

Evaluation of a Unit-Based Education Process for Nurses in an Adult trauma Care Unit

by

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Abstract

Health care organizations must strive to provide easily accessible ongoing education structured and tailored to meet the specific learning needs of nurses. Although many studies have identified nurses learning needs, benefits and barriers to continuing education programs specific to patient related issues, little research has examined the development and implementation of a structured unit-based educational process and its effects on the learning needs of staff nurses. The purpose of this project is to evaluate the ease of access, preferences, and satisfaction with various teaching delivery methods of unit-based educational content for staff nurses in an adult trauma care unit. A unit-based education committee was created to deliver education to meet the learning needs of staff nurses based on the principles of Knowles' Adult Learning Theory. Committee members were encouraged to use a variety of teaching strategies. A 10-item survey was completed by 14 nurses working on an adult trauma care unit. Results indicate that nurses (n=14) prefer 1:1 teaching, skills-a-thon, and in-services as a method to receive education. The results from the post implementation group showed an increase in satisfaction (57%) related to support after education is delivered as well as access (57%) to expert or support staff and to educational information (79%). These findings support the importance of assessing the unique learning needs of nurses in order to tailor the educational content and use the appropriate teaching delivery methods to meet the specific educational needs of staff nurses. Furthermore, this pilot study provides a foundation for future studies related to the use of unit-based education committees and their methods for delivering education.

Key words: teaching strategies, continuing education, unit-based committee

Table of Contents

Chapter One: Introduction.....	1
Background.....	1
Significance of the Problem.....	1
Problem Statement.....	2
Purpose Statement.....	4
Chapter Two: Literature Review.....	5
Conceptual Framework.....	12
Chapter Three: Methods.....	15
Design.....	15
Setting and Sample.....	15
Instruments.....	19
Procedure.....	19
Data Analysis.....	20
Chapter Four: Results.....	21
Sample Demographics.....	21
Findings.....	21
Chapter Five: Discussion.....	28
Implications to Nursing.....	28
Study Limitations.....	31
Future Research.....	31
Conclusion.....	32
References.....	33

Appendices

Appendix A: A Unit-Based Education Model..... 36

Appendix B: Development of a Unit-Based Education Process..... 37

Appendix C: Unit-Based Education Survey..... 38

Appendix D: Scripps Institutional Review Board Approval Letter..... 40

Appendix E: Point Loma Nazarene University Institutional Review Board
Approval Letter..... 41

Appendix F: Informed Consent to Participate in Research..... 42

Appendix G: Introductory Letter to Potential Registered Nurse Research
Participants..... 44

List of Tables

Table 1: Participant rating of Quantity and Retention Ability.....	21
Table 2: Participant ranking of Preferred Delivery Method.....	22
Table 3: Participant rating of Satisfaction with Support Provided.....	23
Table 4: Participant rating of Access to a Content Expert or Support Staff.....	23
Table 5: Participant rating of Access to Educational Information.....	24
Table 6: Participant rating of Method to Access Educational Information.....	25
Table 7: Participant rating of Satisfaction with Online Education Module.....	25

Chapter One

Introduction

Today's nurses are faced with multiple challenges. Nurses are expected to recognize and respond to new demands arising from a changing and increasingly complex healthcare system (Claflin, 2005). They are expected to maintain professional competence throughout their career and most states require nurses to earn continuing education units to stay licensed (American Nurses Association, 2010). These requirements are seen as a vehicle for nurses to maintain current knowledge set forth by The Joint Commission (TJC, 2010). Multiple new regulations and accreditations processes, professional standards, additional accountabilities and financial priorities require more of direct care nurses already struggling to gain and sustain competencies in areas of practice, quality and safe patient care (TJC, 2010). Among the recommendations from The Joint Commission to ensure safety and quality in the clinical setting is to enhance nursing education to better prepare nurses for the demands of today's technologically sophisticated health setting (TJC, 2010). Highly skilled and experienced nurses are needed to train and mentor nurse graduates or newly hired nurses. In order to meet the educational needs of nurses and the financial needs of organizations, computer-based training and education provide alternative means for nurses to gain continuing education.

Significance to Nursing

The challenges nurses face to stay abreast with the latest standards, technology and treatments is further complicated by a rise in complex and acutely ill patients (Levett-Jones, 2005). In the midst of enduring financial constraints, organizations are taking a

closer look at their nursing education departments and the role of clinical nurse specialists and unit-based educators are being scrutinized (Levett-Jones, 2005). Therefore, staff nurses are challenged with finding innovative ways to maintain currency of knowledge and skills.

A solution to overcoming these barriers is the development, implementation and evaluation of unit-based education processes that focus on the specific learning needs of the staff nurses. Unit-based processes can be developed to meet regulatory, organizational and specific staff nurse needs (Styer, 2007). It can be a way for nurses to have a voice in their nursing practice. In return, they might provide an increase in nurse satisfaction, knowledge, skills and confidence (Geoghegan & Farrington, 1995). By having nurses participate and manage these unit-based educational processes, nurses frustrations can turn into accomplishments. Nurses might feel empowered and motivated to take responsibility for their learning needs.

Problem Statement

The Institute of Medicine reports that nurses are not being adequately prepared to provide high quality care and assure patient safety (IOM, 2009). Health care organizations tend to focus on meeting regulatory requirements and provide continuing education that is fragmented and underdeveloped rather than tailoring learning environments that will identify personal knowledge gaps and develop programs to address them. The Institute of Medicine (IOM, 2010) report *The Future of Nursing* includes recommendations for health care organizations to provide an environment that promotes lifelong learning with resources to make this a reality for practicing nurses. Health care organizations should regularly evaluate their educational programs for

adaptability, flexibility, accessibility and impact on clinical outcomes and update the programs accordingly (IOM, 2010). In the literature reviewed by authors Griscti and Jacono (2006), there was little information on how to evaluate continuing education outcomes and no tools were found to measure its effectiveness. Moreover, the development of an evaluation process is needed in order to determine if continuing education outcomes are achieved such as improved patient care, knowledge acquisition and continued competency (Griscti & Jacono, 2006).

Although many studies have identified nurses learning needs, benefits and barriers to continuing education and education programs specific to patient related issues, little research has examined the development and implementation of a structured unit-based educational process and its effects on the learning needs of staff nurses. More specifically, little research was found related to the impact of specific teaching methods on long-term knowledge retention of staff nurses. While knowledge acquisition and retention are essential, more foundational is the teaching method to support knowledge retention.

The difficulty in providing nurses from different cultures and generations with education that meet their specific needs is undoubtedly true, and using a variety of creative and innovative approaches is certainly preferred (Hermann, 2011). But, hospitals have been mandated to provide the best education at the least cost, and, unfortunately this comes back to primarily self-learning modules. Using a single teaching format often fails to motivate learners (Hermann, 2011). One solution to address staff nurses' concerns and needs might be to broaden teaching strategies to include activities that would satisfy individual learning styles and complement self-learning modules (Hermann, 2011). There

is a variety of learning style preferences, which indicates that educators must provide a variety of teaching methods in order to meet all staff nurses' educational needs, as well as meet organizational and regulatory needs.

Purpose Statement

The purpose of this project is to evaluate the ease of access, preferences, and satisfaction with various teaching delivery methods of unit-based educational content for staff nurses in an adult trauma care unit. Creating a unit-based process allows education to be tailored to meet the individual learning needs of the nurses from different cultures and generations. It also allows the educational content to focus on providing knowledge, skills and tools that are specifically related to trauma patients. Finally, using multiple teaching strategies will help nurses see the content of education from different angles therefore, increasing transfer and retention of information.

Chapter Two

Literature Review

A comprehensive literature search was conducted to identify published works on the unit-based educational process. The following databases were searched: CINAHL, Medline, ERIC, Cochrane Database of Systematic Reviews, Health Source: Nursing/Academic Edition and Academic Search Premier. This chapter describes the benefits and barriers to continuing education, perceived learning needs, unit-based education programs and conceptual framework will be discussed.

Continuing Education and Staff Development

Continuing education in nursing is defined as nursing education beyond the basic preparation aimed at engaging nurses in a lifelong process of learning to promote and enrich knowledge, skills and clinical judgment to provide safe and competent care (American Nurses Association, 2010; Canadian Nurses Association, 2010). Continuing education helps nurses advance their careers by expanding their area of expertise and demonstrating a commitment to life-long learning (Levett-Jones, 2005; Penz et al., 2007). According to Levett-Jones (2005), continuing education has a positive impact on staff satisfaction, staff retention and quality patient care all of which should motivate health care organizations to invest in the development of nursing staff. Because patient acuties have risen and staffing levels have decreased, nursing has become stressful, intense and highly technological. These stressors can lead to burnout among nurses and job dissatisfaction which are related to a decrease in productivity and performance. Nurses that gain experience and maintain current knowledge in their field through continuing education deliver quality patient care at controlled costs. Quality indicators such as

medication errors, patient falls, pressure ulcers, nosocomial infections are reduced by ongoing nurse education and stable, highly trained and fully engaged nursing staff. In addition, patient satisfaction is improved along with a decrease in length of stay and complications. Continuing education enhances positive behaviors and attitudes. Nurses are more likely to change, adapt and be proactive in their contributions when they can achieve personal and professional growth through education. The development of mature, experienced nurses provide organizations with experts capable of addressing and solving patient care problems and organizational issues as well as provide a support network for inexperienced staff. Nursing turnover is a major issue impacting the performance and profitability of healthcare organizations. Nurse turnover creates a disruptive, unstable work environment especially when shortages increase the work demands placed on remaining nurses (Levett-Jones, 2005; Hunt, 2009). Moreover, considerable costs are required to recruit, hire and train nurses to replace nurses who quit (Levett-Jones, 2005). When hospitals invest in continuing education, they create a stable nursing staff, maintain staff morale, and the cumulative knowledge base of nurses grows at a faster pace thus creating more opportunities for mentoring. (Levett-Jones, 2005; Krsek, 2011). Organizations who invest in continuing education foster a culture of excellence which increases job satisfaction, promotes staff retention and an increase in self-esteem among nurses. Furthermore, nurses have a professional responsibility to participate in continuing education (Levett-Jones, 2005).

The California Board of Registered Nursing requires nurses practicing in the state of California to complete thirty hours of continuing education every two years in order to maintain an active license (California Board of Registered Nursing, 2012). The Academy

of Medical-Surgical Nurses (AMSN) requires that nurses earn ninety approved contact hours over a five year period to renew their certification (AMSN, 2012). According to the American College of Surgeons' (ACS) Committee on Trauma (COT), each Level 1 and 2 Trauma Centers should provide a minimum and required amount of trauma education to nurses (ACS, 2012). All registered nurses must acquire at least eight hours of trauma-related continuing education every year. Although nurses are responsible for their lifelong learning, organizations have an equal responsibility to assist the nurses to meet their learning goals within the workplace (ACS, 2012; ANA, 2000; Hunt, 2009).

A literature review was conducted by Griscti and Jacono (2006) to examine studies on continuing education and the factors that affect its value in nursing. These authors used automated searches such as CINAHL, Medline, the Cochrane databases and the Internet (Griscti & Jacono, 2006). A total of 40 articles were selected. It was identified that most of the research is restricted to individual programs, presents a fragmented picture and has limited generalizability. Factors that influence the nurses to participate in continuing education activities are individual, professional and organizational (Griscti & Jacono, 2006). On an individual level, a study indicated that joy of learning, personal satisfaction, confidence and increased knowledge were the nurses' motivation to pursue continuing education. Professional bodies were most concerned with nurses maintaining current knowledge and competence in practice. In turn, organizations were mainly concerned with costs of providing high quality care, avoiding litigation and were often influenced by political realities. The authors suggest that educators assess the nurses learning styles in order to plan different learning strategies to keep them motivated. Moreover, they mention that organizations and professional bodies should

involve nurses in the planning of continuing education and the evaluation of learning experiences. The need to demonstrate the effect of continuing education on nursing competence and patient outcomes is of great importance.

Benefits and Barriers to Continuing Education

Ryan (2003) showed that nurses participating in continuing education were motivated by enhanced knowledge and skills rather than compliance with regulatory requirements. In a survey completed by Kramer and Schmalenberg (2004), 92% of nurses responded that access to education and support for educational opportunities was important to their job satisfaction.

Although continuing education is shown to have a beneficial impact on nurses, barriers perceived by nurses have made ongoing participation to continuing education challenging (Penz et al., 2007). In general, the most frequently cited barriers to the uptake of continuing education include lack of time, support and resources (DeSilets & Dickerson, 2008; Nalle, Wyatt & Myers, 2010; Penz et al., 2007). Other frequently cited barriers include workplace issues such as tuition costs, lack of employer support, shift work and scheduling difficulties (Penz et al., 2007).

Research reported that assessing the learning needs of staff nurses is fundamental to high-quality continuing nursing education (Nalle, Wyatt, & Myers, 2010). Among the benefits to continuing nursing education participation reported by nurses (n=674) in this study, improved knowledge and skills (83%) and professional growth (79%) were recognized as positive outcomes. Significant barriers related to program cost (74%), time away from work (56%) and lack of funding for attendance (54%) were also reported. Among the priority areas for continuing education were identified as leadership and

management (28%), evidence-based practice (26%), professional issues and advance practice both scoring at 21% and acute medical-surgical nursing (18%). The authors concluded that continuing nursing education is influenced by many factors (personal, professional and organizational) and policy changes are needed to remove organizational barriers to participation (Nalle et al., 2010).

In a similar study, Penz et al. (2007) examined the barriers to participation in continuing education courses of nurses working in rural and remote areas in Canada. The main barriers identified by the 2,547 survey participants in the study were related to living in a rural community and rural work life (41%), time constraints (30%) and financial constraints (29%). Moreover, nurses who perceived barriers to participation in continuing education activities were more likely to be middle-aged, single, working full-time and were also associated with significantly lower job and scheduling satisfaction ($p < 0.001$) than nurses who did not perceive barriers to continuing education activities (Penz et al., 2007).

Learning needs

Given the growing demands on staff nurses, it is important to identify and prioritize their educational needs. A descriptive study conducted in Sydney, Australia identified the educational and professional development needs of clinical nurses (Halcomb, Meadley, & Streeter, 2009). A survey tool was developed based on four competency standards. The three highest priority education topics related to the competency “provision of clinical care” were wound care (83.3%), diabetes (80.8%) and immunization (79.2%). Participants also identified the following priorities for further education on legal (71.4%) and professional (75.6%) issues related to the competency

“professional practice”. Most participants preferred education sessions to be delivered mid-week in the evening. Implications emerging from this study include asking the nurses to identify their perceived educational needs and tailoring the learning programs to meet their preferences regarding education delivery and content as well as include opportunities for innovative methods of providing education such as mentorship programs (Halcomb et al., 2009).

As the largest group of health professionals providing direct patient care, nurses are one of the most important assets in any healthcare organization. In a time when patient acuities are increasing, financial constraints are escalating, hospitals need knowledgeable and skillful clinical nurses at the bedside to provide safe and quality care (Levett-Jones, 2005). Education programs or processes needs to be structured and planned out. Identifying what nurses perceive to be their educational needs and preferences regarding the modes of delivery may facilitate the development of education programs tailored to the nurses specific needs and encourage engagement (Claflin, 2005). Shared leadership creates a professional environment that fosters empowered decision-making, accountability, and autonomy in nursing practice.

Unit-based Process

The need to develop a tailored and structured education process is imperative to meet the multiple learning needs of clinical nurses. Shared governance models have demonstrated the many benefits of clinical nurse driven programs (George et al., 2002). The development of a unit-based practice committee in a post-anesthesia care unit (PACU) has provided opportunities for personal and professional growth as well as maintains the focus on the specific needs of the clinical nurses (Styer, 2007). The

committee comprised of staff nurses performed a needs assessment by surveying the staff on subjects related to their practice. Using a Likert-type scale, the questions asked nurses what practice issues the nurses wanted to see addressed and what their comfort level was with caring for specific patient populations. Based on the results, the committee provided ongoing education in the form of handouts, a resource binder, posters and presentations. In addition, the committee members conducted unit-based projects such as reviewing and updating PACU guidelines, updating the unit orientation manual and standardizing the protocol for handoffs. The beneficial impact related to the implementation of the committee includes building interdisciplinary collaboration and keeping staff nurses current in their practice through ongoing education that met their specific learning needs. Furthermore, it provided committee members with opportunities for personal and professional growth. After two years, the committee developed a structure education process based on a "Service of the Month" design. If the service chosen was vascular patients, all educational activities such as medications, wound care, post-op care, guest speakers (vascular surgeon), poster presentations and handouts would be related to this area of specialty. More structure allowed the committee members to evaluate their activities and continue to improve the process (Styer, 2007). Unit level councils or committees in the form of nursing shared governance empower nurses to foster critical judgment and accountability insuring high quality patient care. However, the mere creation of a shared governance unit-based committee does not guarantee staff empowerment or accountability unless managers provide support, resources and information (Laschinger & Wong, 1999). George et al. (2002) suggest that several conditions are needed to develop a shared vision. Nurses providing direct patient care

need to possess the autonomy and decision-making skills needed to provide safe, quality and cost-effective care. Managers must yield their power by encouraging staff to establish individual goals that increase their knowledge, self-confidence and enhance their skills and expertise.

Conceptual Framework

Adult learning theory was first introduced by Knowles (1978) in the 1970s as he distinguishes andragogy as the art and science of adult learning from that of children learners on which pedagogy was founded. This theory focuses nursing educators on understanding the learners and the key factor in designing effective unit-based education programs. Andragogy is based on a set of six core adult learning principles that can be applied to all learning situations (Knowles, 1978). According to Knowles, Holton and Swanson (1998), the six principles of andragogy are: (a) learner's need to know; (b) self-concept and self-direction of the learner; (c) experience of the learner; (d) readiness to learn; (e) orientation to learn; and (f) motivation to learn. Adult learning principles support the educator's role as being a facilitator (Knowles, Holton & Swanson, 1998).

A supportive and structured environment is conducive to motivation and learning; thus, the principles of learning and structure provide the foundation for the development of a unit-based education process (Appendix A). The implications for each principle will be described in relation to the development of a unit-based education process.

The first core principle is the learner's need to know. Adults need to know how learning will be conducted, what learning will occur and how it will benefit them (Knowles et al., 1998). The unit-based education committee must clarify the purpose of the new education process and how the nurses can benefit from sharing their learning

needs with the committee. The committee must also provide the nursing staff with the education goals from regulatory agencies and from the organization.

The self-concept of the learner is seen as the second principle. The self-concept relates to the autonomy and self-directedness of the learner (Knowles et al., 1998). The staff nurses know what they want to learn and take control and ownership of the goals and purposes of their own learning. This principle of adult learning further supports ANA's emphasis for nurses' to pursue lifelong learning to gain and maintain competence (ANA, 2010). A sign-in binder or an online learning management system are ways to keep nurses informed of educational requirements and allow nurses to complete their educational requirements at their own pace which supports nurses' autonomy and engages nurses in self-teaching.

Prior experiences, the third principle, impact learning in multiple ways (Knowles et al., 1998). The educators need to encourage staff to share their experiences because they can influence their learning in either positive or negative ways (Lockhart, 2005).

The fourth principle, readiness to learn, occurs when a life situation creates a need to know (Knowles et al., 1998). By assessing the learning needs to staff nurses, unit-based educators have a better understanding of the nurses' lack of knowledge, skill or competence in a specific area. In turn, the staff nurses may be ready to learn if they realize any gaps in their knowledge and seek learning as a way to bridge these gaps.

Closely tied with the fourth principle, the fifth principle takes a look at orientation to learning. Adults prefer a task-centered or a problem solving orientation to learning as opposed to subject-centered learning (Knowles et al., 1998). Unit-based educators need to provide staff nurses with experiential learning activities that will help them perform a

new skill or gain new competencies or knowledge they can apply in clinical practice (Lockhart, 2005).

The last core principle deals with adult's motivation to learn. Adult's motivation to learning is largely influenced by internal factors such as self-esteem, job satisfaction and self-confidence (Knowles et al., 1998). However, external factors such as an increase in pay or getting promoted cannot be dismissed as influencing factors (Lockhart, 2005). Unit-based educators can use internal and external sources to motivate nurses to pursue continuing education and staff development activities (Lockhart, 2005). For example, creating a unit-based education committee comprised of staff nurses will encourage their involvement and promote positive internal rewards.

Our constant changing health care system greatly influences what nurses need to learn. Unit-based educators need to create innovative approaches to assist the staff meet their learning needs. Adult Learning theory provides a variety of components demonstrating how nurses learn which provides some guidance on how to structure and deliver new information. Barriers to continuing education can be understood through Knowles's core principles. According to Knowles theory, learning works best in practice when it is adapted to fit the uniqueness of the learners.

Chapter Three

Method

Education programs specific to patient related issues are being developed across the country. Studies have identified learning needs, benefits and barriers to continuing education and staff development. However, there is little information on how a structured educational process can impact the educational needs and satisfaction of staff nurses. The purpose of this project is to evaluate the ease of access, preferences, and satisfaction with various teaching delivery methods of unit-based educational content for staff nurses in an adult trauma care unit.

Design

Evaluation research is a quantitative study aimed at evaluating the success of a process, program, practice or procedure. More specifically, a quasi-experimental design was used to evaluate the impact of the process on meeting the educational needs of the staff nurses between pre-implementation and post-implementation groups. Because the process was implemented on the trauma care unit, randomization is not possible. Using a non-experimental descriptive design, a questionnaire was administered to staff nurses to measure their satisfaction with the new structured unit-based education process and more specifically, the use of multiple teaching strategies. The questions pertain to their satisfaction in regards to the different teaching strategy methods used to deliver education content.

Setting and Sample

The study was carried out on a 33 licensed bed adult Trauma Care Unit in a 350-bed Level 1 Trauma Center located in southern California. There were 37 nurses

permanently employed on this unit. Voluntary, non-probability sampling method will be used to select nurses in this study. The inclusion criteria included nurses who are: (a) registered nurses; (b) employed part-time or full time on the Trauma Care Unit.

Exclusion criteria included registered nurses floating from other departments, registered nurses from the system's registry float pool and students.

Development of a Unit-Based Education Process

Based on the steps outlined Lockhart's (2005) book, the development of a unit-based education process was divided into four phases as shown in Appendix B. The first three phases were undertaken as a capstone project conducted during an emerging leadership program. Phase four was completed as a research project. Phase one assessed and analyzed the learning needs of staff. Phase two was the development of the process, phase three was the implementation of the process and phase four was the evaluation of the unit-based education process. The following paragraphs describe each phase.

Phase 1: Assessing and analyzing the learning needs of staff. Phase one begun in the spring of 2010. In this study, the nurses on a Trauma Care Unit in a Level 1 Trauma Center in Southern California were identified as the learners. Assessing their learning needs was completed using a quantitative approach. Staff nurses were asked to complete a survey to determine their preferred learning styles, preferred method to access educational pieces, level of difficulty to access support, and access to educational pieces. Their satisfaction was also measured regarding the amount of education that they receive, the support provided after education is completed, and knowledge acquired after learning occurs. The survey ends with two open-ended questions regarding the challenges that they perceive regarding the education provided to them and what can be done to correct

these challenges or problems. The data collected was then measured and analyzed to create an organized list of learning needs based on Knowles Theory of Adult Learning (Knowles et al., 1998). This data was used to develop the unit-based education process described in phase two.

Phase 2: Development of the process. In order to complete phase two during the summer of 2010, a project team was created comprised of staff nurses from day and night shifts, an assistant-manager and a clinical nurse specialist. This project team began developing the education process. Based on the survey's results, that process needed to include an understanding of multigenerational learning needs, easy and readily accessible learning materials, a formal support system available around the clock, flexible and multifarious learning formats and development of a formal method of evaluation. The process as seen in Appendix B, began by determining the education topics to be addressed during the month. The unit-based education committee met at the end of each month to choose the education topics to be addressed for the up-coming month based on the regulatory, organizational and staff's learning needs. The topics were then posted on a bulletin board at the nursing station dedicated for education. A list of the topics was also inserted into a sign-in binder at the nurses' station.

The next phase of the process was the delivery of education or the "Teaching/Learning" phase. In this phase, the staff nurses gained knowledge, competence and skills based on their preferred learning style. Once this phase completed, the nurses signed their name in the sign-in binder. The purpose of the sign-in binder was to remind the nurses what education needed to be completed and permitted the nurses to learn at their own pace as well as have the nurses take ownership regarding their education. It was

also a way for the education committee to keep track of the completed education. This was important to know before proceeding to the next phase of the process.

The final phase of the process was the evaluation of the “learned” knowledge, changes in behavior and gained skills. The method of evaluation is determined by the unit-based education committee based on the knowledge, competence or skilled learned. Depending on the result of the evaluation, the nurse signed-off in the education binder or an educator from the committee went over the topic once more maybe using another method of delivery. Before the implementation of the process took place, the project members were retained to form the unit-based education committee. Their new roles can be described as follows: the project manager assumed the committee chair, the staff nurses educated the staff, the assistant manager was a stakeholder and actively participated in activities with other members and finally, the clinical nurse specialist acted as a resource for members of the committee.

Phase 3: Implementation of the process. The process was implemented in the fall of 2010. The staff nurses were informed of the new process via e-mail and during beginning of shift huddles. During the first month of the process, an orientation to the new process was included to the topic list. An open discussion was planned to take place at the next staff meeting following the implementation of the new process. Staff was encouraged to provide feedback and staff champions were encouraged to provide in-services regarding their topic of expertise. A champion list of staff nurses with their topic of expertise and the names of the unit-based education committee members was posted on the bulletin board in order to provide staff with a continuous support system. The next

phase of this project was the evaluation of the nurses' satisfaction with the use of multiple teaching strategies and was conducted in the summer of 2012.

Instrumentation

The survey used for this study, a 10-item questionnaire, was originally developed by a project manager for an earlier project that focused on assessing the preferred teaching methods of nurses (Appendix C). In order to compare the nurses' responses before and after the implementation of the unit-based education process, no changes were made to the questionnaire except for the question added to the post implementation questionnaire. One question was added to measure a new online learning system that was implemented in the winter of 2012.

Items were designed in various formats. Some required respondents to numerically rank items in a provided list. While other items required respondents to rate their perceptions on a scale of 1-10. There were two also open-ended questions for comments and recommendations at the end of the survey.

Procedure

Ethical consideration. This study was approved by the Institutional Review Board at the Level 1 Trauma Center (Appendix D). Additionally, approval was obtained from the Institutional Review Board at Point Loma Nazarene University (Appendix E). Written informed consent was obtained from each participant prior to data collection (Appendix F). The participants were reminded that they could decline to participate at any time without any negative penalties.

Data collection. Using a non-experimental descriptive design, a questionnaire was distributed to all staff nurses working on the Trauma Care Unit to measure their

satisfaction with the use of varied teaching delivery methods. Each participant received a package containing an introductory letter (Appendix G), a questionnaire and instructions on where to deliver the envelope. A follow-up e-mail message was sent two weeks later to remind nurses to complete their questionnaire. All participants were informed that their responses to the questionnaires would remain anonymous and that their identities would not be determined from the questionnaires. They were informed that the results of the questionnaire will be used for research purposes and may be presented at a conference and published.

Data analysis. Data were analyzed using the Statistical Package for the Social Sciences (SPSS), English version 12.0 (SPSS Inc. Chicago, IL). Descriptive statistics of frequency, percentage, mean and standard deviation were performed. Depending on scale level and data distribution, the chi-square test, Mann-Whitney u test, or t test were used to investigate differences between the pre-implementation and post-implementation groups. For this study, the level of significance was set a $p < 0.05$.

Chapter Four

Results

There were 27 nurses who completed the survey in the pre implementation group and 14 nurses who completed the survey in the post implementation. The participant demographics are as follows: Most of the sample was female (64%), had a mean age of 32 years (SD 8.47, range 20-59), and worked day shift (56%).

Table 1 summarizes staffs' ratings related to the amount of education they receive and their ability to comprehend and retain the information on which they were educated. Question 1 asked respondents to rate on a scale of 1-10 (1=not overwhelmed, 10=extremely overwhelmed) how they feel about the amount of information on which they have been education. Question 2 asked respondents to rate on a scale of 1-10 (1=no comprehension, no retention; 10=comprehend, retain everything) how well they comprehend and retain the information on which they have been educated. Group means for both questions were very similar and evidenced no statistically significant differences in trends between the pre and post implementation groups.

Table 1 Participant rating of quantity and retention ability (N=41)

Questions	Pre implementation (N=27) Mean (SD)	Post implementation (N=14) Mean (SD)	<i>P</i> value
Amount of information	5.33 (2.617)	6.71 (2.367)	0.106
Comprehension and retention	6.12 (2.026)	7.07 (1.900)	0.154

The third question on the survey asked nurses to rank their preferred teaching method to receive education (Table 2). The results show the favorite method being “1:1

training” for the pre implementation group and “online education modules” for the post implementation group. It also shows “email” being the least favorite for both groups.

Table 2 Participant ranking of preferred teaching delivery method (N=41)

Teaching delivery method	Rank	Frequency	Valid Percent
1:1 Training	1	11	28.9
Skills-a-thon	2	15	39.5
Group In-Services	3	14	36.8
Online Education Modules	4	15	39.5
Email	5	22	57.9

In Table 3, respondents were asked to rate their satisfaction with the support received after the education was delivered. Group means were similar (Pre implementation=22.57, Post implementation=17.96), with no statistically significant difference ($p=0.69$). The pre implementation group had a 37% satisfaction rate with support provided to them and a 4% very dissatisfied rate. However, the post implementation group showed an increase in satisfaction rate (57%), a decrease in dissatisfied rate (7%) and very dissatisfied rate (0%).

Table 3 Participant rating of satisfaction with support provided

Satisfaction rating	Pre implementation (N=27)		Post implementation (N=14)	
	Count	Percentage	Count	Percentage
Very Satisfied	2	7	1	7
Satisfied	10	37	8	57
Neutral	9	33	4	29
Dissatisfied	5	19	1	7
Very Dissatisfied	1	4	0	0

Respondents in question 5 of the survey were asked to rate their ease with accessing a content expert or support staff (Table 4). The pre implementation group either rated neutral (48%) or easy to access (30%) with 11% of respondents rating very easy to access. Similarly, the post implementation group rated the accessibility to a content expert or support staff as neutral (36%) or easy to access (57%). The mean rating for both groups were similar and had no statistically significant difference ($p=0.30$).

Table 4 Participant rating of access to a content expert or support staff

Accessibility rating	Pre implementation (N=27)		Post implementation (N=14)	
	Count	Percentage	Count	Percentage
Very Easy to Access	3	11	0	0
Easy to Access	8	30	8	57
Neutral	13	48	5	36
Difficult to Access	1	4	1	7
Very Difficult to Access	2	7	0	0

Results for the question pertaining to “How easy it is to access educational information” is summarized in table 5. Most respondents rated easy to access (37%), neutral (26%) or difficult to access (26%). However, all respondents either rated very easy to access (7%), easy to access (79%) and neutral (14%) and none rated difficulty to access information ($p=0.07$).

Table 5 Participant rating of access to educational information

Accessibility rating	Pre implementation (N=27)		Post implementation (N=14)	
	Count	Percentage	Count	Percentage
Very Easy to Access	1	4	1	7
Easy to Access	10	37	11	79
Neutral	7	26	2	14
Difficult to Access	7	26	0	0
Very Difficult to Access	2	7	0	0

Question 7 on the survey asks participants what is their preferred method to access educational information. Table 6 indicates a preference towards intranet (36%) and unit binder (20%) to access educational information from the pre implementation group ($p=0.44$). The post implementation group prefers accessing information through the intranet (50%) and accessing a content expert (29%).

Table 6 Participant rating of method to access educational information

Education Information Storage	Pre implementation (N=27)		Post implementation (N=14)	
	Count	Percentage	Count	Percentage
Intranet	9	36	7	50
Department Shared Drive	3	12	1	7
Email	4	16	0	0
Binder	5	20	2	14
Content Expert	4	16	4	29

Staff satisfaction with the implementation of the online education modules (Learning Management System) to meet learning needs was measured with the post implementation group only due to date of implementation. The majority of nurses rated very satisfied (29%) or satisfied (43%) with the new online education management system.

Table 7 Participant rating of satisfaction with online education module

Satisfaction rating	Post implementation (N=14)	
	Count	Percentage
Very Satisfied	4	29
Satisfied	6	43
Neutral	2	14
Dissatisfied	1	7
Very Dissatisfied	1	7

There were two open-ended questions on the survey. The first question asked participants what challenges they perceived regarding the education that was provided to them on the unit. Results for the pre implementation group were compiled and the most frequent answers were used to guide the development of the unit-based education process. The first challenge perceived by the staff was the inconsistent information they received. Comments included “inconsistent information regarding education”, “not knowing who the content experts are, where they can find them and when they are available”, and “too many bulletin boards with contradicting or outdated information”. The second challenge was related to the organization of the educational content. The difficulty to access educational information, the absence of follow up after education is presented and not having a content expert available at night or during weekends were among the recurring comments related to the organization of the education. Finally, the method of delivery was the third theme. The participants mentioned the timing of the education was not conducive to learning such as planning education after 12 hour shifts or during working hours. The participants also found the educators and content experts did not have the same knowledge of the content. Some educators were able to deliver the information better than others and were more prepared to answer questions. The second question asked nurses to propose solutions to correct these issues, challenges or problems regarding ongoing education. Among the solutions proposed by staff, providing “just in time” education during shift huddles and in the form of in-services, providing content experts available 24/7, having easier access to education and having information readily available and kept in one area on the unit were the most recurrent themes. Creating an

easy tracking method for mandatory education by using sign-up sheets, log books or binders was also proposed.

The most common challenge perceived by the post implementation group is to complete the mandatory online modules while at work. They proposed to use their education hours to complete their mandatory online education at home. They also mentioned the need to have more content experts and educators to deliver the education in a timely manner as well as provide them with better availability and accessibility to content experts.

Chapter Five

Discussion

The aim of the study was to evaluate the effectiveness of the unit-based education process among nurses on an adult trauma care unit. The results of this pilot study are relevant to the choice of teaching strategy to deliver ongoing education. The overall results from the post implementation group were generally positive. The implementation of a unit-based education process met the educational needs of the staff and encouraged professional development of each staff member.

The results related to the amount of education are not surprising and correlate with the need to keep up with a constant evolving health care system. Nurses are called on to care for sicker, frailer patients and having to use more sophisticated, technological tools to improve the quality and effectiveness of patient care (IOM, 2010). A lifelong commitment to learning is needed for nurses to keep their skills current in order to meet the extraordinary pressures in today's practice environment (TJC, 2010). Furthermore, education programs are often the first casualty when cost containment is on the agenda leaving health care organizations with fewer options to deliver quality education. The most common method to deliver education and information related to changes in policies and procedures at lower costs are email and online learning modules. The results from the pre and post implementation group indicate that nurses on this unit dislike using email and online modules as a means to receive educational information. Their preferred methods for receiving education are 1:1 interactions, skills-a-thon and group in-services. The high satisfaction rate for 1:1 training and skills-a-thon from both

pre and post implementation groups are supported by Knowles' fifth principle (Knowles, Holton & Swanson, 1998). Nurses learn best when applying their experience with experiential learning activities that will help them perform new competencies and gain knowledge they can apply in clinical practice. These methods of delivery allow for more creative teaching that may enhance the retention of content by helping nurses make connections, increasing enjoyment in learning, encouraging learners to personally interact with the material and tailoring the education to meet the nurses' specific learning needs. These methods also allow a larger variety in teaching strategies such as using posters, case studies, posters, videos and simulation.

Online learning was proven useful to disseminate educational content to nurses on various shifts. There are many advantages for an organization to use online learning modules. The accessibility of the education 24 hours a day, 7 days a week allow the nurses to learn at their own leisurely pace and convenience, at work or at home. In a time of financial constraints, organizations may decrease costs by eliminating written materials, educators and guest speakers with the use of online modules. It also provides organizations with a commitment to "go-green" by eliminating paper handouts, sign-in sheets, and binders. The disadvantages include the inability for learners to ask questions. It only provides one dimensional teaching method (visual) which does not meet the needs of auditory and kinesthetic learners. Furthermore, it allows less creativity than provided by skills-a-thons, in-services or case studies.

Although the pre implementation group disliked the online modules, the implementation of a new online Learning Management System (LMS) was favored by the post implementation group. This new online education system allows nurses to track

their mandatory education, provides ongoing access to educational modules for future reference and is designed to be interactive, attractive and easy to use. It also allows nurses to access the LMS at home. In addition to the favorable results from the post implementation group regarding the use of online modules, most of the responses in the qualitative data were also positive. The most common challenge perceived by staff was completing the online modules while at work. While having access to online educational modules at home, staff nurses were encouraged to complete modules at work even though staff verbalized not being able to concentrate on education during their shift and being unable to retain information while taking care of patients. However, nurses who completed the education at home found they were able to concentrate on the content without being interrupted and retained more information. The Joint Commission recognizes that organizations continue to be affected by pressures to lower costs sometimes to the detriment of patient safety (TJC, 2010). Asking nurses to complete education modules while at work reduces the nurses' time spent on direct patient care thus jeopardizing patient safety and lowering the quality of care.

The question remains as to how to engage nurses in continuing education when they feel unable to give anymore time during their work hours. Negative work environments, heavy workloads, non-supportive leadership, high turnover rates all reduce nurse satisfaction. Nurses seek rewarding work environments, opportunities to further their knowledge and career growth opportunities (Levett-Jones, 2005). The results from the post implementation group showed an increase in satisfaction related to support after education is delivered as well as access to expert or support staff. However, in addition to the favorable results based on the quantitative data, comments from the quantitative data

include the need to recruit more staff members in the education committee in order to provide better availability and accessibility to content experts.

Limitations

There are several limitations to this study. The results of this pilot study are limited by the use of a convenience sample, the small sample size, the single site for data collection and the limited time period for data collection. The period in which the data was collected was in between regulatory surveys. This might have impacted the willingness of the staff to participate in an additional survey. Furthermore, the survey was developed for this project and was not validated in other samples. This might introduce a bias to the findings. Three of the questions consisted of a neutral option and does not allow for further analysis. Finally, the sample included in the study was from a designated trauma observation unit and did not include staff from other units, thereby limiting generalizability.

Recommendations for future research

The findings of this pilot study provide a foundation for future studies related to the use of unit-based education committees and their methods for delivering education. Replication of this pilot study with a larger sample size could provide useful information and better comparisons between like units. Furthermore, research is needed to measure specific teaching methods on long-term knowledge retention.

Conclusion

In summary, the results of this pilot study suggest the importance of creative teaching strategies to enhance learning. In the midst of financial constraints, organizations must overcome the challenge of lowering costs to the detriment of ongoing education. In today's competitive and fast moving health care market, organizations must strive to provide easily accessible ongoing education that will promote knowledge acquisition and retention. Proper education of staff and varied teaching strategies to address the staff nurses' educational needs can significantly improve overall nurse satisfaction scores. Such changes will ultimately foster motivation to learn and achieve improved patient care, knowledge acquisition and continued competency.

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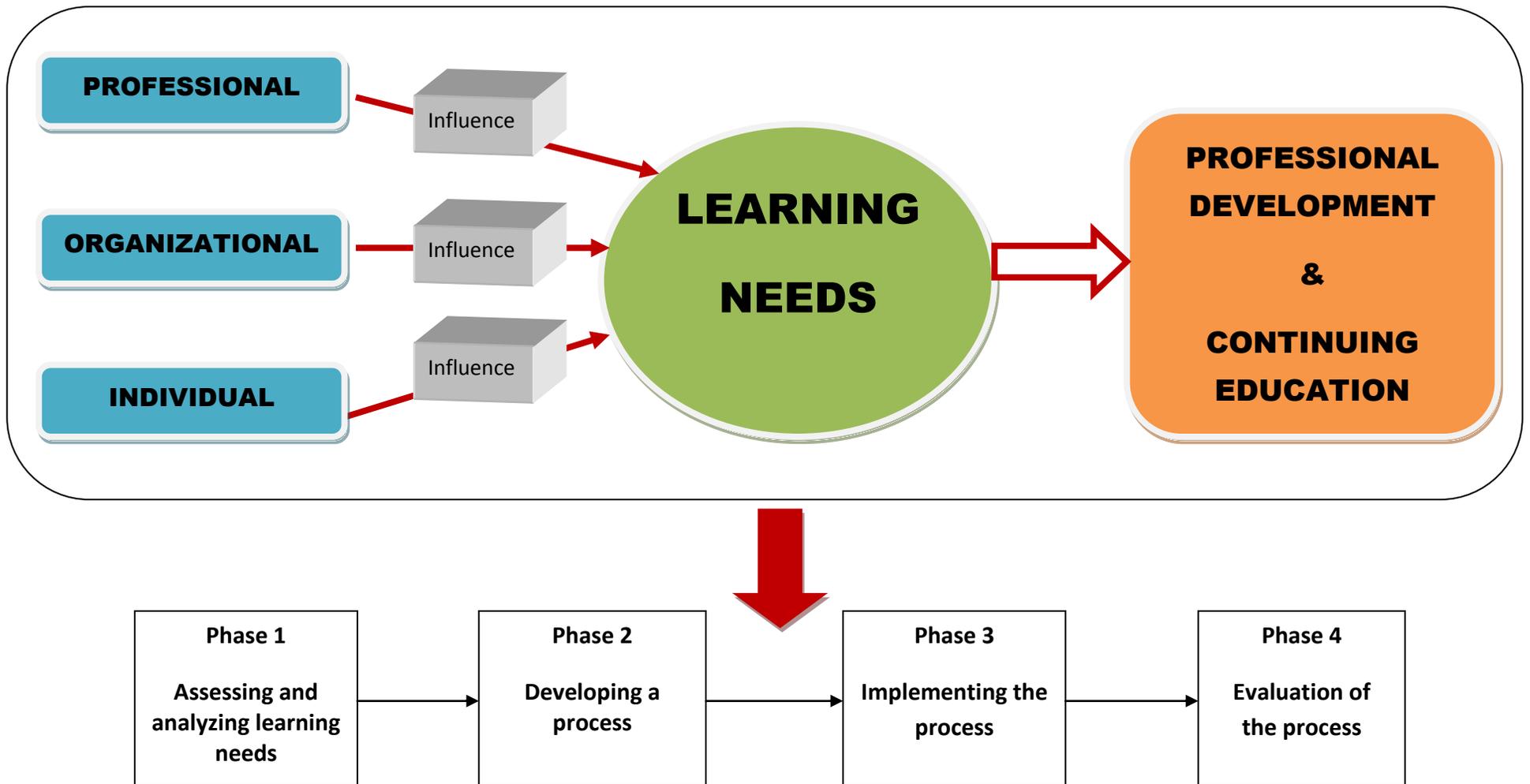
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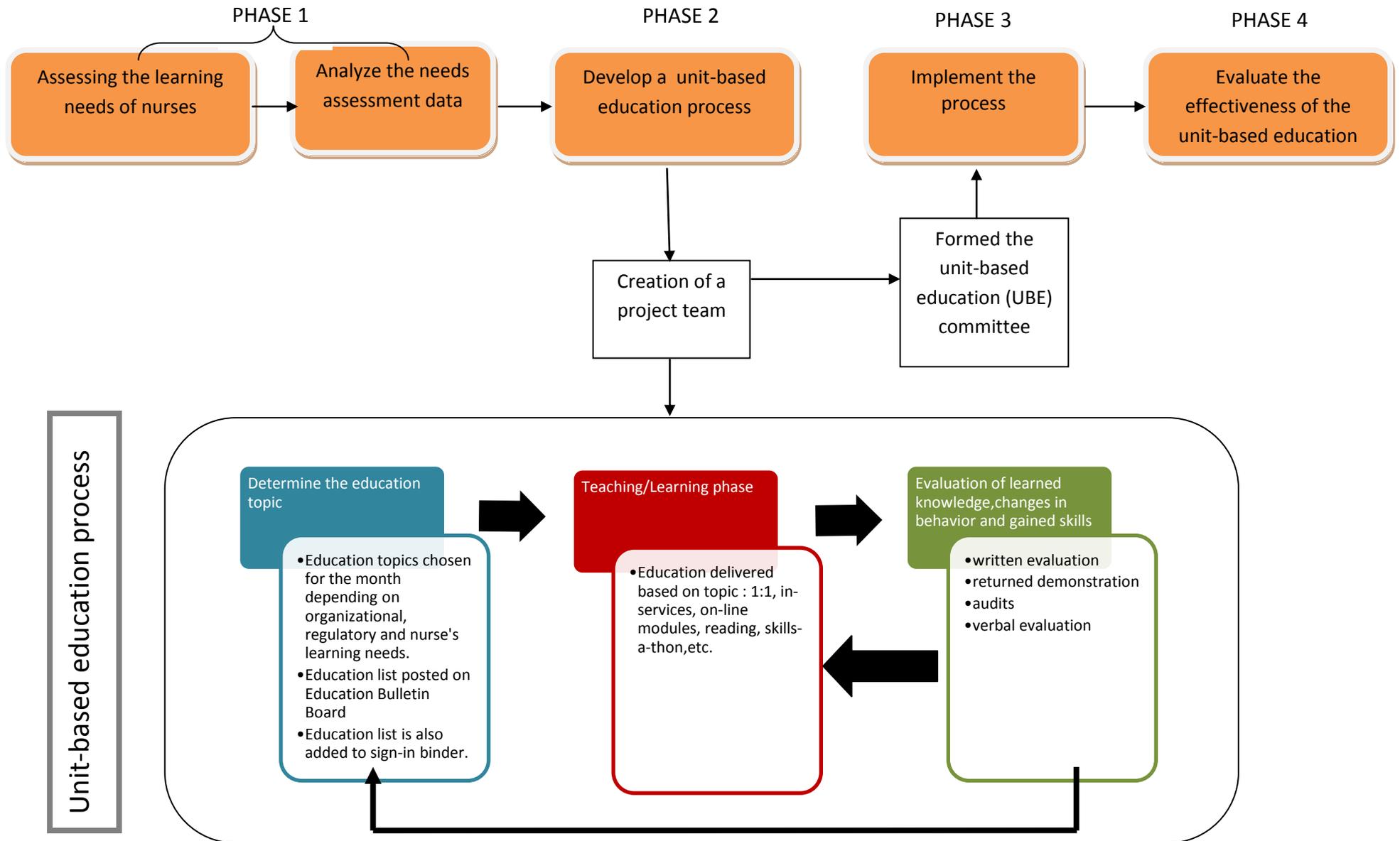
Appendix A

A unit-based education model



Appendix B

Development of a Unit-Based Education Process



Appendix C

Unit-Based Education Survey

Demographics:

Shift: AM PM

Age: 20's 30's 40's 50's 60's +

RN Experience: 1 - 3 years 4 - 7 years 8 - 15 years 16+

1. On a scale of 1 – 10, how well do you feel you comprehend and retain the information you have been educated on?

1 2 3 4 5 6 7 8 9 10

1-Not overwhelmed

(circle one)

10- Extremely Overwhelmed

2. On a scale of 1-10, how well do you feel you comprehend and retain the information you have been educated on?

1 2 3 4 5 6 7 8 9 10

1-No Comprehension /Retention

(circle one)

10- Comprehend/Retain Everything

3. Please rank your preferred method of education (1 Favorite/ 5 Least Favorite)?

- Online Education Module (LMS)
- Group In-Services
- Skills-A-Thon
- E-mail
- 1:1 Training

4. How satisfied are you with the support provided after education?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

5. How easy is it to access a content expert or support staff?

- Very Easy to Access
- Easy to Access
- Neutral
- Difficult to Access
- Very Difficult to Access

6. How easy is it to access educational information?

- Very Easy to Access
- Easy to Access
- Neutral
- Difficult to Access
- Very Difficult to Access

7. What is your preferred method of access to educational information?

- Intranet
- Department Shared Drive
- E-mail
- Binder
- Content Expert

8. What are some of the challenges that you perceive regarding the education that is provided to you on the unit?

9. What can be done to correct these issues/challenges/problems?

10. How has the implementation of the LMS affected you ability to satisfy your learning needs?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

Appendix D

Scripps Institutional Review Board Approval Letter



Office for the Protection of Research Subjects

Scripps IRB

11025 North Torrey Pines Road
Suite 200
La Jolla, CA 92037

Notice of Exemption #1

Investigator: Elissa G Berthiaume, MSN
Department: Scripps Healthcare Nursing, Scripps Mercy Hospital
Approved
Research Sites: Scripps Mercy Hospital, San Diego
IRB# IRB-12-5946
Project Title: Evaluation of a structured unit-based education process on the learning needs and clinical competence of nurses in an adult trauma care unit.
Type of Review: **Exempt from 45 CFR 46**

Your research project indicated above was reviewed and determined to be exempt from formal committee review under 45 CFR 46 101 (b) (1). Qualification for exemption should be reviewed one year from the date stamped below.

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Thank you for your cooperation.

(Pilot project using unidentified survey to evaluate satisfaction of the various teaching methods used to deliver educational content to staff nurses. Unit-Based Education Survey (undated))

A handwritten signature in black ink that reads "Barbara G. Bigby".

Signature applied by Barbara G Bigby on 06/26/2012 03:40:45 PM PDT

Appendix E

Point Loma Nazarene University Institutional Review Board Approval Letter

**PLNU IRB
Exempt From Further Review
1086**

7/7/2012

PI: Berthiaume, Elissa

Additional Investigators: NA

Faculty Advisor: Taylor, PhD

Title: Evaluation of structured unit-based education process on the learning, needs, and clinical competence...

The research proposal was reviewed and verified as an exempt from further review under category 1 and has been approved in accordance with PLNU's IRB and federal requirements pertaining to human subjects protections within the **Federal Law 45 CFR 46.101 (b)**. Your project will be subject to approval for one year from 7/7/2012 the date of approval.

After completion of your study or no later than the same month and date in 2013, you must submit a summary of your project or a request for continuation to the IRB. If any changes to your study are planned or you require additional time to complete your project, please notify the IRB chair.

For questions related to this correspondence, please contact the IRB Chair, Patricia Leslie, M.A., S.S.A. at the contact information below. To access the IRB to request a review for a modification or renewal of your protocol, or to access relevant policies and guidelines related to the involvement of human subjects in research, please visit the PLNU IRB web site.

Best wishes on your study,

Patricia Leslie, M.A. – S.S.A.
Associate Professor
Department of Sociology and Social Work
Director, Social Work Program
IRB Chair

Point Loma Nazarene University
3900 Lomaland Dr.
San Diego, CA 92106
619.849.2676
PatriciaLeslie@pointloma.edu

Appendix F

Informed Consent to Participate in Research

Informed Consent to Participate in Research

I understand that I am being invited to participate in a research study. My participation is voluntary and I have the option to withdraw at any time without penalty. The purpose of this project is to evaluate satisfaction of the various teaching delivery methods of education content for staff nurses on an adult trauma care unit.

I understand that the proposed length of my participation in this study consists of completing a questionnaire. The questionnaire will take approximately 5-15 minutes to complete.

Although no significant risks are currently known in relation to this study, I understand that there may be a potential for minimum risk. If any participant experiences any anxiety or emotional distress requiring intervention, they will be referred to the EAP at Scripps Mercy Hospital.

The research study is designed to evaluate the use of multiple teaching strategies to satisfy staff nurse's learning needs. This information will be helpful with further scientific studies because it will show if varied teaching methods lead to increased learner engagement, improve retention of material and make nursing education more enjoyable for instructors and learners.

I understand that my records will be held confidential to the extent permitted by law and that I will never be identified in any publication. Further, I understand that a random participation number rather than my name will be used with the data. I understand that my participation is voluntary and that I may refuse or withdraw from the study at any time. Only signatures are required for proof of consent and they will be kept separate from the other materials.

I understand that I have the right to have all questions about the study answered in sufficient detail for me to clearly understand the level of my participation as well as the significance of the research. I understand that at the completion of this study, I will have an opportunity to ask and have answered all questions pertaining to my involvement in this study.

I acknowledge having received two copies of the consent form, one to be returned to the researcher and one for me to keep for my reference. I may call the investigators involved in the study, or supervising professor, Dr. Barbara Taylor (619-849-2766) in order to discuss confidentially any questions about participation in the study. Also,

should I have any concerns about the nature of this study, I can also contact the Chair of PLNU's IRB, Patricia Leslie (619-849-2676 or patricialeslie@pointloma.edu).

Name of Participant: _____

Signature: _____ Date: _____

Elissa Berthiaume, DESS, RN, Investigator : 858-205-3356,
berthiaume.elissa@scrippshealth.org Dr. Barbara Taylor, PhD, RN Supervising
Professor:619 849-2766,barbarataylor@pointloma.edu

Appendix G

Introductory Letter to Potential Registered Nurse Research Participants

Evaluation of a structured unit-based education process on the learning needs and clinical competence of nurses on an adult Trauma Care Unit Introductory Letter to Potential Registered Nurse Research Participants

Dear Registered Nurse,

Elissa Berthiaume is conducting a research study. The purpose of this project is to evaluate satisfaction of the various teaching delivery methods of education content for staff nurses on an adult trauma care unit. You have been asked to take part in this research study because you are a registered nurse working at Scripps Mercy Hospital on the Trauma Observation Unit where such a process has been developed and implemented. There will be approximately 60 registered nurses involved in this research project. Each nurse will be asked to complete a questionnaire.

If you consent to participate in this study, you will complete a questionnaire. The questionnaire will take approximately 5-15 minutes to complete. A consent form will also be provided to you for your written agreement to participate in this study.

Participation in this study involves minimal risk for physical or emotional harm. To maintain confidentiality of your individual responses, your study questionnaire responses will be kept in a secure and locked area and will not be available to anyone not directly involved in this study's data collection or analysis. Your individual responses will be aggregated with the responses of other nurses and reported only in aggregate form. No personal identifying information will be reported.

I hope that you will be willing to participate in this study. If you have any questions or research-related problems, please call or email Elissa Berthiaume, RN, DESS (Graduate Diploma in Nursing) (858-205-3356) (berthiaume.elissa@scrippshealth.org).

If you decline to participate, you do not need to do anything further.

Thank you for your time and consideration of this study.

Elissa Berthiaume, RN, DESS