Informatics and Technology in Nursing Education

Final Evaluation Report

Completed by Deborah Loeffler

For

John Thompson

Boise State University

July 28, 2010
Research demonstrates nursing schools have been slow to integrate technology and informatics into nursing curriculums. Twenty nursing school web sites were evaluated for technology components. The goal was to assess technology in today’s nursing education. Is the role of technology and its implications to professional nursing apparent in nursing education? The results of this evaluation would lead one to think not. The following report will discuss evaluation findings, limitations and recommendations. The follow report is in response to 505 EDTECH evaluation request.
Introduction

Since the 1980’s national nursing organization’s including American Nurses Association (ANA), National League of Nurses (NLN) and American Association of Colleges of Nurses (AACN) have maintain positions statements calling for integration of computer skills, literacy, information literacy and the use of information technologies into nursing curriculums. Federal initiatives are calling for electronic health records throughout all health care institution by the year 2014. This would require all nurses to be educated in the use of technology and informatics tools. Surveys conducted in 2005 and 2006 by national nursing organizations demonstrated, nursing education has been slow to integrate technology and informatics into nursing curriculums.

Twenty nursing school websites were randomly chosen for the purpose of evaluating current technology integration into nursing programs. The goal was to assess technology in today’s nursing education. Is the role of technology and its implications to professional nursing apparent in nursing education?

Program Description

Nursing school web sites were evaluated for:
- Informatics as a required course - Nursing informatics is the “integration of nursing science, computer science and information science to manage and communicate data, information and knowledge in nursing practice” (ANA). Federal guidelines for electronic health data by 2014 will require all nurses to be knowledgeable in informatics and technology.
- School technology skills requirement either by statement or by assessment. - Student nurses will be required to practice in a technology rich health care environment. To do so they will need technology skills and knowledge.
- School stated use of technology - It is important for nursing schools to integrate the use of technology into curriculums to ensure nursing students acquire the necessary technology skills and knowledge for professional practice.
- Use of PDA’s - PDA’s are one of the fastest growing technology tools used by professional nurses and hospitals. They assist in establishing evidence based practices and are instrumental in improving patient safety.

Evaluation Method

An online search for nursing programs offering a bachelor degree in nursing was conducted. An example of a search was Texas school of nursing bachelor program. Schools chosen for the online search was random. Schools that had a bachelor of nursing program, prerequisites, curriculum and student handbook posted to their nursing web site were included in the evaluation.

Each nursing school web site was evaluated for technology prerequisites. Did the site state basic technology skills needed for the nursing program or was there a technology skill assessment required? Curriculums were evaluated for an informatics component either as a required course or as an elective. Student handbooks and student projected costs were evaluated for mention of PDA’s as a program recommendation.

An online inquiry consisting of 3 questions was emailed to 8 schools. Emails were sent to nursing schools that provided an inquiry email address. Additional criteria for schools for emails included nursing web site did not identify informatics in course list, technology assessment or
basic technology knowledge was not addressed or PDA was not mention in cost of schooling or student handbook. Emails were sent one week prior to data analysis. The following questions were included in the emails.

- Does your program assess for basic technology skills?
- Does your program have an informatics (required or elective) course?
- Does your program require PDA, suggest the use of PDA, not use PDA?

All data was recorded to a spread sheet. (Appendix A)

**Results**

The following summarizes data collected from twenty nursing school web sites and emails

- Eight emails were sent with a return of 50% (4).
- Online curriculums were evaluated for an informatics course. Three nursing programs required an informatics course; one program offered an informatics course as an elective. One school lowered their GPA requirement for their required informatics course.
- Web sites were then evaluated for a technology assessment requirement or statement of basic technology skills required for admission into the nursing program. Prerequisites for nursing school, and student handbooks were examined. Two programs discussed technology requirements, one school required perspective nursing students to pass technology skills assessment. One comment from an emails stated “not sure what kind of technology you are talking about.”
- Nursing web sites were then evaluated for program use of technology. The web site, class descriptions and students handbooks were evaluated. Six schools implied technology use. This was primarily through the use of simulation technology. One school discussed virtual environments. This was the same school which required a technology skills assessment.
- Nursing school web site, handbook and links that discussed projected cost of school were examined for discussion of PDA use. One site mentioned PDA and two emails responded to the PDA questions. Both emails stated PDA’s could be used but were not required. One responded “students can use PDA’s but generally they use Blackberries and iPods.”

![Technology Evaluation](chart.png)
Discussion

In 2005, NLN spearheaded a survey of over 2000 nursing school facility and administrators (Thompson & Skiba, 2008). Their findings were less than stellar. Among many of their findings the survey concluded that only a few nursing programs include informatics as a course objective. Only 6% reported requiring students to use PDA. Nurse educators defined their personal technology skills as novice to advance beginners. Based on the results of this evaluation little appears to have changed in the last five years.

Nursing curriculums appeared to be very generic. Emphasis continues to be put on core skills. (Appendix B sample curriculum) Description of classes was carefully evaluated for the mention of technology or informatics, four schools offering informatics courses were identified. To meet pending federal mandates and to prepare student nurses to enter the workforce informatics needs to be at the least offered as an elective in nursing curriculums.

Technology use was identified by requirements to buy supplies for Gracie (Sim doll) and pictures of students working on a simulation doll. Two sites actively discussed the integration of technology into their programs outlining expected technology skills, the requirement of a technology skill assessment and discussion of using virtual worlds as part of the learning experience. If student nurses are expected to work in a technology rich health environment, nursing schools should consider incorporating an assessment of basic technology skills as a prerequisite to nursing school admittance.

PDA’s come in many forms today from a Smartphone to a Palm. Nursing reference books are formatted for many different devices. PDA’s have been shown to decreased medical errors, increase patient safety and help to establish an evidence based practice. A large percent (50 to 89 percent depending on source) of the nursing workforce use PDA’s. Projected cost break down for incoming nursing students as well as student handbooks were evaluate for discussion of PDA’s The cost breakdown included items such as books, parking, uniforms, etc. One school discussed the use of PDA’s in their program and 2 emails stated PDA’s could be used Recommendation would be for PDA’s to be included into projected cost for nursing school even if they are listed as an optional cost. If the purpose of nursing school is to prepare student nurses for a professional workforce, tools of the trade should be required by and integrated into nursing curriculums. If professional nurses use PDA’s then nursing students should be introduced to PDA’s while in nursing school.

Limitations of Evaluation

This evaluation randomly evaluated 20 nursing programs. In 2000 there were over 1500 nursing schools (NLN) that number has grown; therefore the scope of this evaluation is limited. This evaluation was limited to nursing schools web site. Other than the 8 emails there was no contact with school facility. Only 50% responded to emails. This evaluation was completed during the month of July when many university instructors are on vacation. Interviews with nurse educators would have added more depth to this evaluation.

New nursing students attend an orientation prior to starting a nursing program. At this time a wealth of information is provided. Access to orientation sections are generally only provided to incoming students. During this time technology requirements and PDA’s may be discussed.
## Appendix A

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Informatics course</th>
<th>Technology requirement</th>
<th>e-mail contact</th>
<th>PDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Florida</td>
<td>n</td>
<td>n</td>
<td>y</td>
<td>n</td>
</tr>
<tr>
<td>CSU Hayward</td>
<td>n</td>
<td>n</td>
<td>y return</td>
<td>n/y</td>
</tr>
<tr>
<td>Pacific Union College</td>
<td>n</td>
<td>n</td>
<td>y return</td>
<td>n</td>
</tr>
<tr>
<td>Sonoma State University</td>
<td>n</td>
<td>n</td>
<td>y return</td>
<td>n/y</td>
</tr>
<tr>
<td>University of Pittsburg</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of Washington</td>
<td>n</td>
<td>n</td>
<td>y return</td>
<td>n</td>
</tr>
<tr>
<td>Simmons Boston Mass.</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of Hawaii</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>y</td>
<td>Y</td>
<td>n</td>
<td>y</td>
</tr>
<tr>
<td>Penn State</td>
<td>y</td>
<td>Y</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of New Mexico</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Boise State University</td>
<td>n</td>
<td>n</td>
<td>y</td>
<td>n</td>
</tr>
<tr>
<td>Concordia University</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Oregon Health and Science University</td>
<td>n</td>
<td>Y assessment</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of Texas at Austin</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>University of Arizona</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Phillips Beth Israel School of Nursing NY</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>
Appendix B Sample nursing curriculum for BSN

Prerequisites:
- Medical Microbiology
- Fundamentals of Chemistry
- Nursing Chemistry
- Elementary Physiology
- Human Anatomy
- Plus:
  - G. E. — Oral Communication
  - G. E. — Written Communication
  - G. E. — Critical Thinking

Statistics

Concurrent with Major Courses
- Introductory Sociology, or
- Cultural Anthropology
- Basic Human Nutrition
- Introduction to Psychology
- Human Development, or
- Perspectives: Life-Span Development

Nursing Courses Required for the B. S. Degree
- Holistic Health Assessment
- Foundations of Prof. Nursing
- Clinical Nursing I: Foundations in Adult Health & Illness
- Pathophysiology & Pharmacotherapeutics in Health Care
- Clinical Nursing II: Critical Thinking in Adult Health & Illness
- Psychiatric-Mental Health Nursing
- Maternal/Child/Family Nurse.
- Community as Client & Public Health Nursing
- Clinical Nursing III: Analysis of Adults with Complex Needs
- Senior Clinical Capstone
- Introduction of Research & Scholarship for Professional Nursing Practice
References


Deborah Loeffler & Associates
7777 Evaluation Lane
McArthur, Ca 96056
DLA @gmail.com
555-555-1212

Project completion
Bill for services rendered
5 days x $500 $2,500
Copy supplies $ 5
Total Due $2,505

Thank you. It has been a pleasure conducting this evaluation.