Information Literacy: Using LISTEN Project Strategies to Equip Nurses Worldwide

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Abstract. The 21st century presents a major challenge in the form of information overload. In a profession where new knowledge is ever expanding, nurse educators must equip nurses to find the information they need to provide safe evidence-based care. Information literacy and information technology competencies have become a priority in nursing education, but inconsistencies in definitions, frameworks, content, and design, combined with ill-equipped faculty have hindered the development of a transferable model geared toward improving nurses' information literacy. Challenges are compounded for nurses in developing nations, where access to information and training for information literacy are both problematic. This paper describes experiences from the LISTEN project, during the 1st year of a 3-year funded Nurse Education Practice and Retention grant. Designed to improve information literacy competencies of student and workforce nurses, using individualized learning via interactive web-based modules, LISTEN provides on its' website a *Did You Know* video dramatizing the importance of information literacy to nurses, and offers resources for information literacy, information technology, and evidence-based nursing practice. Preliminary findings from beta testing reveal the module content is realistic, complete, and logical. The website and video have generated worldwide interest. Future possibilities include nationwide implementation and adaptation for the international arena.

Keywords: Computer Literacy, Evidence-Based Practice, Information Science, Nursing Education Research, Nursing Informatics

1.   Introduction

Charging the profession of nursing to be proactive while driving changes for future practice, Domino [1] urged nurses to develop a readiness to learn, to be individually accountable for updating skills and correcting knowledge deficits. Expanding information necessitates lifelong learning, to keep abreast of new knowledge. In 1992, it was estimated that nursing information doubles every 5 years [2]. Today, healthcare expectations demand that nurses maintain competencies while incorporating current evidence to guide practice in the provision of safe quality care [1,3]. Research has shown that 28% of patients experience improved outcomes when care is evidence-based [4]. Foundational to lifelong learning and evidence-based practice (EBP) is the concept of information literacy (IL) [3].

Various definitions exist for IL. The American Library Association [5] defined IL as having abilities to recognize a need for information, access information, retrieve it, critically appraise it, and apply it for use. A closely related concept, information technology (IT) skills suggest adeptness with computers, databases, and computer software [5,6]. Dee and Stanley [7] found that many nurses do not possess adequate competencies for IL and IT. Highlighting the critical needs in relation to nursing workforce percentages, evidence has shown that 50% of nurses are not trained for accessing evidence-based resources and 50% of workforce nurses lack the computer skills to make them proficient at their jobs [8]. The National League for Nurses (NLN) has called for reform in nursing education whereby health information technologies

and nursing informatics are incorporated into nursing curriculum. They identified a critical need for faculty members to improve their own IT and IL competencies [9]. Although evidence supports the existence of IL coursework in nursing education, variability exists concerning content, design, and outcomes focus [2,6,10]. Australian authors [11] urged the development of a common framework for nursing informatics, to enable global consistencies and facilitate international collaborations. Other authors [12] highlighted a missing link between IL and EBP, identifying student attitude, appreciation, and understanding for the significance of IL and EBP as challenges for the nurse educator. Fourie [13] suggested that when information needs are made relevant to the workplace setting, healthcare professionals might change their attitudes and recognize the value of information resources.

In developing nations (DN), making information needs relevant includes consideration to problems with access. Open courseware, open software, and open access information repositories offer flexibility, shared knowledge, innovation spreading, and increased accessibility for DN [14]. Information management systems that facilitate access where broadband connectivity is problematic can provide digital resources via local portals. The eGranary Digital Library [15] is one such system, with current pilot activities involving the procurement and development of nursing resources to support nursing education in Zambia.

2.   Material and Methods

2.1   *Objectives*

This paper summarizes activities to date for the LISTEN (Learning Information Seeking and Technology for Evidence-based Nursing Practice) project, a Health Resources and Services Administration, Department of Health and Human Services, Nurse Education Practice and Retention 3-year funded grant (07/2007-06/2010) at The University of Tennessee Health Science Center (UTHSC) College of Nursing, Memphis, Tennessee [16]. Experiences and strategies will be offered, illustrating ways to engage student nurses and workforce nurses to manage and organize IL and IT information resources to support EBP. Future possibilities envisioned by the LISTEN team will be shared.

2.2   *Purpose, Setting, Team Composition, Operational Definition*

The LISTEN project's purpose is to improve information literacy competencies of nursing students (graduate and undergraduate) and workforce nurses (including faculty members) by using individualized learning strategies via interactive training through simulations in a web-based environment. Veterans Affairs Medical Center (VAMC) in Memphis is a partnering institution for the project. The LISTEN team is comprised of health science librarians, nurse educators, a nurse informatics specialist, a media specialist, an interdisciplinary team member with expertise in program evaluation, and select expert consultants from the field of informatics. We define IL as a 3-fold acquisition of attitudes, knowledge and skills in a 5-step information process: needing, seeking, accessing, evaluating, and applying information [16].

2.3   *Advance Preparation, Oversight*

In preparation for the project, team members conducted surveys to explore IT and IL across a variety of local healthcare institutions, with insights gleaned from registered

nurses and health science librarians. Ethical considerations include ongoing oversight by institutional review boards at UTHSC and the VAMC.

2.4   LISTEN Web site Resources

The LISTEN Web site [16] serves as a resource center for individuals wanting to learn more about IT, IL, and EBNP. Although the simulation modules will be available only to participants at the VAMC Memphis and UTHSC for the duration of the project, there are a variety of resources already available to anyone with Internet access. We developed a video titled *Did You Know*, dramatizing the importance of IL to the nursing profession. Available on the LISTEN site, it has also been placed on You Tube [17] and Teacher Tube [18]. Also for any user, the LISTEN social bookmark site at http://del.icio.us/listenuphealth has web sites organized and grouped in bundles/ tags to facilitate EBNP. Resources on the social bookmark site have been screened by team member subject matter experts and evaluated as credible resources for nursing. Other resources include archived tips of the week, a blog site, news, and email contact to team members. Learning objects (LO) have been and continue to be developed, to support individual knowledge deficits. The LOs are being created in Articulate [19], loaded onto the Web site, and will be available to LISTEN participants for remediation and continuing education needs. Their content provides further detail for concepts found within the module scenarios. LO examples include: *Recognizing Clinical Questions, Key Databases for Nurses, Prioritizing Information, and Evaluating Resources.*

2.5   LISTEN Modules

Module development continues, with evidence-based foundations that guide learning outcomes driven by the LISTEN Curriculum Matrix, developed to assure our content was derived from evidence in the area of IL [5] and nursing informatics competencies [6]. Module 1 (Information Seeking and IT) is undergoing a 2nd round of beta testing with students and workforce nurses. Module 2 focuses on Information Application and IT. Since IT skills are needed for seeking and application, their concepts are included within both modules.

At the convenience of participants, modules may be completed online - with each of the 2 modules broken down into 3 units, facilitating time management concerns for workforce nurses. Each unit is expected to take 10-15 minutes to complete, depending on IL and IT baseline skills of the participant. To accommodate different learning styles the modules will also be offered in synchronous group settings.

3.   Results

3.1   Beta Testing, Module Development

Results from our 1st round of beta-tests with 3 different end user groups (BSN students, PhD students, and workforce nurses) revealed that most participants thought the draft module was realistic, complete, and logical. Preliminary findings have been used to improve module content flow, re-examine learning outcomes, and develop our Curriculum Matrix. The results have enhanced team member dialogue for module development purposes.

3.2 *Evidence of Interest, Dissemination*

Our online video has created interest among nurses at all levels. Requests from 3 different hospital representatives have asked to show the video to their workforce nurses or link to the video from their hospital website. In addition, our website [16] has had 1,668 hits from 829 visitors (08/31/07-06/30/08) from 22 different countries/territories (United States, Canada, Australia, New Zealand, United Kingdom, Turkey, Ireland, Netherlands, Algeria, and Germany). Of the 1,668 hits, 95.38% were from the United States. Other indications of ongoing attention to the LISTEN project include hits on the You Tube and Teacher Tube postings of our video, and links from university libraries to the LISTEN web page.

4. Discussion

By illustrating the significance and relevance of IL to EBNP in our video, it is hoped that workforce and student nurse viewers will reflect on the information, and perhaps be stimulated to a readiness to learn. Queries from hospital representatives, and hits on You Tube/Teacher Tube demonstrate that the video is generating interest in the topic area and the project. Links to our site from university and nursing oriented web sites substantiate interest in the project.

5. Conclusion

Future goals envision the design and implementation of this project to act as a launching point for a nationwide continuing education effort for nurses. The potential exists to adapt the program for an international audience, perhaps in collaboration with nurse educators/ nurse informaticists in various countries. Opportunities exist for adapting the LISTEN content to meet the needs of nurses in DN. Further research is needed to identify specific needs of nurses in DN so educational modules can be structured accordingly. After appropriate modules are adapted/ developed, the potential exists for loading them onto digital libraries such as eGranary, facilitating IT and IL competencies in the absence of broadband support for nurses and nursing students in DN.

Acknowledgements

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