Peer Education Versus Computer-Based Education

Improve Utilization of Library Databases Among Direct Care Nurses

Roxana Gonzalez, MSN, RN-CCRN ○ Patricia O'Brien-Barry, PhD, RNC-OB ○
Reginaldo Ancheta, BSN, RN ○ Rennuel Razal, BSN, RN ○
Mary Ellen Clyne, PhD, RN, NEA-BC

A quasiexperimental study was conducted to demonstrate which teaching modality, peer education or computer-based education, improves the utilization of the library electronic databases and thereby evidence-based knowledge at the point of care. No significant differences were found between the teaching modalities. However, the study identified the need to explore professional development teaching modalities outside the traditional classroom to support an evidence-based practice healthcare environment.

Nursing education at the point of care can be an essential contributor to the support and implementation of evidence-based practice. The American Nurses Association's (2015) *Code of Ethics for Nurses* states that "nurses must continue to learn about new concepts, issues, concerns, controversies, and healthcare ethics relevant to the current and evolving scope and standards of nursing practice" (p. 22). Recent initiatives by the Institute of Medicine's (2010) *The Future of Nursing: Leading Change, Advancing Health* call for nurses to be competent in evidence-based practice. Organizations seeking Magnet status work to establish a nursing practice environment where inquiry and subsequent action for resolution require the direct care nurse to have greater comfort

levels with knowledge seeking via evidence-based resources. Fitzsimons and Cooper (2012) explained the importance of accessible evidence-based practice resources at the point of care in achieving excellence in practice.

Lifelong learning is essential to current nursing practice. Nurses need to explore available opportunities that may need to go beyond the traditional classroom in order to be current. The typical classroom provides an educational setting given by educators at a set time and place, away from the bedside. Without innovation and transformation, the traditional classroom can be less than ideal for students and teachers (Story & Butts, 2010). The technology has provided an alternative to the traditional classroom. An increasingly popular educational strategy that fosters the student-centered approach is computer-based education where instruction methods provide flexibility and self-paced learning opportunities (Black & Watties-Daniels, 2006). Peer education has also gained popularity in providing an opportunity for nurse–nurse support via knowledge sharing and coaching. Nurses' close working environment places them in the position to rely on one another as resources regarding clinical demands facilitating the opportunity for peer teaching and learning (Parkin, 2006). Therefore, a valuable knowledge resource is a nurse colleague (Keller, Frank-Bader, Beltran, Ascalon, & Bowar-Ferres, 2011). Peer education can be defined as the teaching and learning between two individuals of equal standing (Lincoln & McAllister, 1993; Parkin, 2006; Priharjo & Hoy, 2011). The term peer education is interchanged in the literature with terms such as peer learning, peer tutorial, and peer-assisted learning (Lincoln & McAllister, 1993).

The evidence suggests that, in order to engage adult learners, innovative teaching strategies can be implemented efficiently on patient care units. Peer education and computer-based education are two alternatives to the traditional classroom. Peer education can be an effective method to help nurses gain knowledge. In a systematic review, peer education was found to increase confidence and competence and decrease anxiety in undergraduate nursing students (Stone, Cooper, & Cant, 2013). Peer education can be as effective and, in some situations, more effective

Roxana Gonzalez, MSN, RN-CCRN, is Critical Care Educator, Clara Maass Medical Center, Belleville, New Jersey.

Patricia O'Brien-Barry, PhD, RNC-OB, is Professor, Graduate Nursing Department, School of Nursing, Felician College, Lodi, New Jersey.

Reginaldo Ancheta, BSN, RN, is Direct Care Nurse, Clara Maass Medical Center, Belleville, New Jersey.

Rennuel Razal, BSN, RN, is Clinical Coordinator, Jersey City Medical Center, New Jersey.

Mary Ellen Clyne, PhD, RN, NEA,-BC, is President and CEO, Clara Maass Medical Center, Belleville, New Jersey.

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ADDRESS FOR CORRESPONDENCE: Roxana Gonzalez, Clara Maass Medical Center, 1 Clara Maass Drive, Belleville, NJ, 07109 (e-mail: Roxana.gonzalez@rwjbh.org).

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than traditional classroom learning. Christiansen and Jensen (2008) stated that peer teaching helps those involved to develop and enhance a range of skills, including teamwork and collaboration.

A combined strategy of peer and computer-based learning has also been found productive. Keller et al. (2011) utilized peer education to inform staff of new patient care standards. After instituting peer education, staff nurse review of new patient care standards increased from 30% to 100%, potentially improving patient outcomes. Upon completion of the peer education on new standards, computer-based learning modules were developed and placed on the hospital Intranet to complement peer learning, thereby offering two innovative strategies to engage diverse learners. The blending of classroom and computer-based learning is another available approach. Brooks (2016) conducted a correlational comparative study that measured knowledge of electrocardiography reading retention after nurses were taught using computer and classroom teaching methods. A decrease in competency was noted, and a poststudy recommendation included the need for skill assessment by preceptors and coaches at the point of care. In a quasiexperimental study of traditional classroom learning versus computer-based learning in professional nurses, Esche, Warren, Woods, Jesada, and lliuta (2015) found traditional classroom learning to be more effective. However, over time (3 and 6 months) there were no significant differences in retention of knowledge between the groups. Although most of the participants preferred online learning, satisfaction scores were significantly higher for the classroom-based group.

Because a continuation of learning is essential for quality of care and professional growth in the nursing profession, taking into account the essential elements that leads to successful retention of knowledge can provide direction in setting the stage for success. Knowles (1970) stated that adults have accumulated a foundation of experiences and knowledge. In every learning opportunity, a learner brings previous knowledge on which to build. Relevancy also plays a role in learning. According to Knowles, Holton, and Swanson (2011), the adult learner is self-directed and motivated to learn as the need for learning arises relevant to identified problems. The learning principles, as explained by Knowles, are a student-centered learning framework. Knowles six learning principles (1970) include (a) self-directed autonomy, (b) learned experiences and knowledge, (c) goal oriented, (d) relevancy oriented, (e) practical, and (f) need to be shown respect. However, caring also plays a role in the authenticity of teaching and learning.

The Theory of Human Caring by Jean Watson Caritas calls for nurses to "engage in genuine teaching-learning experiences" (Watson, 2008, p. 125). Through Watson's theory, a realization arises that engaging in teaching and learning is part of caring. Although Watson's theory is mul-tifaceted in the caring for others and self, it provides a foundational premise that can facilitate the understanding between the willingness to teach and learn, leading to a greater professional holistic awareness. Watson's caring theory allows the nurse to practice the art of caring and provide compassion but also to expand the nurse's own actualization (Cara, 2003). The combination of Watson's Theory of Human Caring with Knowles' adult learning principles provides a framework for implementing teaching-learning interventions that supports knowledge development at the point of care. Gabbert (2008) conducted a study of online learning using Watson's theory of human caring and Knowles' adult learning principles and found the blended conceptual frameworks provided guidance in creating a transformational teaching environment.

When utilizing Watson's Theory of Human Caring and Knowles's adult learning principles as a guide, the question arises: Does peer education improve the utilization of Elton B. Stephens Co (EBSCO) Library Databases by the direct care telemetry nurse as compared to computer-based education?

METHODOLOGY

A quasiexperimental pilot study was developed to compare the effectiveness of peer education with computer-based learning in direct care nurses relevant to the utilization of the EBSCO databases. The study was conducted at a 464-bed community hospital in northern New Jersey in conjunction with a local university. Participants included a convenience sample of telemetry nurses from two telemetry units.

Researchers declared no conflict of interest or known bias. Upon approval from the institutional review boards from the hospital system and the local university, full- and part-time nurses were recruited from the two telemetry units. Nurses were informed of the study through a letter of solicitation (encompassing the elements of informed consent), which was circulated on both units over a 2-week period. Nurses who volunteered to participate were requested to participate in an educational program on how to use EBSCO databases. The EBSCO databases had been available on desktops on nursing units throughout the hospital.

Procedure

A 15-slide presentation was developed by one of the nurse researchers. The presentation was uploaded to the hospital Intranet system. The peer educators who were educated by the hospital educator and their respective nurse manager utilized the same presentation. Five direct care nurses representing day shift and night shift were trained as peer educators. Both modalities were learner self-paced education.

Nurses on Unit A participated in a peer education program conducted by trained peer educators. Nurses on Unit B participated in a computer-based program administered through the hospital Intranet system, which is common practice for in-house professional education. The content provided in both programs was identical. The education was completed over a 2-week period for both units. At 1 month and 6 months posteducation, nurses on both units were asked to anonymously complete a 10-item survey, which was distributed on both units in sealed envelopes. Nurse voluntarily picked up an envelope, completed the survey, and returned it in a sealed envelope to a drop box on their respective units by a specified date. The survey was composed of 10 items with Likert-type responses ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The survey measured comfort with utilizing EBSCO databases, comfort with computer-based learning, use of peers as resources, and support of EBSCO as a means to evidence-based practice. The survey was validated by a content expert prior to study approval.

RESULTS

Data were analyzed utilizing SPSS 19.0. Frequencies and percentages were used to summarize years of practice experience. Chi-square computations were used to determine any difference in proportions relative to years of practice experience between the two units. Means and percentages for responses to each survey item were determined at 1 month and 6 months posteducation. Because of lack of a normal distribution, Chi-square was employed to determine if any significant differences existed in response to the 10 survey items relative to educational method, peer learning or computer-based learning.

The survey was completed by a total of 22 nurses at 1 month posteducation and 10 nurses at 6 months posteducation. Approximately 19 nurses were eligible to participate in the education on Unit A (peer) and 28 on Unit B (computer). Actual participation in the education was 89% ($n = 17$) for Unit A and 61% ($n = 17$) for Unit B. The response rate at 1 month posteducation was 65% ($n = 11$) for Unit A and 65% ($n = 11$) for Unit B. The response rate at 6 months posteducation was 35% ($n = 6$) for Unit A and 24% ($n = 4$) for Unit B.

Only one demographic item, years of practice experience, was included in the survey to minimize potential identification of participants. For the initial sample at 1 month posteducation, 47% identified themselves as having 15 years of experience or less, and 53% identified themselves as having greater than 15 years of experience. At 6 months posteducation, 40% identified themselves as having 15 years of experience or less, and 60% identified as having greater than 15 years of experience. Chi-square analysis revealed no significant differences between the

nurses on Unit A and nurses on Unit B in terms of years of practice experience.

Mean scores for the 10 survey items were computed for the peer learning group and computer-based group at 1 month and 6 months posteducation. Because a normal distribution was not achieved to meet the assumptions for a *t* test, data were collapsed into two categories, agree and disagree, and chi-square analyses were conducted. No significant differences were detected between the two groups on any of the survey items at 1 month. The small response rate at 6 months precluded further chi-square analyses.

Frequencies and percentages for each survey item for both groups at 1 month and 6 months posteducation were evaluated (see Table 1). Participants were satisfied with computer-based education and frequently relied on peers as resources. Eighty-six percent ($n = 19$) indicated they were comfortable with computer-based learning at 1 month posteducation, and 100% ($n = 10$) were comfortable at 6 months. All participants indicated they utilized peers as resources at both 1 month and 6 months posteducation.

A slight majority of participants, 55% ($n = 12$), were comfortable navigating EBSCO at 1 month posteducation, whereas 100% ($n = 10$) indicated they were comfortable at the sixth-month point. The majority, 62% ($n = 13$), agreed they used EBSCO frequently 1 month after education, and 70% ($n = 7$) agreed at 6 months. In terms of search skills, at 1 month posteducation 59% ($n = 13$) agreed they were able to narrow a search, 55% ($n = 12$) agreed they were able to select the best search mode and search statement, and 57% ($n = 12$) agreed they used search history to refine results. At 6 months, 100% ($n = 10$) were able to conduct the four search skills.

At 1 month posteducation, only 50% ($n = 11$) applied EBSCO information to daily practice and 55% ($n = 12$) agreed EBSCO supported the use of evidence-based practice. However, at the sixth-month point 90% ($n = 9$) applied EBSCO to daily practice and acknowledged it supported evidence-based practice.

DISCUSSION

Professional development at the point of care can be an essential element in creating and supporting evidence-based practice culture. The peer education versus computer-based learning study provided researchers and participants with a primary lesson. Matching the type of education delivery to the needs of the learner has its merit, but it is most important to have the resources available at the point of care. If healthcare environments are to establish and support an evidence-based direct care culture, experts within the organization need to provide point of care methods of learning. The study, though limited because of the small sample, supports the importance of having resources close

TABLE 1	Survey Response Percentages and Frequencies for Peer and Computer-Based Education at 1 Month and 6 Months Posteducation					
Survey Response	Peer (1 month), *n* = 11	Computer (1 month), *n* = 11	Peer and Computer (1 month), *n* = 22	Peer (6 months), *n* = 6	Computer (6 months), *n* = 4	Peer and Computer (6 months), *n* = 10
1. I am comfortable with computer-based learning (net learning) in my organization.						
Agree	82% (9)	91% (10)	86% (19)	100% (6)	100% (4)	100% (10)
Disagree	18% (2)	9% (1)	14% (3)	0	0	
2. I utilized my peers as a resource for obtaining care information in my healthcare environment.						
Agree	100% (11)	100% (11)	100% (22)	100% (6)	100% (4)	100% (10)
Disagree	0	0		0	0	
3. I utilize the available EBSCOhost databases frequently in my healthcare environment.						
Agree	36% (4)	40% (4)	62% (13)	67% (4)	75% (3)	70% (7)
Disagree	64% (7)	60% (6)	38% (8)	33% (2)	25% (1)	30% (3)
4. I am comfortable navigating EBSCOhost databases.						
Agree	55% (6)	55% (6)	55% (12)	100% (6)	100% (4)	100% (10)
Disagree	45% (5)	45% (5)	45% (10)	0	0	
5. I know how to narrow my search topic while using EBSCOhost databases by using limiters and expanders such as ''AND'' and ''OR.''						
Agree	64% (7)	55% (6)	59% (13)	100% (6)	100% (4)	100% (10)
Disagree	36% (4)	45% (5)	41% (9)	0	0	
6. I know how to choose the best search mode, such as Boolean/Phrase, effectively while using EBSCOhost databases.						
Agree	55% (6)	36% (4)	45% (10)	100% (6)	100% (4)	100% (10)
Disagree	45% (5)	64% (7)	55% (12)	0	0	
7. I know the search statement Sodium ''AND'' Congestive Heart Failure is appropriate for a topic search in EBSCOhost.						
Agree	64% (7)	45% (5)	55% (12)	100% (6)	100% (4)	100% (10)
Disagree	36% (4)	55% (6)	45% (10)	0	0	
8. I have applied information from EBSCOhost to my daily nursing practice.						
Agree	45% (5)	55% (6)	50% (11)	100% (6)	75% (3)	90% (9)
Disagree	55% (6)	45% (5)	50% (11)	0	25% (1)	10% (1)
9. I can utilize Search History to refine the results.						
Agree	60% (6)	55% (6)	57% (12)	100% (6)	100% (4)	100% (10)
Disagree	40% (4)	45% (5)	43% (9)	0	0	
10. The utilization of EBSCOhost has supported the use of evidence-based practice on my unit.						
Agree	45% (5)	64% (7)	55% (12)	100% (6)	75% (3)	90% (9)
Disagree	55% (6)	36% (4)	45% (10)	0	25% (1)	10% (1)

to direct care practice. Knowles' elements of autonomy and relevancy and Watson's Theory of Human Caring remind nursing professional development (NPD) practitioners to be student-centered and focus on practice outcomes. Although neither teaching method was found to be more effective, peer education and computer-based learning were accepted by the learners. These findings have implications for NPD practitioners relevant to planning programs to accommodate individual learning styles. The study also revealed the significance of research. Although participation in survey completion was low, the unit nurses reported having increased comfort in using the EBSCOhost library databases. The key may be to make resource knowledge available close to where it is being practiced and keeping knowledge relevant.

Limitations

Study limitations focused on sample and response rate. The study was limited to two telemetry units in a community hospital. The convenience sample and the low response rate limited the generalization of findings. Another challenge was survey completion by the direct care nurse during work hours.

Implications

The results of the study provide an opportunity for NPD practitioners to consider teaching modalities outside the classroom. Another implication for NPD practitioners is to advocate for electronic databases at the point of care. Nurses were utilizing the library databases to obtain evidence-based practice knowledge 6 months post-education. Another consideration is that nurses may accept a more autonomous role as learners when provided with a choice in selecting preferred teaching modality, thereby improving evidence-based knowledge.

Future studies may consider utilizing a random sample encompassing multiple types of units in a larger hospital setting. In addition, measuring knowledge retention as an outcome may better differentiate the benefits of each teaching modality.

CONCLUSION

Facilitating different learning opportunities that include methods such as peer education, computer-based learning, or even the traditional classroom may support a healthcare environment dedicated to the establishment and sustainment of an evidence-based practice culture. The study evaluated the learning and utilization of electronic databases to access evidence-based practice at the point of care. Nurses did not need to leave their unit to learn. The education was made available where they practiced nursing.

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