

A Web Application for Recording and Analyzing the Clinical Experiences of Nursing Students

A primary focus in nursing education is to provide students with a diverse range of clinical experiences. Historically, the collection and assessment of data from students' clinical experiences has been a paper-and-pencil task that is arduous for both students and nurse educators. The volume of collected information has also made it difficult to produce ad hoc statistical reports without additional intensive manual labor.

Collaboration between the Departments of Nursing and Computer Science resulted in the web based Essential Clinical Behavior (ECB) system. The ECB system is a web application for recording and reporting nursing students' patient care experiences. The application is designed to enhance nursing students' learning and to assist faculty in making student assignments, evaluating student progress, and supporting curriculum decisions. The system currently allows students to enter information related to patients and patient care. For the latter, students enter relevant data about patients and patient care. Patient demographic information includes age, race, and gender. Associate with each patient are one or more medical and nursing diagnoses. Patient care information consists of the nursing skills practiced by the students such as administering oral medications or taking vital signs. These data are used to generate a variety of reports detailing or summarizing the kinds of patients cared for and nursing skills practiced. Similar reporting functions are available to faculty to examine data associated with individual students, clinical sections, or specific courses. These data are useful for assessing progress and making clinical assignments, and also allow the nursing department to gather required statistical data for accreditation purposes.

The system has been in use for two semesters and its role in nursing education has been reported in several conferences and most recently in the journal, *CIN: Computers, Informatics and Nursing*¹. The extension of the ECB to the wireless platform of the PC tablet allows for entry of information where the experience is occurring and in a timely fashion. Given the enthusiastic responses and inquiries from nursing educators around the country, and preliminary discussions with a book publisher interested in marketing the application, exploration of a small business to further develop and support the ECB system is being undertaken.

During 2004 the focus will be on the technical aspects of the ECB system that will make it ready for marketing. A major task will be to ensure that its features are rich enough to address the requirements of our potential market. Initially that market will comprise nursing programs housed in U.S. colleges and universities. A related task will be to incorporate customization features, such as titling and logos, that will allow each institution to brand its version of the software. To complete these tasks additional university settings are being considered for extensive product testing of the ECB.

The use of the ECB database represents a major change in nursing education with its altered format for students to use in recording their clinical experiences in nursing courses. The extension of the ECB user interface to support the use of wireless PC tablets that allow the nursing student to enter information in a timely fashion is a logical step. The collaborative efforts of the Departments of Nursing and Computer Science will facilitate this important endeavor.

Principal Investigators

Linda Meyer, PhD, RN is an Associate Professor and Director of Undergraduate Programs at the IPFW Department of Nursing. Her teaching responsibilities include pediatric at the undergraduate and informatics at the graduate level. She has published and presented papers about hypermedia assisted instruction, integration of computerization into nursing curriculum, and research about students' intentions and essential clinical behaviors. Dr. Meyer co-authored two CD-ROMs that received awards for outstanding instructional use of computers in education. The Essential Clinical Behavior (ECB) database has been a focus of her attention and research for some 5 years. She directed the integration of the database into the nursing curriculum, initiated the collaborative project with the Department of Computer Science, and actively seeks evaluation and evolution of the ECB.

Robert Sedlmeyer, BS. MS is an Associate Professor of Computer Science and has been with IPFW since 1977. He has taught Java applications development at both the undergraduate and graduate levels. Through the Continuing Studies program, he has taught advanced programming and design courses to software professionals. Professor Sedlmeyer was the principal software architect for the current version of the ECB system and directed the associated student development teams and independent study projects. He has also served as a consultant for a local Internet Service Provider. There he developed and maintained a variety of websites.

Cathy Carlson, PhDc, RN is an Assistant Professor of Nursing at IPFW Department of Nursing in Fort Wayne, Indiana. For the last two years she has participated in the development of the ECB database. Ms Carlson is a leader in distance education courses at IPFW having designed and instructed two WebCT courses at the MS level, one medical terminology course at the undergraduate level, and developed WebCT into adjunct resources for two undergraduate nursing courses. Ms Carlson is a Ph.D. candidate at Indiana University School of Nursing at IUPUI. Her program of research is in the area of health promotion through pain management. Currently, she is the principle investigator of two research studies supported as an Indiana University Graduate Fellow and through Indiana University Research Incentive Fellowships.

Susan J. Modlin, PhDc, RN is an Assistant Professor of Nursing at IPFW Department of Nursing in Fort Wayne, Indiana. For the past two years she has participated in the development of the ECB database, including conducting a pilot study. Ms Modlin has been the lead instructor for a WebCT based undergraduate nursing course. Ms Modlin is a Ph.D. candidate at Indiana University School of Nursing at IUPUI. Her program of research is identifying the transition needs of young adults with physical disabilities.

References

1. Meyer, L., Sedlmeyer, R., Carlson, C., & Modlin, S. A Web Application to Record and Analyze the Clinical Experiences of Nursing Students. *CIN: Computers, Informatics, Nursing*, Volume 21, Number 4, July/August 2003.