WEB-BASED GRADUATE EDUCATION IN RURAL NURSING CASE MANAGEMENT

Marietta Stanton, PhD, RN, CMAC[1], **Carolyn Crow, PhD, RN**[2], **Ruby Morrison, DSN, RN**[3], **Diane J. Skiba, PhD, FAAN**[4], **Todd Monroe, MSN, RN**[5], **Gina Nix, MSN, RN**[6], **Valeria Gooner, MSIS**

[1]Professor and Graduate Program Coordinator, Capstone College of Nursing, University of Alabama

[2]Faculty Emeritus, Capstone College of Nursing, University of Alabama

[3]Associate Professor, Capstone College of Nursing, University of Alabama

[4]Associate Professor, University of Colorado Health Sciences Center

[5]Graduate Student, Capstone College of Nursing, University of Alabama

[6]Graduate Mentoring Coordinator, Capstone College of Nursing, University of Alabama

Abstract

The decreasing supply of advanced practice nurses continues to be a problem that plagues America, especially in rural regions. It has been suggested that nurse educators aggressively recruit potential graduate students and provide "easy access" for nurses presently living and practicing in rural areas. Web-based or on-line courses not only improve access to graduate education for rural nurses but also provide for high quality teaching and learning experience for both students and faculty. The purpose of this study was to examine what students in a web-based graduate program in rural nursing case management and faculty perceive are the advantages and disadvantages of web-based learning. In this descriptive study, interviews and a written survey were used for data collection. The sample included six faculty teaching in the graduate nursing program at the time of data collection and 29 former students enrolled or graduated from the program. Findings revealed by students included difficulties with computer technology, unclear expectations for coursework, and lack of socialization as disadvantages. Students identified teacher advocacy and accessibility through distance education as advantages of the program. Faculty identified access as the major advantage. Disadvantages identified by faculty included lack of socialization for students, faculty workload, and a need for ongoing faculty development.

Keywords

Graduate Nursing Education; Web-based Distance Education; Rural Nursing Case Management

mstanton@bama.ua.edu .

INTRODUCTION

The shortage of advanced practice nurses plagues American health care (HRSA, 1999; HRSA, 2000; Johnson, 2000; Moses, 1997; O'Neal, 1999; Sigma Theta Tau, 2001). According to Coffman, Blick and Wong, 1998, the biggest challenge facing nursing is educating RNs for their emerging roles. Further, Coffman et al. state that partnerships among educators, employers, and communities are needed to develop effective approaches to bridge the gap between the competencies of RNs and employers expectations. O'Neil and Coffman (1998) argue that the challenges confronting nursing emerge from the changing health care environment. The formation of health care systems in the future will focus on more managed, integrated, evidence based and ambulatory settings than the current system. Nurse educators should provide accessible quality education for advanced practice nursing especially in rural areas (O'Neal, 1999). Because Alabama is primarily a rural state, the Capstone College of Nursing (CCN) converted its graduate program in rural nursing case management to a web-based format. Innovative web-based or on-line courses not only improve access to graduate education for rural nurses but also provide a high quality teaching and learning experiences for students and faculty (Billings, Connors, & Skiba, 2001; O'Neal, 1999; Paulson, 2002; Reavis & Brykzcynski, 2002). The majority of the students chose this program because of the rural focus in nurse case management.

BACKGROUND

Bushy (2000) argues for the advanced practice nurse to fill the professional void in rural communities where medical services are limited or non-existent. Changes in the health care delivery system have led to the implementation of more university-based educational programs that prepare nurses in advanced practice roles. Increased access to graduate nursing education is desirable for rural nurses (Bushy, 2000; O'Neal, 1999; Waddell & Hayes, 2000) but not at the expense of a quality educational experience. Reviews of the research on distance learning (Billings & Bachmeier, 1994; Daley, McClelland, & Yang, 1994; Shomaker & Fairbands, 1997) have extolled the benefits of distance-based programs in terms of quality learning outcomes. Recent studies have focused specifically on web-based learning (Billings et al. 2001; Reavis & Brykzcynski, 2002; Ryan, Hodson-Carlton, & Ali, 1999; Waddell & Hayes, 2000; Woo & Kimmick, 2000) outcomes.

Woo & Kimmick, (2000) compared the learning outcomes for students who undertook the web-based or traditional on site versions of the course. They found no significant differences on test scores or student satisfaction. However, Waddell and Hayes (2000) found that distance-based technologies, especially the web-based courses, may produce a marginalization of minority and rural-based students. Concerns raised about distance education included skills with technology, frustration and workload, isolation, fragmented communication, and lack of professional socialization. Rural students may be at an even greater disadvantage because of limited technology skills (Waddell and Hayes, 2000). However, Shomaker and Fairbands (1997) found that bringing advanced nursing education to rural students increased retention rates of the state's smaller hospitals and rural health clinics. They concluded that distance education is an innovative and successful method to provide education to rural nurses.

Hara and Kling (2001) state that many advocates of computer-mediated distance education emphasize the positive aspects and understate the workload required and the frustration produced for both faculty and students. This frustration may contribute to increased attrition from a program. Although finding grades equivalent between traditional and distance-based students; Daly, McClelland and Yang (1994) raised the issue that professional socialization may be significantly hampered by distance education strategies. Nurses practicing in a rural environment are already professionally isolated (Bushy, 2000) and may not be exposed to role models (Waddell & Hayes, 2000). In another study, Ryan, Hodson-Carlton, and Ali (1999) found that students felt disconnected from other faculty and students with Internet instruction. The interrupted communication that is natural to web-based learning produced anxiety and frustration for some students. Distance education also produced an increased workload for faculty in terms of preparation time and modification of teaching as well as evaluation strategies (Billings & Bachmier, 1994).

A benchmarking study conducted by three schools of nursing and the Flashlight Project pilot tested a survey instrument used to assess three categories of best practices in web-based courses (Billings et al. 2001). The first was use of technology, including student perceptions of the technology infrastructure and the productive use of time. The second assessed students' perceptions of the seven principles of good practice in education (Chickering & Gamson, 1987). The last assessed outcomes including access, convenience, connectedness (isolated and missed face-to-face), socialization to the profession, preparation for real world work, proficiency with technology and satisfaction. In this pilot study, Billings et al. (2001) found students were satisfied with web-based courses and highly rated convenience and accessibility as outcomes. The students reported missing face-to-face contact and indicated that computer proficiency improved over time. Although others frequently mentioned the lack of ability to socialize students as a disadvantage of web-based learning, this study found that students reported socialization positively as an outcome of web-based courses.

A study conducted by Reavis and Brykczynski (2002) described many advantages and disadvantages from both the faculty and nurse practitioner students' perceptions in regard to distance learning. They found that students liked distance learning for its convenience, accessibility, instant feedback, freedom, opportunity, excitement, networking and flexibility. On the other hand, students felt it detracted from spontaneity and communication. Unanticipated deficiencies in personal computer equipment often interfered with effective learning. Although faculty objected to the increased workload and felt they needed additional time to learn technology, they enjoyed the creativity and innovation fostered by the use of this technology.

METHODOLOGY

For the purposes of this study a descriptive design (Polit, Beck & Hungler, 2002) was used to assess the experiences of faculty and students involved in the CCN web-based graduate nursing program in Rural Nursing Case Management. Structured interviews were used to collect data from faculty and a survey was mailed to students to ascertain their perceptions. Participation in this program evaluation study was voluntary. Following an explanation of the study faculty were invited to participate. Interviews were conducted privately in the

faculty member's office. Return of the questionnaire implied student consent to participate and responses were anonymous. Confidentiality of all data was maintained by retaining the data in a locked file drawer in a research member's office. Data was grouped for analysis and no identifying information has been reported. Data will be shredded five years from publication of the study. Minimal or no risks to participants were identified.

Interview questions for faculty were constructed based on those questions used by Reavis and Brykczynski (2002) in their study on web-based learning. Content validity was obtained by asking a panel of graduate faculty to review the questions for appropriateness. Following the review, all questions were either retained or revised as recommended. The faculty interview tool contained specific questions about personal experiences with web-based coursework. Faculty responses were transcribed and analyzed by the research team to determine common themes. Faculty interviews were approximately 30 minutes each and conducted by the same member of the research team. The faculty population for this sample consisted of the six faculty teaching in the web-based graduate program at the time of the study. The questions for faculty interviews are presented in Table 1.

The questionnaire to collect data from students contained two components. The first part included specific questions formatted as a Likert-type scale whereas the second part of the instrument included narrative responses to provide feedback about participating in distance education (see Table 2). The instrument for students was adapted from the Flashlight Program CSI tool kit (Ehrmann & Zuniga, 1977) and consisted of six items eliciting student perceptions of specific outcomes, educational practices, and use of technology. Two open-ended questions asked students what they found to be best and worst experiences with the distance-based master's program. A third open-ended item asked for any additional comments. Content validity of the items for the instrument was established previously by reviewing the nursing literature about Web courses and using a national consensus panel of experts in distance education to review the items (Ehrmann & Zuniga, 1977).

The student population for this study consisted of 29 former students of this program. Data were collected over a six-month period. A statistician assisted with the analysis of quantitative data and the research team collaboratively analyzed the qualitative data. An exhaustive list of themes was identified and major themes emerged from the data. Consensus on major themes was achieved.

RESEARCH FINDINGS

Qualitative Finding-Faculty

The entire faculty (n = 6) teaching in the distance-based graduate program were interviewed at the time of data collection. Each of the faculty interviewed had over 15 years of teaching experience in nursing. The entire faculty sample had some previous experience with teaching web-based or distance education courses, and four of the six had previous experience teaching graduate courses. Data saturation occurred with the fifth interview. All major themes were identified by at least 60 % of the faculty interviewed. Faculty identified access to graduate nursing education as the major advantage of the web-based program. The major disadvantages identified by faculty included lack of student socialization, and an

increased workload. Most faculty felt that distance education could meet student learning needs but that it took a great deal of time and knowledge of technology to make that happen. Another major theme identified in faculty responses was that of the need for faculty development prior to implementing distance-based teaching and for ongoing faculty development as technology changes. The major themes identified for each of the questions with illustrative comments appear in Table 3.

Quantitative Findings-Students

Twenty-nine of the 55 students surveyed returned usable questionnaires for a response rate of 55%. The typical respondent was a Caucasian female in her thirties. Of the 29 respondents 10% were male (n = 3) while 90% were female (n = 26). Twenty-four percent of the respondents were African American (n = 7) while 76% were Caucasian (n = 22). Seventeen of the respondents took the program by distance education (59%) while twelve took the program on site (41%). The majority of the students chose this graduate program because of its focus in rural nurse case management.

Descriptive statistics were computed on all scale items. There were no differences in responses to survey questions based on demographic variables. Comparisons of the demographic variable responses to Likert scale items were made based on age, gender and ethnic background using the Wilcoxon/Mann Whitney test. The majority of students (80%) indicated that if it were not for distance-based learning, they would not have been able to obtain their degree. The majority of students (80%) also reported that their educational outcomes were directly influenced by the use of distance-based modalities. Less than half of the respondents (40%) felt they became part of the group through conversations on the web-based bulletin board, e-mail, and or discussion groups. All of the students indicated that the education they had received in the distance-based graduate program was comparable to that of an on-site traditional program and that they were able to communicate their questions or concerns to faculty in a timely manner. All of the respondents indicated that they would recommend the program to a co-worker or friend. (Table 4).

Qualitative Research Findings-Students

Major themes and illustrative comments for each of the narrative questions are delineated. One major theme identified by the students' as "worst experiences" related to computer competencies or their lack of the requisite skills. A second theme was "unclear expectations for coursework." "Best experiences" included faculty and administration advocacy for them. Students said that faculty and administration were very eager to help and support them in pursuit of a graduate degree. An additional comment from one student stated that "extensive research time on the computer was required." Several students commented that they would not have attained their degree without distance based learning. However, the major theme for the responses to this question centered on the student's perceived lack of interaction with both faculty and their peers. Student responses illustrative of major themes are listed in Table 4.

LIMITATIONS

The small convenience sample limits the generalizability of the findings of this study. However, for those who are interested in implementing a web-based graduate nursing education program in rural areas the findings of this study are relevant.

CONCLUSIONS AND RECOMMENDATIONS

The findings for both faculty and students in this study were consistent with findings of Reavis and Brykczyski (2002) and Paulson (2002). In addition to the themes identified in those studies, faculty identified a major concern as a need for ongoing faculty development especially in web-based teaching technology. The findings of this study are congruent with Paulson's (2002) assertion that "projects continually rediscovered the need to educate faculty, administrators, and students not only about the technologies used in distance education but about pedagogical approaches that work in distance education and the special needs of students learning at a distance" (p. 41). Review of faculty and student responses led to several recommendations and conclusions for web-based graduate nursing education:

1. Accessibility of the program to nurses, especially in rural, areas outweighs the disadvantages of distance-based education. Therefore, the web-based format should continue to be an option of choice.

2. The web-based approach to graduate education provides a unique opportunity for increasing the supply of advanced practice nurses in rural area.

3. An aggressive faculty development program needs to be implemented and ongoing in order to integrate the latest technology into coursework and enhance student learning experiences.

4. On-going student and faculty course evaluations must be both formative and summative in order to ameliorate difficulties promptly.

5. Clear specifications of computer requirements and testing of student personal computers prior to starting courses is needed to ensure the student has the proper equipment to effectively navigate the program and complete coursework requirements.

6. An on-line orientation to the web-based program should be provided prior to entry into the program.

7. Further exploration of socialization strategies via the internet is needed.

8. Analysis of faculty workload and best practices is needed for policy and guidelines.

9. Development of policies and guidelines reflecting best practices in web-based courses is vital to future success.

Findings are congruent with conclusions of previous studies involved in distance education or web-based programs. The challenge to develop and practice creative strategies to increase socialization is imperative. Web-based courses clearly improve access to quality graduate

nursing education. The potential to improve the health of people in rural communities by advanced practice nurses is limitless. A decade ago, the American Association of Colleges of Nursing (AACN, 1994) and the American Nurses Association (ANA, 1996) recommended that congress pass legislation to support initiatives that would help improve rural consumers access to health care. The recommendations included:

a. Provision for direct reimbursement to advance practice nurses in rural and underserved areas,

b. Allocate federal and state funds for telecommunication infrastructures to educate and recruit nurses, and

c. Encourage collaboration among hospitals, professional nursing schools, and communities to create rural practice (Bushy, 2000).

The CCN web-based graduate education in rural nursing case management is a federally funded initiative that meets the recommendations for improving access to health care for rural consumers.

REFERENCES

American Association of Colleges of Nursing. (1994). Position statement: Certification and regulation of advanced practice nurses. Washington, DC: Author.

American Nurses Association (1996). Council of Community Health Nurses' community-based nursing services: Innovative models. Washington, DC: Author.

Billings D, & Bachmeier B (1994). Teaching and learning at a distance: a review of the literature. In Allen P (Ed), A Review of Research in Nursing Education (pp. 1–32). New York: National League of Nursing.

Billings D, Connors H, & Skiba D (2001). Benchmarking best practices in web-based nursing courses. Advances in Nursing Science, 23 (3), 41–52. [PubMed: 11225049]

Bushy A (2000). Orientation to nursing in the rural community. Thousand Oaks, California: Sage Publications, Inc.

Chickering A, & Gamson Z (1987). Seven principles for good practice in undergraduate education . American Association for Higher Education Bulletin, 39 (7), 3–6.

Coffman J, Blick N, & Wong S (1998). The nursing workforce and nursing education: An overview of trends. In O'Neil E & Coffman J (Eds.), Strategies for the future of nursing (pp.8–20). San Francisco: Jossey-Boss Publishers.

Daly JM, McClelland E, & Yang J (1994). The effect of teaching via telecommunications: A comparison of the academic performance of RN-BSN students in satellite centers and on-campus. Journal of Nursing Education, 33 (4), 172–174. [PubMed: 8027839]

Ehrman S, & Zuniga R (1977). The Flashlight Evaluation Handbook. Washington, DC: Corporation for Public Broadcasting.

Hara N, & Kling R (2001). Students' frustrations with a web-based distance education course. Retrieved September 10, 2001, from http://www.firstmonday.dk/issues/issue4_12/hara/index.html

Health Resources and Service Administration (HRSA) (1999). Federal Support for the Preparation of the Clinical Nurse Specialist Workforce through Title VIII (pp. 1–24). National Advisory Council on Nurse Education and Practice, Report to the Secretary of Health and Human Services, Bureau of Health Professions, Division of Nursing.

Health Resources and Service Administration (HRSA) (2000). The registered nurse population— National sample survey of registered nurses—March 2000—Findings from the National Sample Survey of Registered Nursing (pp. 1–13). Rockville, MD: Bureau of Health Professions, Division of Nursing. Retrieved February 10, 2005, from http://bhpr.hrsa.gov/healthworkforce/reports/survey/default.htm

Johnson JE (2000). Nursing shortage: Realities, reversals and options for recovery (pp. 9–14). Frederick, MD: Aspen Systems Corporation.

Moses E (1997). The registered nurse population. Rockville, MD: DHHS, HRS A, Bureau of Health Professions, Division of Nursing.

O'Neil E, & Coffman J (Eds). (1998). Strategies for the future of nursing. San Fancisco: Jossey-Bass.

O'Neil E (1999). Supply problems continue to plague rural America. Front & Center, 3(4), 1–5.

Paulson K (2002). PIPSE: Thirty years of learning anytime and anywhere. Change, 34 (5), 37–41.

Polit D, Beck C, & Hungler BP (2002). Essentials of Nursing Research: Methods, Appraisal, and Utilization (5th ed.). Philadelphia: Lippincott, Williams & Wilkins.

Reavis C, & Brykczynski K (2002). The Hi-tech classroom: an analysis of NP education in Cyberspace. Advance for Nurse Practitioner, March 2002, 67–74.

Ryan M, Carlton K, & Ali N (1999). Evaluation of traditional classroom teaching methods versus course delivery via the World Wide Web. Journal of Nursing Education, 38 (6), 1–6.

Shomaker D, & Fairbands J (1997). Evaluation of an RN-to-BSN distance education program via satellite for nurses in rural health care. Journal of Nursing Education, 36 (7), 328–330. [PubMed: 9309568]

Sigma Theta Tau (2001). Nurses for a healthier tomorrow—facts about the nursing shortage. Retrieved June 20, 2002, from http://www.nursesource.org/facts_shortage.html

Waddell D, & Hayes J (2000). Does "online" nursing education short change the RN to BSN student? Georgia Nursing. August, September, October, 2000, 36–39.

Woo M, & Kimmick J (2000). Comparison of internet versus lecture instruction methods for teaching nursing research. Journal of Professional Nursing, 16 (3), 132–139. [PubMed: 10860311]

Table 1:

Faculty Interview Questions

1.	What are the advantages of distance-based education for our graduate students?
2.	What are the disadvantages of distance-based education for our graduate students?
3.	Can all educational needs of the student be met with on-line learning?
4.	What strategies can minimize the disadvantages of distance-based checkpoint?
5.	Describe your worst experience with distance-based education as a professor.
6.	Describe your best experience with distance-based education as a professor.

Table 2:

Student Questions

	Instructions: Circle the response that reflects your experience.					
	1 = Not true; 2 = Somewhat true; 3 = Not Sure; 4 = True; 5 = Very					
1.	If it were not for distance-based learning, you would not have been able to complete a graduate nursing degree.	1	2	3	4	5
2	You felt that your outcome, successful or unsuccessful, in this program was influenced by the use of distance-based learning?	1	2	3	4	5
3.	You felt you were able to become a part of your "graduate student class" through on-line conversation on the bulletin board, e-mail, or discussion?	1	2	3	4	5
4.	You believe that the education you have received is comparable to that of a traditional onsite program (where you attend classes on campus)?	1	2	3	4	5
5.	You would recommend this program to a co-worker or friend?	1	2	3	4	5
6.	You were able to communicate your questions or concerns with the faculty and receive timely or prompt responses?	1	2	3	4	5

Open-ended Questions for Students

1. What is the worst experience you have had with this distance-based masters program?

2. What is the best experience you have had with this distance-based masters program?

Please provide any additional comments.

Table 3:

Faculty Common Themes and Illustrative Comments for each Themes

Question	Theme *	Illustrative Comments
# 1 -Advantages of distance-based education	1. Accessibility to graduate education	"convenience", "accessibility", "availability and flexibility for students"
# 2 -Disadvantages of distance-based education	1. Decreased socialization of students and faculty 2. Increased faculty workload	"lack of face-to-face contact" "lack of socialization in an academic environment" "lack of group experience" "faculty virtually available to students any time of day" "faculty need time to learn about technology" "additional workload not recognized by administration in terms of salary"
# 3 -Educational needs of students can be met with distance education	1. Faculty development required	"continuous skill development required" "keep on middle of technology"
# 4 -Strategies that minimize disadvantages of distance education	1. Use enhanced technology skills	"use email to communicate with students on an ongoing basis" "use assignments which encourage online communication with students"
# 5 -Worst experience with distance education	1. Technology difficulties interfere with teaching	"distraught students because of timed-testing" "technology problems with power outages, quality of technology" "differences between faculty and student equipment"
# 6 -Best Experience with distance education	1. Accessibility and flexibility for students	"dealing with students from three states" "observing the commonalities and nursing issues across states" "appreciation of students for this experience and opportunity"

*
More than 50% of respondents made comments or provided responses associated with the theme.

Table 4

Common Themes for Students Narrative Questions with Illustrative Comments for Each Theme

Question	Theme *	Illustrative Comments
# 1 -Worst Experience of your Masters program	1. Computer competencies necessary to complete coursework	Theme I "difficulty learning to compose messages" "difficulty posting papers to the bulletin board" "trying to become computer literate and work on graduate studies" "use of software limited paper submission"
	2. Unclear expectations for coursework	Theme II "expectations not made clear by professor" "assignments were not clear"
# 2 -Best Experience with Distance Education	1. Teacher advocacy for students	"teachers were there for me" "professor bent over backward to help with problems" "faculty were available to help" "program director eager to help with problems
# 3 -Additional comments	1. Lack of social interaction	"I missed face-to-face contact with my instructors" "need to attach a name to a face" "felt strange trying to complete assignments with strangers" "do not know my classmates" "wanted to know someone well enough to talk to them about problems with school and my personal situation"

*
more than 50% of respondents made comments or provided responses associated with this theme