

Evaluate the outcome of Nursing Information Educational Interventions for Nursing Students

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Abstract—Purpose: To evaluate the outcome of nursing information educational interventions for college's nursing students. The outcome and percent of newly completed nursing information training program, focusing on the effectiveness of pre-test and post-test. To evaluate the effect of the nursing information training program on nursing students' attitudes, career development, and the satisfaction.

Design: This study was designed a nursing information training program for college's students. And to evaluate before and after the nursing information training program with the pre-evaluation in 2009 and the post-evaluation twelve months after implementation for nursing college's students.

Methods: The research instrument used in the study was the, Questionnaire on Nursing Students' Self-evaluated Information Literacy Competency (Cronbach's α .90). The 42 subjects were junior nursing college's students from one college located in northern Taiwan.

Questionnaire:

Based on pre-study interviews, a questionnaire was developed, piloted and distributed to 42 nursing students in this training program.

Findings: Testing of the results from the actual working questionnaire in twelve months 4.01 and 4.35. Nursing students have highly identified, accepted and satisfied the training program.

Conclusions: Calculating the percent of newly completed ADs was successful in allowing for study result comparisons. Overall, the evidence base regarding the effectiveness of single or combined educational interventions in increasing AD completion is weak. Randomized studies with diverse samples should be conducted against controls before more studies comparing interventions are undertaken.

Clinical Relevance: This article provides students nurses with a summary of research related to educational interventions and NI completion and identifies where future study is needed.

key words : nursing information ; educational intervention ; nursing students

I. INTRODUCTION

Nursing informatics is a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information and knowledge to support clinical nursing practice. Some courses in the nursing program are computer enhanced.

The ages and academic achievements of nursing students vary greatly. Nursing students can be identified as intended nurses and practicing nurses. They can be high school graduates who enroll in higher education to complete prerequisites for nursing programs or currently employed nurses. Nursing students may be enrolled in nursing programs at universities or community colleges or in nursing diploma programs. Regardless of learners' ages, they enter programs to prepare for nursing practice, earn an advanced degree, improve chances for career advancement, or improve their level of professional practice (Bonnie Ainsley, et al, 2009)

The study's purpose is to design and evaluate the nursing information educational intervention for college's nursing students. The Nursing College in northern Taiwan has designed a training program to enrich students' background and education and provides a basis for their future coursework and clinical experiences. Students enrolled in the nursing informatics training program and take courses including information, skills, and strategies.

A. Literature Review

Nursing Informatics Defined

The American Nurses Association's Scope and Standards of Nursing Informatics Practice provides a description of informatics competencies for nurses ranging from "beginning" to "specialist" (American Nurses Association, 2001). Beginning nursing informatics competency includes information management and computer literacy skills (e.g., using a word processor, database, or spreadsheet program).

Experienced nursing informatics competency focuses on proficiency in information management and communication directly related to one's major area of practice. Specialist nursing informatics competency relates to standards of practice and professional performance.

Evidence-based nursing is nursing practice based on research and the literature resulting from that research. Nurses who are skilled in using technology and databases can retrieve information to make sound decisions based on current research rather than opinion.

Curriculum

In the paper by Reinhard and Moulton (1995), a nursing informatics curriculum for graduate students was described. It consisted of a pre-course workshop and four course sequence. Topics in the pre-course workshop included computer hardware and software; fundamentals of microcomputers; computer applications in practice, education, administration, and research; nursing informatics; information systems; and expert systems. Vanderbeek and Beery (1998) provided a detailed description of an undergraduate healthcare informatics course. An article by Travis and Bernnan (1998) discussed the design, implementation, and evaluation of an innovative nursing informatics curriculum incorporated into a baccalaureate nursing program. Inman, Johansen, Powlas, Timm, and Turner (2000) did a survey to determine learning needs of nurses and developed a curriculum with three classes: computer concepts for nursing, computer basics for nursing, and computer applications for nursing. In the work of Rosenfeld, Salazar-Riera, and Vieira (2002), a pilot information literacy program was offered. However, the unit-based instruction in that program presented significant obstacles for effective learning of new technological skills for staff nurses (Wey-Wen Jiang et al, 2004).

Courses in Taiwan

Our Ministry of Education has also stipulated content standards of computer informatics courses for students in vocational schools, including nursing schools. Currently, many nursing schools in Taiwan provide nursing informatics courses to educate students in competence areas such as processing of text, data, graph, image, video, and sound files. There are also courses on network usage and digital data storage and analysis.

II. AIMS

A. Design and Methods :

This study was designed a nursing information training program for college's students. And to evaluate before and after the nursing information training program with the pre-evaluation in 2009 and the post-evaluation twelve months after implementation for nursing college's students. A questionnaire was initially developed and pilot tested with 15 students. It was subsequently revised and simplified to avoid overlapping questions.

Students in the training program must meet all 308 hours training program, including career development,

nursing informatics, clinical practices. The program was conceived to prepare graduate who possess the skills required to support and facilitate the design, organization, and management of data in a formed way. And to evaluate before and after the nursing information training program with the pre-evaluation in 2009 and the post-evaluation twelve months after implementation for nursing college's students.

Program's evaluation was to apply information success curriculums, and developed questionnaire of consisting student' acceptance and satisfaction. To facilitate a higher response rate, the final version was limit to 30 questions with a one-page document. Ten questions focused on demographic information such as age, course work, learning experience, and experience in nursing care. The next section including 10 statements in which respondents were asked for to rate on a five-point Likert scale (strongly agree, agree, uncertain, disagree, strongly disagree). A portion of these statement provided a general assessment of students' nursing informatics skills, knowledge, and satisfaction of training program.

B. Educational context and program

- **Program design:** Students meet approximately 4 hours per week for face-to face class. All other course are accomplished in hospital, where students review case studies, action nursing information system practice.

- **Specific elements of program design:** Students in this program take five course required to earn the nursing information program certificate. Students take courses with majoring in information system so they can share skills, information, knowledge, and strategies. The course focus on project management for information systems development, information systems analysis and management, and administration, including Health Promotion, Information Overview, Electrical Medical Record Analysis, Nursing Informatics, Seminar I, Seminar II, Career Development, and Practical Training. 【Table 1】 illustrate the course and their overall purpose.

- **Clinical evaluation:** To ensure program quality, students evaluations are done in conjunction with the clinical preceptor, who uses the criteria noted in 【Table 2】. The use of clinical preceptor has enriched students' experience and allowed them to build working relations with experts in their selected area of practice. Students' experiences are designed to focus on the application of information systems to nursing systems. All students who take the clinical courses are undergraduate student. However, have experience with information systems as part of their practice and others have experience solely as end users. Students' places of employment are not used for their practical clinical experiences.

III. ANALYSIS/RESULT

The research instrument used in the study was the, Questionnaire on Nursing Students' Self-evaluated

Information Literacy Competency (Cronbach's α .90). The 42 subjects were nursing college's students from one college located in northern Taiwan.

Currently, nursing informatics training is integrated into the curriculum of many nursing schools in Taiwan. In this study quantitative findings indicated that :

- Obtained current nursing informatics skills and knowledge from the training program and practices ;
- 80% of the students regarded their informatics skills as sufficient for their current or future work as a registered nurse ;
- 90% of the students were satisfied the nursing informatics training program for the future work in health-care environment.

IV. DISCUSSION

The nursing students must be prepared for demands associated with the rapid advancement of nursing informatics knowledge and skills in health-care settings. To develop standards for nursing curriculum that integrate content and application of nursing informatics from graduation. In conclusion, recommended the integration of structured informatics learning activities throughout the progression of the nursing curriculum. Nursing educators have a responsibility to prepare students for their future role as a practicing nurse.

V. RECOMMENDATIONS

Nursing Informatics : key points

Ainsley, B., Brown, A. (2009). The Impact of Informatics on Nursing Education: A Review of the Literature. *The Journal of Continuing Education in Nursing*, 40(5), 228-232.

1. The Institute of Medicine recommends integrating the following five core competencies into health professions education : patient-centered care; working in interdisciplinary teams; emphasizing evidence-based practice; quality improvement; and informatics.
2. Informatics (i.e., Information manage and computer literacy skills) impact the other four core competencies.
3. Health professions education strategies may be used to equip nursing students with skills and experiences in technology and informatics with the goal of improving health care delivery.

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FIGURA 1 : COURSE FRAMEWORK

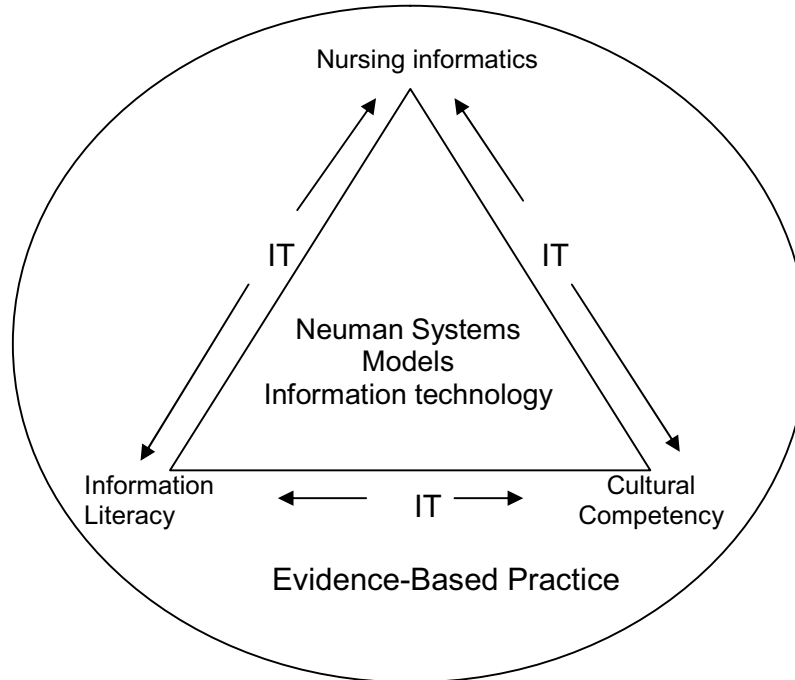


TABLE : 1 NURSING INFORMATICS TRAINING COURSE AND CURRICULUM

Unit	Unit Theme	CREDITS/HOURS	METHODS
Unit 1	Health Promotion	1/18	CLASS
Unit 2	Information Overview	1/18	CLASS
Unit 3	Electrical Medical Record Analysis	2/36	CLASS
Unit 4	Nursing Informatics	2/36	CLASS
Unit 5	Seminar I	2/36	CLASS
Unit 6	Seminar II	2/36	CLASS
Unit 7	Career Development	48	CLASS
Unit 8	Practical Training	80	HOSPITAL
Total		10/308	

TABLE : 2 ANALYSIS OF STUDENTS INVOLVEMENT AND STASFACTION

items	mean	SD	Rank
1 Basic computer knowledge	4.02	0.36	5
2 Curriculum design	4.01	0.63	6
3 Teaching attitude	4.30	0.50	1
4 Learning attitude	4.19	0.38	2
5 Environment	4.10	0.33	3
6 Student satisfaction	4.03	0.36	4