

Before You Write: Six Keys to Success - A Pilot Online Information Literacy Course for Graduate Nursing Students

By Shannon Fay Johnson and
Tammy Toscos

Course Overview

Before You Write: Six Keys to success is a non-credit required online course attached to the Indiana University - Purdue University Fort Wayne (IPFW) graduate nursing program. The rationale behind the creation of the course was to help graduate students recognize areas where their information literacy skills may be lacking or have become outdated and provide them with tools to increase their proficiency early in their first semester of the program. It consists of six self-paced modules with built in scenario based assessments. *Before You Write* was created, and is administered in, the university's learning management system hosted by Blackboard.

Background

The preponderance of IPFW nursing graduate students are returning adults who have been in the work force for some time and are pursuing graduate degrees in order to update skills, become eligible for promotions, or to change their career track. The majority of these students are unfamiliar with current technology as it applies to locating and using information. As Crosetto, Wilkenfeld, and Runnestrand (2007) noted, graduate students often have no experience with online databases/indexes or with using a computerized library catalog, implying they have little to no previous practice with locating, evaluating, or synthesizing research. These skills are an essential part of being information literate and are vital to nursing informatics as a whole.

The Institute of Medicine's report on education in the health professions, *Health professions education: A bridge to quality*, states that "All health professionals should be educated to deliver patient-centered care

as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics." (Greiner & Knebel, 2003, p. 45) They outline five core competencies that encompass this ideal: providing patient centered care, working in interdisciplinary teams, employing evidence-based practice, applying quality improvement, and utilizing informatics. (Greiner & Knebel, 2003) At the center of evidence based practice (EBP) is the belief that all practice should be informed by evidence. Therefore, the ability to locate, understand, apply, and manage this evidence is critical to the EBP process. Within many health disciplines, these skills fall inside the umbrella of informatics.

Nursing informatics is defined by the American Nursing Association as integrating "...nursing science, computer science, and information science to manage and communicate data, information, knowledge, and wisdom in nursing practice." (2008, p. 1) Within nursing informatics, information literacy is considered a core competency. While much of the language used by the American Nursing Association in informatics literature to describe information literacy differs from the typical library vocabulary, the spirit is very much intact. This emphasis on information literacy to nursing has opened the doorway for extensive collaborations between librarians and nursing faculty.

When surveyed, nurses identified several information literacy and/or informatics competencies as barriers to applying EBP. Gale and Shaffer's study found the top three personal barriers to EBP were a lack of searching skills, a lack of computer skills, and a lack of access to computers. (2009) Beke-Harrigan identified the number one overall barrier to EBP as a general devaluing of primary research in everyday nursing

practice, closely followed by an inability to use electronic databases to identify or locate current research. (2008) Also listed as barriers were the inability to understand research articles once located and limited access to the internet from hospital computers due to firewalls and blocks. (Beke-Harrigan, et al., 2008) Thiel's survey of nurses at a Midwestern teaching hospital found that over 70% would ask colleagues for advice before they would consult literature and that only 24% regularly use CINAHL. (Thiel & Ghosh, 2008)

It is no surprise then that nursing graduate students would come into their programs inadequately prepared for the university graduate research experience. Even with the profession actively promoting EBP, practicing nurses rarely make use of databases or libraries. A survey of Ohio nurses at the Aultman Health Foundation found that only 20% of nurses could report successful retrieval of research by searching CINAHL, 24% with Medline, and 64% with a search engine. (Beke-Harrigan, et al., 2008)

Given the low success rates for nurses using medical databases, and the problems inherent in the application of EBP to nursing practice, two assumptions can be made. First, nurses entering the graduate program must be taught how to effectively utilize these resources and cannot be assumed to have prior experience or skill. Second, nursing students must be better educated in informatics and information literacy in order for EBP to be successfully utilized in practice.

History and Development of the Course

Initially, the block of information literacy education in the graduate nursing program at IPFW took place in the Informatics course, NUR 52500, which was co-taught by a nursing faculty member and the health sciences librarian. This course is often taken towards the end of the program, with many of the students nearing graduation. The decision to move this block of content out of the course was based on two realities: first, the content of this three credit class had become overcrowded in an attempt to include a broad survey of health informatics, which included the ACRL Information Literacy Competencies, and secondly, comments on student evaluations requested changes. An often heard comment on the course evaluations was that the students wished they'd known these things earlier in their academic career - that the information provided would have been helpful

to them in lower level classes. Relocating the bulk of the information literacy content was therefore an effort to address student concerns about overwhelming content load. The Department of Nursing's Graduate Curriculum Committee agreed that students would be better served by having an information literacy tutorial prior to other course work versus waiting until taking the Informatics course. In addition, the modules would serve as a repository that students could review as needed during their academic career.

The creation of the modules was also of benefit to the library's instruction efforts. With a large number of the graduate students being non-traditional, meaning they are employed while taking classes, often full time, and most have families, conventional library workshops would not reach a significant amount of the students. The increase in online courses also hampered efforts at in-class library instruction throughout the nursing program. The modules could potentially serve as an introduction to the library, increasing awareness not only of material and resource availability, but also of the services offered and how to access them, thus reaching students that would otherwise have remained without direct librarian contact.

The Department of Nursing's Graduate Curriculum Committee decided that completion of the modules would be required prior to the first week of classes for all new graduate students entering the program. In the initial implementation, however, all students who had not yet taken the Informatics course were required to complete it during the first month of classes in the fall semester. Going forward, only new admissions to the program will be required to complete the modules in the summer prior to their fall classes.

Course development was fast paced and took place during the summer months with a target "go live" date at the start of the fall 2010 term. From the beginning, *Before You Write* was conceived of as a multidisciplinary cooperative project.. The already recognized connection between the library and information literacy as one of the nursing core competencies made collaboration on this project a necessity. While the informatics instructor and the health sciences librarian were the primary contributors, other faculty were brought in as needed to supplement their knowledge areas. For example, the APA content was developed by the nursing department's APA expert Susan Ahrens.

One important factor in the development of the modules was the choice to use the university's learning management system (LMS), rather than the Walter E. Hemke Library website, to house and build the content. This decision allowed for the use of advanced LMS features such as learning modules, tracking of student interaction with course content, built-in grading, and assessments. This would also provide a chance for incoming students to gain familiarity with the platform used to deliver course content throughout the graduate nursing program. Since the LMS is password protected, it allows content to be protected and student responses to be kept private.

The first step in designing the actual modules was deciding on the particular ACRL Information Literacy Competency Standards to address and defining the learning outcomes. Preliminary discussions with graduate nursing faculty about the concept areas requiring the most attention revealed four main target areas: information location and evaluation, APA styles, plagiarism concerns, and basic writing skills. Due to time constraints it was decided that the first three concerns would be addressed in the first iteration and that the fourth concern would be added in at a later date. The modules were divided as follows:

Module I: What is Evidence Based Practice?

- Goals: (ACRL Standards 1.1 & 1.3)
- * Recognize the need to know more information.
 - * State a research need, problem, or issue.
 - * Formulate appropriate and relevant research questions.

Module II: What kinds of information do you use for EBP?

- Goals: (ACRL Standards 1.2 & 1.4)
- * Distinguish between primary and secondary sources as well as scholarly v. popular.
 - * Recognize the relationship between currency and relevance of resources.
 - * Recognize similarities between source types, tools, and resources and be able to apply skills learned from familiar resources to unfamiliar ones.

Module III: Where do I start looking for information?

- Goals: (ACRL Standards 2.1, 2.3, & 3.2)
- * Recognize the variety of information formats available in nursing.
 - * Selecting the appropriate resources for searching and understanding their limitations.
 - * Assess the currency, authority, and reliability of the information retrieved.

Module IV: How do I use a library database?

- Goals: (ACRL Standards 2.2, 2.4, 3.4)
- * Recognize the structure and limitations of information-finding tools.
 - * Identify and use appropriate search techniques.
 - * Refine a search as needed using limiters, subject headings, and keywords.

Module V: How do I manage my research?

- Goals: (ACRL Standards 2.5 & 5.3)
- * Recognize the components of a citation and differentiate among types of resources.
 - * Use appropriate components of a citation to locate the original source.
 - * Locate and retrieve both local and external sources of information.

Module VI: How do I avoid plagiarism?

- Goals: (ACRL Standards 5.1 & 5.2)
- * Cite and acknowledge sources appropriately.
 - * Be aware of the principles of intellectual property, copyright, and plagiarism, and act ethically in light of them.
 - * Be aware of departmental and university policy regarding plagiarism.

The second step was to define the nature and extent of assessments that would be incorporated into the modules. Since the course was non-credit but required, assessments would need to be limited. Each module was designed to take an hour to complete and any assessments given would need to be accomplished within that time frame. An additional concern was the lack of faculty time for grading or reviewing student responses. Since the course is noncredit, no faculty were given course load credit for overseeing the project. This limited the nature of assessments to questions that could be handled by the LMS's assessment features so no faculty input would be needed to actually 'grade' the assessment and students could get immediate feedback.

Once it was decided to use the LMS's assessment or quizzing feature, the actual questions were developed. Existing information literacy assessments were reviewed as well as the content from the prior informatics course. In order to make the modules as grounded in the real world as possible, the idea formed to use scenario-based questions to guide not only the assessments but the modules themselves. A pre- and post-test was designed that would take a student through the EBP research process and give an idea of their proficiency on four or the five ACRL Information Literacy Standards Competencies.

Each module was then setup with module specific quizzes constructed so that students proceeded through the modules in a stepwise fashion. In order to unlock the next module, the previous quiz must be completed with a score of 100%. These shorter quizzes were designed not only to test knowledge/skill acquisition relevant to the module, but to provide additional instructional content in an applied setting. The quizzes were typically only two or three questions in length, consisting of a mix of multiple choice, matching, true or false, and fill in the blank questions. As with the pre- and post-test, the module quizzes were scenario based, with each module building upon the previous one.

An inventory of existing library instruction materials was done to see what content was already available and what would need to be created or located in order to meet the stated objectives. Due to the short time frame and rapidly approaching launch date, a variety of platforms and pre-existing content were utilized to accomplish this goal. Several existing library tutorials, most created in the

Adobe® Captivate® software, were linked in. New screencasts were created using both Captivate® and the free version of Jing®. An existing voice over PowerPoint® presentation covering APA was incorporated into the modules. Lastly, several videos from other institutions, most found on YouTube, were located and integrated into the course content.

Outcome

Informal feedback from the first round of graduate students to complete the modules is encouraging. The students showed an increase in information literacy proficiency based on the pre- and post-test results and were more willing to seek out further assistance as the academic year progressed. It was clear during reference interactions, related to various course assignments later in the semester, that the students had not become expert library users based on their experiences with *Before You Write*, but that they had gained a better understanding of what skills they were lacking and that they should ask for assistance in acquiring them. This alone could be seen as encouraging progress.

There were, however, several concerns raised. After reviewing the LMS's usage data, it became apparent that a large number of students had skipped over the module content, not even clicking on some links or only staying on them for a very short time, in favor of repeating the module quiz, in some cases more than 20 times, until their score was high enough to move on to the next module. Since the module quizzes had been built with the goal in mind of being in and of themselves a pedagogical tool, some knowledge was still imparted and all students did show at least a marginal increase in pre- to post-score. That said, there did seem to be a link between skipping over module content and lower post test scoring, which one might expect. The timing required for the initial implementation of the tutorial – the first month of the semester – may have placed additional strain on the students as well.

The next stage of the project will involve formal collection of test score data and student outcomes, based on user and faculty surveys over time. This first iteration was a test pilot to see if the modules were viable. Now that this appears to be the case, improvements to the course can be made and more in-depth analysis can begin.

Planned Improvements

The most pressing improvement on the modules will be to address the issue of repeated quiz taking versus synthesis of content. This can be managed by delivering the content as SCORM modules within the Blackboard system. The SCORM modules embed the quiz materials into the content so the experience is more interactive. While the scenario based assessments appear to be working, they too could use improvement to require a greater level of understanding by the student. The next step in the development process will be to consult with an instructional designer to improve the material presentation and user interaction for enhanced learning.

The content of the modules will also require some adjusting. Several of the screencasts are no longer in compliance with the university's ADA policy and must be switched into the Adobe Captivate platform and closed captioned. Materials linked from other institutions that do not meet the policy are technically still allowed, but alternatives will be sought that allow for greater accessibility.

An additional long term goal of *Before You Write* is to provide a more comprehensive orientation to the graduate research experience by incorporating the university's Writing Center resources. This is the fourth and last area that the nursing faculty identified as problematic for the graduate students. The Writing Center at IPFW specializes in helping students through the entire writing process, from concept to end product. The Writing Center could specifically provide content about how to critically read a primary research article, how to outline a paper, and the basics of the writing process. This would also increase awareness of the Writing Center and will likely contribute to the long term development of the graduate students as writers.

Conclusion

This paper presented the motivation and creation of an information literacy intervention aimed at graduate nursing students. The goals of this pilot were to evaluate the feasibility of preparing non-traditional nursing students to better navigate the writing demands of graduate school through the careful design and implementation of targeted videotutorials. There were many lessons learned during this pilot leading to planned enhancements and our preliminary findings suggest there is great promise in this method of training.

The authors intend to continue analyzing the impact of this intervention and adjusting the design as our program evolves.

References

- American Nursing Association. (2008). *Nursing informatics: Scope and standards of practice*. Silver Spring, MD: American Nurses Association.
- Beke-Harrigan, H., Hess, R., & Weinland, J. A. (2008). A Survey of Registered Nurses' Readiness for Evidence-Based Practice: A Multidisciplinary Project. *Journal of Hospital Librarianship*, 8(4), 440-448. doi: 10.1080/15323260802382802
- Crosetto, A., Wilkenfeld, P., & Runnestrand, D. (2007). Responding to the needs of our graduate students: A pilot information literacy course in graduate education. In T. Jacobson & T. Mackey (Eds.), *Information literacy collaborations that work* (pp. 41-56). New York: Neal-Schuman Publishers, Inc.
- Gale, B. V., & Schaffer, M. A. (2009). Organizational readiness for evidence-based practice. *Journal of Nursing Administration*, 39(2), 91-97.
- Greiner, A. C., & Knebel, E. (Eds.). (2003). *Health professions education: A bridge to quality*. Washington D.C.: National Academies Press.
- Thiel, L., & Ghosh, Y. (2008). Determining registered nurses' readiness for evidence-based practice. *Worldviews on Evidence-Based Nursing*, 5(4), 182-192.

About the Authors

Tammy Toscos, PhD, is an Assistant Professor of Health Informatics at Indiana University-Purdue University, Fort Wayne. She teaches healthcare informatics courses to undergraduate and graduate nursing students.

Shannon Fay Johnson, MLS, is an Information Services and Instruction librarian at Helmke Library, Indiana University - Purdue University, Fort Wayne. She is liaison to the departments of nursing, dental education, radiography, chemistry, biology, consumer and family sciences, and geosciences.