONE
  – AACN
  – Others

• Invitational Summit
  – 10-year Vision
  – Action Plans
## TIGER NI Competencies Alignment

<table>
<thead>
<tr>
<th>Basic Computer Skills</th>
<th>European Computer Driver’s License (108)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy</td>
<td>American Library Association’s Information Literacy Standards (47)</td>
</tr>
<tr>
<td>Clinical Information Management</td>
<td>HL7 EHRs Functional Model Clinical Care Components (76)</td>
</tr>
</tbody>
</table>
Online Self–Assessment of NI Competencies

- Instrument for
  - Faculty
  - Students
- Online
- Reliable and valid
- Self-assessment
- Perceived competencies
## Results After First Review By External Experts

<table>
<thead>
<tr>
<th>Competency Set</th>
<th>Number of Items Before Review</th>
<th>Number of Items After Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Clinical Information Management</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Basic Computer</td>
<td>99</td>
<td>99</td>
</tr>
</tbody>
</table>
# Results of CV Assessment

## Content Validity Index

<table>
<thead>
<tr>
<th>Competency Set</th>
<th>CVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy</td>
<td>.075</td>
</tr>
<tr>
<td>Clinical Information Management</td>
<td>.64</td>
</tr>
<tr>
<td>Basic Computer Skills</td>
<td>.52</td>
</tr>
</tbody>
</table>
## CVI Impact on Items

<table>
<thead>
<tr>
<th>Competency Set</th>
<th>Number of Items Pre CVI i</th>
<th>Number of Items Post-CVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>Clinical Information Management</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Basic Computer</td>
<td>99</td>
<td>51</td>
</tr>
</tbody>
</table>
Pilot Test

- Population: online discussion forum
- IRB approval
- Qualtrix survey
- Self ranking: Expert, Proficient, Comfortable, Beginner/NA
- Invitation to participate
- Reminder
- 14 days
## Sample

### Total Participants – 184

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>48 - 50</td>
</tr>
<tr>
<td>Range</td>
<td>26 - 70</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>147</td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
</tr>
<tr>
<td><strong>Education – Master’s</strong></td>
<td>52%</td>
</tr>
<tr>
<td><strong>NI Experience</strong></td>
<td>1 – 15 years</td>
</tr>
<tr>
<td><strong>NI Certification</strong></td>
<td>11%</td>
</tr>
</tbody>
</table>
## Item-Total Correlation

<table>
<thead>
<tr>
<th></th>
<th>Item-Total Correlation Range</th>
<th>Number of Items to Be Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Computer Skills</td>
<td>0.18 - 0.74</td>
<td>11</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>0.69 - 0.88</td>
<td>0</td>
</tr>
<tr>
<td>Clinical Information Management</td>
<td>0.63 - 0.85</td>
<td>0</td>
</tr>
</tbody>
</table>
Items Not Self-Rated as Expert

• Clinical Information Management
  – Define e-learning
  – Recognize examples of social networking websites, internet forums, chat rooms, online discussions

• Basic Computer Skills
  – Name options for recycling computer components, printer cartridges and paper
  – Recognize attempted phishing
Information Literacy
(Items Not Self-Rated as Expert)

- Describe the available proprietary information systems (CINAHL, EBSCO, etc.)
- Assess the quantity, quality and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
- Evaluate information and its sources critically and incorporate selected information into his or her knowledge base and value system
Information Literacy
(Items Not Self-Rated as Expert) (continued)

• Compare information from various sources to evaluate reliability, validity, accuracy, authority, timeliness and point of view or bias

• Analyze the structure and logic of supporting arguments or methods

• Determine the value added by the new information

• Synthesize conclusions based upon information gathered
Conclusions

• TIGER is a foundation
• Valid
• Reliable
• Discriminates
• Cognitive domain
• Curriculum planning
Thank You