Nurse Practitioner Education in a Blended Learning Environment

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Abstract

A total of 76% of a targeted population of adult learners who were experienced nurses completed a questionnaire that evaluated satisfaction levels on several dimensions of engagement for two graduate level clinical nursing courses delivered in a blended learning environment. Elluminate© (synchronous) and forum interactions (asynchronous) were the online components, and standard onsite laboratories were the three approaches to course delivery. There were significant increases in level of comfort with the Elluminate© and forum interactions but not onsite approaches during the course. However the onsite component was ranked as facilitating more personal satisfaction and development. Residential distance from the university was associated with greater initial comfort for the Elluminate© component while higher levels of education were associated with more positive responses for the forum modes. The mean rankings of the preferences were primarily positive for all three components of instruction and suggest that such blended programs may satisfy a greater diversity of student's needs.

In 2007, 4.1 million people in Canada reported that they did not have access to a family doctor who has traditionally provided primary health care services in Canada (Statistics Canada, 2008). Nurse practitioners can provide access to primary health care, however in Ontario there are currently only 1507 NPs with a specialty in primary care (College of Nurses of Ontario, 2012). Normally, NPs work in interdisciplinary environments, with access to physicians and other health professionals who can provide consultation for issues that fall outside the NP scope of practice (Heale & Butcher, 2010). In Ontario, primary health care nurse practitioner (NP) education is offered by a consortium of nine universities. Delivery of the NP program currently involves a blended learning approach to instruction, which uses a combination of onsite

and online (both synchronous and asynchronous) approaches to education. Each university offers the identical NP courses, however, there are minor variances between the universities with respect to the amount of online and onsite approaches that are used. In 2008, the NP program transitioned from a post-baccalaureate certificate to the graduate level. One university located in Northern Ontario has been identified as having the highest amount of distance delivery methods used in the program. After three years of offering the program at the graduate level, a program evaluation was conducted, investigating student satisfaction and experiences using blended learning approaches for a clinical course at the graduate level. Unique to this particular group of students, is the higher than average distance from a typical student's place of residence to the university. Of the seven core NP courses, two courses were targeted due to the use of blended learning approaches, the rest of the courses are delivered online.

Admission into the NP program requires that candidates hold a Bachelor of Science in Nursing degree (BScN), followed by a minimum of 2 – 5 years of nursing practice experience. These requirements create a unique cohort of adult learners; those who choose to continue their education at a time when they may be busy raising young children and/or working full-time in maintenance of an already established career. This cohort is described as a group of adult learners, studying a clinical nurse practitioner course at the graduate level, using blended learning approaches.

Literature review

Innovation and change are often cited as being of high importance in distance education, and therefore, a necessary area for ongoing research. Despite this, experts have identified considerable gaps in the literature that surround the management of innovation and change (Zawacki-Richter, 2009). The typical profile of a student today has changed in comparison to a more traditional student who once participated in mostly face-to-face lecture based instruction. Students today are comfortable with technology and have come to expect that a certain level of technology will be embedded within the instructional design of most courses. As such, universities have an obligation to keep pace with the evolution of technology in response to the expectations of their students (Folley, 2010). Accordingly, many educational facilities today are increasing

the number of courses and programs offered online due to an increased demand for this particular method of delivery (Allen & Seaman, 2004).

Online instruction is continuously evolving. Many colleges and universities have started to offer online courses as an alternative to traditional face-to face instruction, and feel online education is the most logical long-term strategy (Ernst, 2008). With the trend in education moving towards alternative delivery methods, it is important that strategic presentation of pedagogy keeps pace with this educational evolution. Despite the fact that online education has become common practice in higher education, a review of the literature did not find much data on the consequences of a blended learning environment in an adult learner population**.**

Despite the increase in online courses being offered by universities, students and academics maintain that there is still value in traditional face-to-face classroom instruction (Folley, 2010). A blended learning environment combines the advantages of traditional face-to-face and online methods, which is advocated as a suitable approach for adult learners (Cornelius & Gordon, 2009). In the broadest context, blended learning is defined as the integration of traditional classroom learning experiences with online learning experiences (Garrison & Kanuka, 2004).

In order to provide students with convenient access to quality learning experiences, it has been necessary to develop effective and flexible program delivery models (De George-Walker & Keeffe, 2010). Universities around the globe have demonstrated an interest in distance education with the ultimate outcome of increasing accessibility to higher education and promoting social justice (Power, 2008).

According to Simonson, Smaldino, Albright & Zvacek, (2009), adults are more engaged with distance education. Hence, this must be a consideration in the development of new theory focusing on blended learning. Malcolm Knowles defines andragogy as the art and science of helping adults learn, as opposed to pedagogy, the art and science of teaching children (Smith, 2002). Knowles holds four main assumptions of andragogy. The first is self-concept, meaning adults need to be self-directed. The second is experience, which adults bring to learning situations. Next is readiness to learn, which from an andragogical perspective states adults learn best

when they feel they need to know the information. The fourth is orientation to learning, which with maturity, adults use to apply their new knowledge (Knowles, 1973).

Blended learning is the thoughtful integration of traditional face-to-face learning experiences with online learning experiences. It requires the rethinking and redesigning of the teaching and learning relationship. There is no clear definition as to the relative contributions of traditional and online methods which are required to be considered a blended learning environment. Central to this, is the effective integration of the two methods, as opposed to simply adding to the existing dominant method. One of the explanations for the success of blended learning is the facilitation of a community of inquiry which consists of three elements, the cognitive, social and teaching presence. Advantages of the asynchronous electronic platform discussion are that participants can take time to reflect and then respond with rationale based on evidence. These platforms also allow for a permanent record of the discussion (Garrison & Kanuka, 2004).

McCown (2010) highlighted some of the advantages and disadvantages of blended learning courses. Advantages include the flexibility and convenience for faculty and students, increased inclusive and thoughtful participation by all students and the ability to use technology and fostering independent learning for students. Some of the advantages mentioned by students are consistent with Knowles's principles of adult education, and include the ability to influence one's own learning process, to learn the degree of one's self-motivation or self-discipline, and to become more organized and self-disciplined. Intuitional benefits include a decreased time on campus which can accommodate infrastructure stressors with respect to classroom or office limitations.

Some of the challenges identified by McCown (2010) include the time demands placed upon the educator and the students. The educator must incorporate online and traditional teaching methods in the design of the course. It is essential to consider the medium in lesson preparation. Building upon this, there is also faculty comfort with technology to consider, technical support, and hardware and software needs. Students also perceive that blended courses are more difficult than traditional courses. There are more assignments and a larger volume of material to read, and students and faculty feel

they never get a break from the course. There is also a reduction of face-to-face camaraderie with peers and faculty.

So (2009) examined student satisfaction with one graduate level blended course. Results showed that student satisfaction with the quality of the studies blended course was high. This is consistent with a meta-analysis of 24 articles performed by Allen, Bourhis, Burrell & Mabry (2002) that reported no statistical difference in student satisfaction with distance education as compared to traditional education. In this article results of a satisfaction questionnaire that supports the benefits of blended learning models for clinical course at the graduate level are presented.

Methods

Survey, Subjects and Data Collection Procedures

Access to eligible participants was simply accomplished by accessing class rosters of the targeted courses. University email addresses were used to send out an email invitation to complete the survey through a link to Surveymonkey ™. A total of 25 students who were enrolled in the targeted courses were invited to complete the survey. A total of 19 students responded giving a response rate of 76%. Two respondents only partially completed the survey, therefore where appropriate they were excluded from the analysis.

The survey consisted of two main sections. The first section collected demographic data and information relative to student learning outcomes and the overall quality of the NP program. The second section focused on the two identified courses targeting experiences with blended learning. The scale for each item was a 5 point Likert-like scale with the following integers and comments: 1) strongly disagree, 2) disagree, 3) do not agree or disagree, 4) agree, and, 5) strongly agree. The items, for each component of the course, included questions regarding: comfortableness at the beginning and end of the course, its organization, the degree of frustration, impersonal experience, isolation, flexibility, informative explanations, technical assistance, time for personal thought and reflection, integration of personal and professional experiences, development of a positive community with peers, interest in taking another course

employing this method, and degree of satisfaction. Grades for all students in the same courses for the years 2008 through 2011 were obtained for comparisons.

All of the participants except one were female and older than 26 years of age. More than half of the respondents resided at distances greater than 50 km from the campus. The survey was composed of 99 questions that obtained information regarding demographics as well as 14 items each for the three components of the course. These components were: 1) the on-line portion delivered with Elluminate©, 2) group forums which permitted peer interactions, and, 3) onsite laboratory components.

Data Analysis

There were three major clusters of analyses. The first involved discerning significantly different responses for the various scales of satisfaction as a function of the participants' comfort at the beginning of the course for the three course delivery methods: Elluminate©, forum, and onsite education. The second involved the satisfaction ratings for all items as a function of: level of education, how long the participants had been nurses, part-time or full time status, if the participants were RNs while completing the program, the physical distance from the university, and age. The third level was the analyses of grades for each year of students between 2008 and 2011 as a potential inference of change in performance.

Because this was ordinal (ranking) data, the primary analyses involved non-parametric comparisons that involved Friedman (for between variables) and Kruskal-Wallis (for between subjects) as well as Spearman correlations. However in order to extract the means of the rankings and to interpret the data more readily, t-test pairs for questions involving correlated samples and one-way analysis of variance for between group comparisons were employed. The grades for the courses over the years were analyzed by one-way analysis of variance. *Post-hoc* tests were Tukey's set at $p < .05$. Only those items that were statistically significant ($p < .05$) with both the non-parametric and parametric analyses were reported.

Results

<u>Course Delivery Methods</u>

The mean and standard deviations (in parentheses) for the rankings from the respondents (17 or 18, depending upon item) at the beginning of the course for level of comfort for each of three components of the program were: Elluminate© M=3.44 (1.2), forum M=3.29 (1.0), and onsite seminars M=4.2 (0.6). Non-parametric analysis confirmed that the initial comfort for the onsite training compared to the other two delivery methods was significantly higher. There was a significant increase in the level of comfort (all dfs=1) from the beginning to the end of the course for the Elluminate© (chi-squared=8.33, $p < .01$) and forum (chi-squared=12.00, $p < .001$) components of the course but not for the onsite seminars (chi-squared=3.00, $p > .05$).

The numbers of participants for each ranking (in parentheses) for level of comfort at the beginning of the course with respect to Elluminate© were 2(6), 3(2), 4(6), 5(4). Of the 13 different items only two questions: would take another course with this method [$F(3,17)=4.01$, $p < .05$] and were satisfied with Elluminate© [$F(3,13)=3.85$, $p < .05$] displayed a statistically significant difference as a function of initial rating that was verified by non-parametric analyses. *Post hoc* analysis indicated that those subjects who were most comfortable at the beginning of the course strongly agreed to take another course or were satisfied (M=5.0,SD=0) compared to those who were least comfortable (M=3.7, SD=0.5; M=3.8, SD=.4, respectively).

The numbers of participants (in parentheses) for each ranking for level of comfort at the beginning of the course for the forum modes, were: 2(5), 3(3) and 4 or 5 (9). For this delivery method of the course there were no significant differences for any of the satisfaction rankings a function of the initial comfort ratings. The numbers of participants (in parentheses) for each ranking of the initial comfort for the onsite method were: 3(3) 4(10) and 5(6). As a function of being more comfortable with this method at the beginning there were higher satisfaction scores for being more comfortable (all dfs=2,16) at the end of the course [$F=14.92$, $p < .001$], agreed that the instruction helped learning [$F=5.06$, $p < .05$], would taken another course with this method [$F=19.00$, $p < .001$] and endorsed more over all satisfaction [$F=7.01$, $p < .01$]. The range in means (and SDs) for taking the course again for those that were least and most comfortable with this method at the beginning were 2.5 (.7) and 4.8 (.4), respectively.

Comparisons by Selected Demographics

There were no significant differences in rankings for any of the items for any of the three components of the program as a function of the participants being either full time or part-time or as a function of their age groups. Only one item, level of comfort with Elluminate© at the beginning of the course was related to the distance between residence and the university. Those who lived further (n=9, M=4.0, SD=1.0) rather than closer (n=7, M=2.4, SD=.8) ranked the level of comfort at the beginning of the course as significantly [$F(2,14)=7.51$, $p < .01$] higher than those who lived closest.

Education was an important differentiator of levels of agreement for the items. Those who were more educated than least educated in this sample reported stronger agreement with items concerning the onsite delivery method only. These items (all dfs=2,14) were: level of comfort with the onsite lab [$F=4.83$, $p < .05$], positive contribution of the onsite lab [$F=4.67$, $p < .05$] and willingness to take this component again [$F=4.81$, $p < .05$]. For the numbers of years the participants had been nurses, the only items that were statistically significant involved the forum component: explanations were helpful [$F=7.10$, $p < .01$], help with technical problems [$F=7.47$, $p < .01$] and the course allowed positive learning [$F=5.58$, $p < .01$]. *Post hoc* analyses indicated only those who had been nurses longest (n=5) compared to intermediate (n=9) and least (n=3) years of experience reported greater agreement (Ms 4.6 to 4.7, SDs .5 to .6) compared to the other two groups (Ms 3.0 to 3.8, SDs .5 to 1.0) who did not differ significantly from each other according to the *post hoc* tests.

Grades

There were a total of 68 students in the classes between 2008 and 2012. This includes students from prior to the transition to the graduate level. The mean and standard deviations for the grades for the entire population were 80.3 and 4.1, respectively. Each of the two grades were analyzed according to year. There were no statistically significant [$Fs(5,64) < 2.00$, $p > .05$] differences in grade achievement between any of the students in any year.

To discern if there was a change in performance, as inferred by grades, between the two courses, a difference score was calculated. The mean and SD for the entire population was 0.4 and 3.4, respectively. One-way analysis of variance demonstrated no significant difference [F=1.45, P >.05].

Discussion

Despite the limits of questionnaire methods, the results of this survey for approximately 76% of the entire population who has been exposed to a blended method of instruction suggests positive impacts upon satisfaction and willingness to take another course that employs this strategy. It is relevant that for all three course delivery methods: Elluminate©, forum, and onsite laboratory instruction, the mean rankings indicated the experiences were generally positive. Most scores were above 3 which meant that the participants agreed or strongly agreed with the effectiveness of each delivery method.

Even with the large number of items, few demonstrated significant differences. Taking into account the likelihood of statistically significance of 1 out of 20 (p=.05), there were still more items than expected by chance. The critical items, such as willingness to take the course again, are important for design of future courses. The specificity of the beneficial rankings for the forum courses for the older nurses as well as the enhanced level of reported comfort at the beginning of the Elluminate© program for the participants who lived furthest away indicates that blended methods of andragogy may embrace a wider population of diverse students with more individualized demands.

The increased level of comfort for the Elluminate© and forum delivery methods but not the onsite laboratory delivery method between the beginning and end of the course was obviously confounded by the higher initial rankings for the latter. However, even with this limitation, the results indicate that there was an acquired greater comfort over time with these new methods. That there was no change in grades, one inference of performance, as a function of time and method of andragogy does not necessarily detract from blended programming. Grades indicate acquisition of the material but do not necessarily discern the effort, time, or frustration required to obtain them. We

suggest that the blended method may be more efficient in that it allows access to more diverse methods of acquisition of new material.

Limitations of study

The primary limitation of the study involved the method of measurement, i.e., questionnaires. There were no quality control measures for the instructors who operated the various components of the blended program, who could have influenced the students' experience in the course.

Another limitation of the study surrounds the small sample size. However, a response rate of 76% suggests that our findings adequately represent the unique cohort at the targeted university. Furthermore, only one respondent was male. It is difficult to determine if there are any gender influences on the findings.

Conclusion

The use of online methods in education is here to stay, and is evidenced by educational facilities having increased online courses and programs due to an increased demand for this delivery method (Allen & Seaman, 2004). This study demonstrated significant increases in level of comfort with the Elluminate© and forum interactions but not onsite approaches during the course. Yet, the onsite component was ranked as facilitating more personal satisfaction and development. Residential distance from the university was associated with greater initial comfort for the Elluminate© component while higher levels of education were associated with more positive responses for the forum modes. Mean rankings of the preferences were primarily positive for all three components of instruction. While there is a solid foundation of adult learning principles and learning theories in general, none are specific for adults in a blended learning environment at the graduate level, enrolled in a clinical nursing course. The findings suggest that blended learning may satisfy a wide diversity of student needs. It is anticipated that the results of this project will build upon existing knowledge and help develop a strategic method that is specific for adults in a blended learning environment.

The practical implications of this study can have a direct impact on nursing educational approaches, and an indirect impact on health care in Canada. There is currently a nursing shortage in Canada, both in the clinical and in the educational settings (Oulton, 2006; Larsen, 1995). It is reasonable to assume that increasing access to education, and the resulting increase in NPs, can be one approach in addressing these shortages. Specific to our northern and rural communities, the lack of access to primary care is overwhelming. Northern Ontario's aboriginal residents have insufficient and/or ineffective primary care (Shah, Gunraj & Hux, 2003). Further studies are required to determine if primary health care in these vulnerable communities will be enhanced by providing flexible educational opportunities to existing registered nurses who choose to continue their education to a nurse practitioner designation. This study reported a high level of student satisfaction and suggests that quality education can be delivered using blended learning approaches in clinical courses at the graduate level.

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