Personal Digital Assistants in the Classroom and Beyond:

A Collaborative Initiative between the College of New Caledonia, British Columbia and the University of Saskatchewan

By

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Key Words: PDA, collaboration, nursing education, Northern nursing, Aboriginal

Abstract

In an attempt to address the shortage of northern, and particularly Aboriginal, health care providers, northern educational institutions have been researching solutions for self-paced study with up-to-date information for remote students. Current statistics show that 62% of Canadians live in Ontario and Quebec, with the remaining population spread throughout mostly southern portions of the provinces and territories. A pilot PDA program initiated and implemented in northern British Columbia and Saskatchewan is expected to enhance northern nursing education, attract and recruit regional nursing students, and provide better patient outcome.

Introduction

In an attempt to address the shortage of northern, and particularly Aboriginal, health care providers, northern educational institutions have been researching solutions for self-paced study with up-to-date information for remote students. Currently, statistics show that "[w]hile 30.3% of Canada's population lives in communities of under 10,000, only 2.8% of Canada's specialists and 16.5% of Canada's family physicians practice in rural communities" (Rourke, 2002, p. 112). According to Natural Resources Canada (2004), the 2000 census estimated a population of 30.8 million, 62% of which lives in Quebec and Ontario, with the remaining living along the southern portions of the provinces and territories. Additionally, "[more] than 1 million Canadians have some Aboriginal ancestry; nearly 300,000 Canadians, mainly aboriginals, live in isolated reserves, often in

very poor living conditions. Canada's Aboriginal people have poor health outcomes with increased morbidity and a life expectancy that is 6 to 8 years shorter than Canadians generally. Only 1 out of 33,000 Aboriginal Canadians is a physician compared with 1 out of 515 non-aboriginal Canadians" (Rourke, 2002, pp.113-114).

Education in the Canadian north brings new meaning to distance education. Because of the difficulty in recruiting and accessing instructors, the sheer difficulty traveling to courses, and because the majority of Aboriginal nursing students are single parents, northern institutions are beginning to turn to online nursing education. According to a website that lists online nursing programs, over a dozen such accredited programs exist in the United States (All Nursing Schools, 2002-2006). When online nursing students work in local hospitals and clinics, they become ambassadors for personal digital assistant (PDA) technologies in nursing. Through the students, other northern nursing staff may have the opportunity to acquire experience in PDA-based patient safety and patient assessment procedures. According to a study performed by Scott, Wilson, and Gowans (2005) in which rural physician teachers were offered PDAs with medical software for supervising undergraduate students, over 90% of these rural doctors reported using their PDAs in their practice.

Initiation and Implementation of a Template PDA Utilization project

In 2002, the College of New Caledonia, in British Columbia, Canada, embarked on a Leadership Campaign of the Health Sciences and Social Sciences Division (Anonson, Lynch, Simon, & Steindl, 2005). The steering committee for the campaign consisted of

two faculty members, one student, and a dean. As a component of the campaign, the committee decided to institute a pilot project for PDA use in clinical nursing. The outcomes evaluated included increased accuracy, improving bedside practice, and training student leaders in PDA use.

After much research and deliberation, the committee purchased seven *PALM® Pilots*. Twelve companies or businesses were contacted for support with this project and asked to provide sponsorship in the form of items such as donated software or PDAs. This did not prove highly successful; however, two *PALM® Pilots* were donated specifically for the project, and the purchased PDAs were offered to the committee at a reduced rate. With the addition of the donated PDAs, nine second-year students were able to participate in the project. The participants were loaned the PDAs for the year to be returned the following academic year. In addition to the electronic calendar and other standard programs, the PDAs were loaded with donated drug guide and nursing-related software. The students were trained to use the PDAs and software before commencing with their clinical work. A major benefit of using PDAs in the clinical setting was the accessibility of the pharmacological information. Whether the information was retrieved prior to clinical work or at the bedside, it provided the potential for greater accuracy in drug administration and less overlap in reporting it.

Throughout the pilot project, additional students and faculty joined the project at their own cost. In addition, staff nurses in the clinical setting began to emulate PDA usage. The students and participating nurses found that using PDAs afforded them more time at the patient's bedside as they did not need to run back and forth to the nursing station to check data in reference books. Other programs at the college, health related and not,

eagerly watched the outcome of the project, not only to determine the usefulness of the PDAs but also to see if they should consider engaging in a similar initiative.

The students in the project were excellent ambassadors for the initiative, and they reacted favorably to the project. Students freely offered information on the PDAs and encouraged other faculty and students to consider using them. Overall, the project stimulated PDA use amongst other students and faculty in the nursing program, the local hospital nursing staff, as well as students and faculty in other disciplines at the college. The program is now in its third year and lends the original PDAs to students in three different health care programs.

Expanding the PDA Program for the Internet

Background

Because Northern British Columbia will experience a shortage in health care workers in the near future, as reported by The Northern Health Care Labour Market Partnership Project in 2005, BCcampus, "an online service provider connecting students and educators to programs and resources across all public post-secondary institutions in BC," has provided funds toward an online PDA-based health care education curriculum (BCcampus, 2006). "Research into employment prospects in this sector [Internet-based health care delivery support] indicate that over 6,000 new jobs will come available between 1998 and 2008" (Ralston & Anonson, 2005). In order to pre-empt the shortfall, through financial support, the province has shown its commitment to health care education.

The strength of working with BCcampus to provide online health education is its multidisciplinary and inter-institutional educational nature. It focuses on "inter-institutional collaborative and effective working partnerships; a learner-centered model for learning and teaching services; recognition that the role of post-secondary education, skills training, research, and development contributes to a successful BC economy; lifelong learning opportunities for all British Columbians; and increased choice for learning by using technology" (BCcampus, 2006) —the perfect educational model for adult health care students with limited access to educational institutions.

Student Information Retrieval and Clinical Decision Support Education

Between 2005 and 2006, the College of New Caledonia, in partnership with BCcampus, developed components of an online learning program based on the initial PDA pilot project. BCcampus funded the creation of online resources, the sharing of these resources, and the support to deliver the online resources. The College planned to develop nursing curricula to be delivered online with PDA components. In addition, a portion of the curricula was a video production, delivered via the PDA.

Up to this point, nurses primarily have been using PDAs to access clinical reference material, drug information, and information on a variety of nursing procedures. The college plans to expand the use of PDAs to include curricula developed in Macromedia (now Adobe) Flash® Lite™, allowing for interactive nursing education presentations for the PDA. The nursing students will use PDAs in their Clinical Practicum course, which will incorporate accessible video segments depicting nursing procedures or assessment

scenarios. With a growing demand for practical nursing training, this ultimate trajectory of online nursing education will provide remote students both the opportunity to train as well as a newfound flexibility needed by most adult learners (Ralston & Anonson, 2005).

Online Environment as Teaching Support

Because of the nature of online education, nursing educators are able to network, share education ideas and practices, and discuss topics of professional interest with one another in the chat areas of the WebCT program. In their relationship with their students, the online environment allows nursing educators to be more accessible and provides additional teaching tools, such as online sites addressing students' questions. In terms of the classroom, educators will be able to integrate the instructional online/PDA video segments to test students during clinical practicum sessions.

Initiation of PDA Project at the University of Saskatchewan

For the fall term of 2006, senior nursing students at the Prince Albert campus of the University of Saskatchewan were loaned PDAs loaded with tools for personal organization, assessment, diagnostic, and treatment programs. This initiative followed the model set out at the College of New Caledonia. Additionally, several staff nurses in community and clinical settings were loaned PDAs for the joint exploration of the use of PDAs with the students. Because of the location of the program and the area demographics, the majority of the students in the Nursing Education Program of Saskatchewan (NEPS) are aboriginal. In addition to the original PDA pilot project at the

College of New Caledonia, in-house assessment was made of the effect of the project on recruitment and retention of Aboriginal students enrolled in the Saskatchewan health care program. This project also included suggestions for the use of PDAs in rural and remote areas.

Desired Outcome from PDA Program

The two desired outcomes from the PDA program are: 1) comprehensive research on the best method to implement PDA-style informatics in an undergraduate nursing curriculum in order to modify and enhance the existing nursing program and 2) on the further development of PDA applications to an online nursing education program to be accessed broadly, but created with the student populations of the two collaborating educational institutions in mind. Through the PDA program, the faculty of both institutions will be provided the opportunity to augment their courses, and the nursing students in rural British Columbia and northern Saskatchewan will be provided quality distance education and practice within their home communities.

Conclusion

The main thrust of the initiation of the PDA program is that it provides numerous benefits, most importantly the improvement of patient care and outcomes, and enhanced educational and clinical resource information for nursing students, faculty, and health care staff in hospitals and clinics. The initiation of such a project at the undergraduate level will tap into the enormous potential for learning and quality patient care in rural and

remote settings as well. Other institutions may wish to pilot such a program but should remember that materials (PDAs and programs) are expensive for students unless the cost is offset by the purchase of fewer text books. Yet in a field that requires just enough information just in time, the memory capacity and versatility of a hand-held computer could not be a better solution to the challenges nurses face in supporting and enhancing exemplary patient care.

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APA CITATION:

Anonson, J., Bassendowski, S., Petrucka, P., Ralston A. & Schweitzer, K. (2008). Personal Digital Assistants in the Classroom and Beyond: A Collaborative Initiative between the College of New Caledonia, British Columbia and the University of Saskatchewan. Canadian *Journal of Nursing Informatics (CJNI), 3,* (2), http://cnia.ca/journal/Anonson.pdf

EDITOR: Agnes Bianchi, RN BScN MN