Teaching Information Literacy Skills to Undergraduate Nursing Students: A Collaborative Approach

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Background
- BSN prepared nurses must be able to effectively identify, analyze, and synthesize evidence (AACN, 2008; ACRL, 2005; Cronenwett, et al., 2007).
- Integration of information literacy skills sessions throughout a course positively impacts skill development (Carlock & Anderson, 2007; Flood, Garawicz, Debler, 2010; Moura, 2010).
- Embedding a librarian within physical class sessions and online learning management systems enhances student learning. (Mueh and Hellen-Ross, 2010; Schulte, 2012).
- Active learning activities including worksheets, group work and hands-on exercises are favored by learners (Marpold, 2007; McCurry & Marinka, 2010).

Purpose
Determine the effectiveness of nursing and library faculty collaborative teaching and learning activities on undergraduate nursing students' ability to identify, analyze and synthesize evidence.

Implementation
- Setting was a College of Nursing within a mid-sized, faith based university located in the Midwest.
- Participants were 253 BSN senior-level nursing students enrolled in a nursing research/EBP course.
- Teaching/learning activities aimed at increasing information literacy skills were implemented over four semesters (see Table 1).
- Research logs and Evidence Summary Grids for 39 student groups were evaluated.
  - Logs and grids were requirements for an EBP Group Project. The purpose of the project was to explore evidence available regarding a clinical problem.
  - As part of the project, students formulated and documented a strategic search using a research worksheet.
  - Students evaluated and selected the best evidence, described why evidence was selected, and reflected on search process within a narrative research log.
  - Evidence was analyzed and synthesized using summary grid which identified the purpose, sample, design, measurement, results, and level of evidence for each publication.
  - Individual student final exam and course scores which assessed learning outcomes were evaluated.

Table 1
Implementation of Collaborative Teaching/Learning Activities

<table>
<thead>
<tr>
<th>Fall 2011</th>
<th>Spring 2012</th>
<th>Fall 2012</th>
<th>Spring 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library session 1</td>
<td>Embedded librarian</td>
<td>Library session 1,2</td>
<td>Embedded librarian</td>
</tr>
<tr>
<td>· Prim/Second Research</td>
<td>Library sessions 1,2</td>
<td>· Prim/Second Research</td>
<td>Library sessions 1,2,3,4</td>
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<tr>
<td>Evidence summary</td>
<td>· Levels of Evidence</td>
<td>Evidence summary</td>
<td>· Levels of Evidence</td>
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<tr>
<td>Poster presentation</td>
<td>Group research log</td>
<td>Poster presentation</td>
<td>Group Work</td>
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<td>Evidence summary</td>
<td></td>
<td>EBP worksheet</td>
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<td></td>
<td>Poster presentation</td>
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<td>Group research log with reflection</td>
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<td></td>
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<td>Evidence summary</td>
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<td>Poster presentation</td>
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</tbody>
</table>

Evaluation

Collaborative Teaching/Learning Activities Impact on Research Log & Evidence Summary Scores
- One-way MANOVA revealed T/L activities had a significant effect on research log scores (log components and total) among 3 groups (Lambda(6,496) = .885, p = .000).
  - Follow up univariate ANOVAs indicated that total log scores were significantly improved (F(2,24) = 31.578, p = .000). Scores from specific components of the log (search results, keywords, limiters, reflection) also reflected a significant difference.
  - Tukey’s HSD was used to determine the nature of differences among groups. Log scores for students in Spring 2012 who did not use the EBP worksheet were significantly lower than students in Fall 2012 and Spring 2013 who used the worksheet.
- One-way MANOVA revealed T/L activities had a significant effect on evidence summary scores (summary components and total) among 4 groups (Lambda(30,76,991) = .007, p = .000).
  - Follow up univariate ANOVAs indicated that total evidence summary scores were significantly improved by the use of research logs (F(3,35) = 14.116, p = .000). Specific components of the evidence summary (PICOT, results, and levels of evidence) also reflected a significant difference.
  - Tukey’s HSD was used to determine the nature of differences among groups. Evidence summary scores for students in Fall 2011 who did not use a research log were significantly lower than students in Spring 2012, Fall 2012, and Spring 2013 who used a research log.

Conclusions
- Collaborative teaching/learning activities significantly improved students’ abilities to perform systematic searches and identify, analyze, and synthesize evidence as measured by research log and evidence summary scores.
- Although course scores for those exposed to collaborative teaching/learning activities were not significantly improved, comprehensive final exam scores, a focused measure of students’ EBP knowledge, were significantly improved.

Recommendations
- Collaboration between nursing faculty and librarians promotes development of students’ information literacy skills.
- Information literacy is foundational to the EBP process; time must be dedicated to establishing these skills.
- Information literacy skills should be introduced early in the nursing curriculum and reinforced in multiple courses.