Evaluating the Impact of Protected Learning Time for Mandatory E-Learning on Registered Nurses' Satisfaction and Knowledge Retention

By

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A Directed Scholarly Project Submitted to the
Department of Nursing in the Graduate
School of Bradley University in partial
fulfillment of the requirements for the Degree
of Doctor of Nursing Practice.

Peoria, Illinois

2019

Bradley University
Department of Nursing

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has been approved

May 22, 2019

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Acknowledgements

I would like to first acknowledge some of the leaders at OSF St. Joseph Medical Center. I would like to thank my mentors, Katie Ewing, MSN, RN, Regulatory Coordinator, and Amy Benoit, MSN, RN, Clinical Educator. Katie pursued many educational opportunities for me to enrich my project, and Amy actively participated in my project by supervising the computer lab for the participants. Both of these women provided me with advice and guidance, and I am truly grateful. I would also like to express my appreciation to Sandra Scheidenhelm, MSN, RN, Director of Professional Practice, Karen DeLong, MSN, RN, Performance Improvement, and John Phifer, MSN, RN, Family Care Center Manager, for their help throughout the project. Lastly, I would like to thank the registered nurses at OSF St. Joseph Medical Center that participated in the project – it truly would not have been possible without their feedback and enthusiasm.

I feel honored to have worked with my instructor Dr. Cynthia Steinwedel, Ph.D., RN, at Bradley University. She not only gave me an abundance of feedback and reassurance pertaining to my project, but she was also a pleasure to have conversations with, as she showed a true interest in my personal and professional successes. She taught me so much about nursing research and more than I can even give her credit for here.

The true backbone of the project was my family. I wish to acknowledge them for all the love and encouragement they gave me. I want to thank my beautiful daughter Reagan for being the best kind of inspiration for me, even as an infant. Finally, I could never express enough gratitude to my amazing husband Joe who has been my rock through not only this project, but also all of our endeavors together.

Abstract

This is a report of a scholarly project involving the current mandatory online educational process of registered nursing staff on a medical-surgical unit and the impact of providing protected learning time on said population. The topic was selected because the author was interested in determining if allowing registered nurses time away from the bedside to complete their mandatory online education in a quiet controlled environment would improve their knowledge retention of the subject matter as well as their employee satisfaction with the educational process. The author demonstrated that nurses that completed online education without the provision of protected learning time felt more distracted and less satisfied while completing their online educational modules. They also had lower immediate and delayed post-test scores than the nurses that were provided protected learning time to complete their online educational modules. Nurses that were provided protected learning time during this study stated that they felt more satisfied and less distracted while completing their educational module. The findings from the project support providing protected learning time to staff as a means to increase registered nurse satisfaction and knowledge retention.

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I. Introduction

Nurse education is very important in the hospital setting. Registered nurses must be educated so that they practice according to the most current evidence-based practice and hospital policies, in order to provide the best care for their patients. Nurses can be educated in a variety of ways by their employers – in-seat sessions, skills fairs, poster presentations, handouts, and the focus of this project – online modules. The term *e-learning*, or electronic learning, online learning, or virtual learning, dates back to 1999, when it was first introduced at a computer-based training seminar (Gogos, 2013). This led to businesses using the Internet to train their employees in the 2000s (Gogos, 2013).

While all education methods may be beneficial in their own ways, this author was interested in the environment in which nurses complete their online mandatory education, rather than the comparison of different methods of learning. At the facility that the author is employed, the majority of nurse education is provided via online modules. The nurses are given due dates that they must have their online modules completed. There are no expectations in place other than having the modules completed on time. The registered nurses may take their modules in any location they choose. However, there is no extra time incorporated into their workdays to complete the education. If they choose to do their modules while they are at work, which many of the nurses do, patient care is expected to take priority. On a medical-surgical unit, patient care may include answering call lights, taking patients to the bathroom, giving medications, documentation in the electronic medical record, taking vital signs, dressing wounds, walking patients in the hallway, and much more. Each nurse typically has at least four patients, although the nurse-to-patient ratio at this facility often exceeds 1:4. The heavy patient load, alarms, and even helping coworkers creates a lot of distractions for a nurse that is trying to complete his or

her educational module on time. This author feels that the loud and busy environment on the medical-surgical unit is not conducive to learning. As mentioned later in this paper, nurses at the facility of interest are assigned an extensive number of online education modules, which may be overwhelming to try to complete in the busy work atmosphere.

The intended audience of this scholarly project is nursing personnel - specifically leadership, education, and management personnel. This author wished to examine the impact of a change to the current online educational process of one organization on its nursing staff. The outcomes of interest were staff satisfaction and knowledge retention. This area of interest was chosen by the author, as ineffective education may affect not only the intended nursing personnel, but also patients, and the organization itself. The author is a registered nurse who has personally experienced dissatisfaction with ineffective education and has received report from other registered nurses about their dissatisfaction. These experiences prompted the author to look more deeply into a way to improve staff education.

The scholarly project involved an assigned online education module and two groups of registered nurses on one unit of the hospital. One group took the online module as they normally would, with the majority taking the module while they were at work. The other group was given protected learning time during their workday to complete the education. The two groups of nurses then provided feedback and answered test questions immediately and two weeks after the module to demonstrate satisfaction and knowledge retention. The results of this project provided enough evidence to support a needed process change to the current mandatory education and training of the nursing employees.

Background & Significance

Like all modern technology, the concept of e-learning has evolved over the years. An early pioneer of e-learning was B. F. Skinner, known for his work in operant conditioning. He developed teaching machines during 1953-1956 which would present learners with questions in random orders, but not give them any feedback (Merzouk, Kurosinki, & Kostikas, 2014). Moving forward to the 1990s, the internet revolutionized the concept of e-learning by offering Web-based training, which is now the dominant form of e-learning (Merzouk, Kurosinki, & Kostikas, 2014). Since the 1990s, the internet has progressed, and with it, e-learning or online learning. Online learning is now considered one of the primary forms of education for nursing staff (Merzouk, Kurosinki, & Kostikas, 2014). The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the Centers for Medicare & Medicaid Services (CMS), and the Occupational Safety and Health Administration (OSHA) require quality and safety education for nurses be done at orientation, annually, or at intervals. At the organization in which the author works, there are at least 25 educational topics that must be covered annually, and even more that are assigned to employees in orientation. Newly hired employees must complete over 20 modules within the first two months of being hired in addition to the regulatory modules assigned. Also, there is education that must be completed every three years for employees. Much of the quality and safety education is provided through HealthStream, an online learning management system. Educators assign learning modules that the nurses must complete by a determined deadline. In addition to the required regulatory education, staff are also educated on new evidence-based practice and policies, most of which is presented to them via Healthstream.

It is up to the nurses to decide where they complete their education modules, but many of the registered nurses on the medical-surgical unit at the author's workplace complete their

assigned modules while they are at work, despite the time constraints and the distractions that are associated with the job. The United States faces a nursing shortage (American Association of Colleges of Nursing, 2017), and this facility is no exception. By 2024, the projected number of job openings for nurses is 1.09 million (American Association of Colleges of Nursing, 2017). With the nursing shortage that the unit of interest faces, the nurse-to-patient ratio at times exceeds what has been evidentially found to be safe. Aiken, Sloane, Cimiotti, Clarke, Flynn, Seago, Spetz, and Smith (2010) compared patient outcomes for hospitals in California to the ratios in Pennsylvania and New Jersey. The primary difference between these states is that California mandated nurse-to-patient ratios in 2004, while the other states did not. A medical-surgical nurse in California should not have an assignment that exceeds a 5:1 patient-to-nurse ratio (Aiken et al., 2010). This mandated ratio resulted in California nurses caring for one less patient on average than nurses in the other states, and two less patients on medical and surgical units (Aiken et al., 2010). The mean patients per shift for nurses in California in this study was 4.8 for medical and surgical units, which is less than the mandated ratio (Aiken et al., 2010). Lower patient mortality rates were found in the hospitals in California, and nurse satisfaction was improved (Aiken et al., 2010). The nurses of the organization for this project often have a 5:1 or 6:1 patient-to-nurse ratio, which either equates to the maximum ratio that was found to be more beneficial for patient outcomes in the California study (Aiken et al., 2010), or exceeds the maximum ratio. Nurses are busy with patient care, documentation, and other requirements of the job, especially due to not typically having enough staff in areas like medical-surgical units. It is difficult to find time to complete assigned educational modules during the workday. Some nurses may complete their mandatory training at home with education reimbursement provided by the organization, but distractions can be an issue in homes as well. Many nurses admit to advancing

through the modules quickly just to get them done by the deadline, without really giving the education the attention it requires. This author wanted to know if the high demands of registered nurses on a medical-surgical unit had a negative impact on their perceived satisfaction of mandatory e-learning and knowledge retention.

Problem Statement

There are several problems that are concerning regarding e-learning. The first is a concept that this author chose to call education fatigue. It is the idea that nurses are so overwhelmed by the amount of education they must complete, that they do not absorb pertinent information from the e-learning, especially in the conditions that exist for module delivery – patient alarms, call lights, coworkers in need of assistance, and more distractions. In addition to the numerous mandatory training modules assigned to them by their organization, registered nurses in Illinois must complete 20 hours of continuing education every two years to meet the requirements for nursing license renewal (Illinois Center for Nursing, 2009). Nurses receive an extensive amount of education, which may cause them to feel overwhelmed. Completing their education in a less distracting environment may ease the burden the nurses feel of the quantity of modules assigned to them (Riley & Schmidt, 2016).

This relates to the second concept, which is patient safety. If nurses are not absorbing the new knowledge being presented to them by e-learning modules due to the busy nature of the nursing unit, they may be missing certain practice standards that could put their patients' safety in jeopardy. Also, if nurses do click through their assigned modules, whether it is due to education fatigue or because of distractions and time constraints, the nurses may not be retaining knowledge that could prevent issues with patient safety (Ulrich, Lavandero, Woods, & Early, 2014).

The final problem is that having numerous e-learning modules and not having time to complete them during the workday may negatively influence staff satisfaction (Stout, 2013), which could in turn affect staffing of the organization. Decreased staff satisfaction is cited as a primary reason for nursing turnover (McHugh & Ma, 2014). These problems demonstrate that staff education and training via e-learning is being implemented in such a way that it may cause areas of concern that are unintended by the administration. This author feels that the overall problem is that with the busy and loud environment that nurses are typically taking their online modules in, the nurses are feeling less satisfied with their mandatory workplace education and they are retaining less of the content presented to them.

Project Purpose

The purpose of this quality-improvement project was to determine if providing protected learning time to nurses for completing e-learning modules increased staff satisfaction and knowledge retention compared with not providing protected learning time to the nursing staff. Provision of protected learning time is evidence-based (Brooks & Barr, 2004; Franz, Behrends, Haack, & Marschollek, 2015). An education module was assigned to the staff. A small sample of the staff was assigned to an implementation group, while the remaining staff was in the control group. The difference in the two groups will be discussed in length in the Methodology section of this report. The data collected from the two groups regarding satisfaction and knowledge retention were compared. The comparison provided evidence to support a process change within the organizational education system. The first objective for this project was as follows: Registered nurses, after being provided protected learning time during this project, will demonstrate increased knowledge retention as evidenced by a higher mean immediate post-test score as well as a higher mean post-test score two weeks after the due date of the Healthstream

module than the scores of registered nurses who were not provided protected learning time. The second objective for this project was as follows: Registered nurses, after being provided protected learning time during this project, will report increased satisfaction with the education process as evidenced by choosing "Agree" or "Strongly Agree" on Likert scale items that pertain to staff satisfaction.

Clinical Question/PICO

The question guiding this project was as follows: For (P) registered nurses on a medical-surgical unit, how does (I) providing protected learning time to nurses during the workday for online education compared with (C) not providing protected learning time for online education affect (O) staff satisfaction and knowledge retention? Staff satisfaction and knowledge retention are potentially affected by not providing protected learning time, as the busy and loud work environment of the nursing is an ineffective delivery of online education (Stout, 2013).

Congruence with Organizational Strategic Plan

The mission of the organization of interest is as follows: "In the spirit of Christ and the example of Francis of Assisi, the Mission of [name] is to serve persons with the greatest care and love in a community that celebrates the Gift of Life" (OSF HealthCare, 2018, para. 1). The organization also shares its values on the public website, two of which are employee well-being and supportive work environment. The value of employee well-being reads: "Concern for the physical, spiritual, emotional and economical well-being of employees" (OSF HealthCare, 2018, para.6). The value of supportive work environment is as follows: "Quality work environments which focus on comprehensive, integrated quality service and opportunities for employee growth" (OSF HealthCare, 2018, para. 6). This scholarly project was in congruence with the

organizational strategic plan, as it aligned with both the mission and the values of the organization. One of the dependent variables of the project was staff satisfaction. This outcome supported the employee well-being value. The other dependent variable of the project was employee knowledge retention, which was congruent with the mission of the organization, as well as the supportive work environment value.

Review of Literature

To find studies to support the clinical question, three different databases were searched: CINAHL, Google Scholar, and Health Source: Nursing/Academic Edition. Searches were limited to include articles published between 2011 and 2017, with the exception of one study included from 2004. Searches were also limited to only nursing and health journals. The keywords used for the search included: *nurse(s), continuing education, participation, online learning, online, nursing, e-learning, satisfaction, attitudes, barriers, learning preference, protected learning time, time constraints, professional development, traditional learning,* and *registered nurse*. Ten studies were synthesized for this project.

Riley and Schmidt (2016) conducted qualitative research in three rural Australian facilities. A purposive sample of health service managers (HSMs) was recruited, and the researchers then used convenience sampling to choose nurses under the HSMs to participate in the interviews. Participants were asked to explain what they felt worked well with online learning and what they imagined an online world where anything could happen might look like. 14 nurses participated in the interviews. The interviews were coded for themes using AI methodology and they found that themes that worked well with online learning for the participants included accessibility to knowledge and flexibility and cost. Themes that could be improved for online learning included finding time for the learning, improved access and

support, and transferring what they had learned into clinical abilities. They found that the primary driver for accessing online learning was to complete mandatory training, but most nurses would not do more education beyond the requirement (Riley & Schmidt, 2016). Riley and Schmidt also suggested a few strategies for successful implementation of online continuing professional development (CPD): "Protecting time for completion of online CPD, providing a dedicated space away from the busy and noisy ward environment and ensuring technical support is available are strategies to address access issues and increase engagement with online learning" (2016, p. 268). Limitations of this study were a small sample size and convenience sampling. Strengths included the use of AI methodology, which helped to make the results of the interviews more applicable to nurses in a variety of settings (Riley & Schmidt, 2016).

A case study was carried out by Karaman, Kucuk and Aydemir (2014) that collected both qualitative and quantitative data. They sought to investigate the perspective of new graduate nurses regarding a new online continuing education program. They created a survey that included participant demographics, program and course structure, course material, technology, supportive services, and assessment. The students rated the survey items using the Likert scale, and there were also open-ended questions. The sample included 13,000 new graduate registered nurses. Descriptive statistics were used to analyze the quantitative data, while content analysis was used to analyze the qualitative data. The quantitative data revealed that most of the participants felt that the program was a good opportunity for them (M=4.70). They stated that the program was important to them for professional development. They appreciated that it was convenient and flexible. A majority of the nurses felt that the material of the program was informative (M=3.86). Some nurses stated that they would rather learn from books than online materials due to information overload. They commented that while online exams may provide

flexibility, paper-based exams ensure reliability. 40% of online questionnaire participants incorporated the online content into practice. 30.5% of participants heard about the online learning materials but did not access them. 80% of the participants who incorporated the content into practice considered the content relevant. Some participants of the online questionnaire pointed out that the content took a long time to get through. Three participants stated that online learning should be an addition to lectures, not replace them. Several themes came from the interviews, or the quantitative data. Participants stated that the program did not have the most current information. Another topic that came up was that the program would be very difficult to do in the busy workplace, due to the large amount of content. Participants stated that online learning does not provide feedback to the students, and it should not be used to replace classroom education. A strength of the case study was its large sample size. A limitation of the study was that no consideration was given to outside variables such as age, gender, technology skills, and environment (Karaman, Kucuk, & Aydemir, 2016).

Broglio and Bookbinder (2014) presented a case-control study evaluating the effect of an online palliative care introduction on hospital nurses' knowledge retention. The study was conducted at one 750-bed hospital in the U.S. on a general medical unit. The participants took a pre-test, watched a 30-minute online PowerPoint presentation about palliative care, then took a post-test, and participated in a question-and-answer session. Three weeks after the intervention, participants took a follow-up post-test with two new items addressing changes in practice and suggestions for future education topics. The Palliative Care Quiz for Nursing (PCQN) was used for the pre/post-test. IBM SPSS version 21 was used to perform independent t-tests, and the Levene test was used for equality of variance and univariate analysis of variance on the PCQN. 23 RNs from both day and night shift on one unit participated in the pre-test, education, post-test,

evaluation, and question-and-answer session. Only 21 completed the follow-up post-test three weeks later. The data revealed that the pre-test average score was 57.6%, the post-test score was 72.2%, and the follow-up post-test score 3 weeks later was 70% on average. A significant difference was seen between the pre- and the post-test, but no significant difference was found between the post-test and the 3-week follow-up post-test. Most participants agreed that the online presentation provided new and useful information. 60.8% of staff indicated that they preferred live presentations because they can ask questions. Also, 17 out of 23 staff stated they would prefer to complete their online education at home because of lack of time at work and having less distractions at home. A strength of this case-control study was that it evaluated knowledge immediately after an intervention, as well as a few weeks after an intervention. A limitation of the research was the small sample size used (Broglio & Bookbinder, 2014).

Franz, Behrends, Haack, and Marschollek (2015) also published a case-control study, which focused on the opinions and experiences of users of an e-learning module for training. An e-learning module about data protection was completed by the employees of Hannover Medical School. The module had 18 questions of different types. An online survey was completed by participants six months after the module implementation, and a six-point Likert scale and a six-point ordinal scale were used for measurement. The survey evaluated the module's relevance, interest, and comprehensibility, as well as attitudes towards and requirements for e-learning in general. There were 48 participants that were 60% female and 40% male, with most of the participants being ages 26 to 39. Descriptive statistics were used to analyze the data. 95% of the employees agreed that the content was understandable and 66% stated they acquired new knowledge from the module. 67% of participants admitted that e-learning is good for time-saving. 100% of employees recognized that short modules, as in 20 minutes or less, were

important. 81% of employees acknowledged that protected time at work to complete the modules was important. A strength of the research was that the authors included both open and closed-ended questions in the survey. Limitations to the study included the small sample size, and only including the involvement of one university (Franz, Behrends, Haack, & Marschollek, 2015).

Gould, Papadopoulos, and Kelly (2014) researched the opinions of midwifery tutors at a university of the transferability of online learning materials. In a sequential mixed methods study, the teachers were asked to complete an online questionnaire regarding their opinions of an online continuing education program, and some of the participants were interviewed following the questionnaire. Sixty midwifery teachers participated in the survey, while only ten teachers were interviewed. The interview participants were identified through contacts at the university, and then through snowball sampling. The authors used descriptive statistical analysis to identify patterns of data from the online questionnaire. Thematic analysis was used to identify patterns, consistencies, and diverging opinions from the interviews. The researchers discovered that 40% of the teachers indicated that they incorporated the online content into practice, and 80% of the participants who incorporated the content into practice considered the content relevant. Some participants pointed out in the questionnaire that the module's content took a long time to get through. Three participants stated that online learning should be an addition to lectures, not replace them. Analysis of the interviews yielded several themes. Participants stated that the program did not have the most current information. Another theme discovered was that the program would be very difficult to do in the busy workplace, due to the large amount of content. The tutors also stated that online learning does not provide feedback, and it should not be used to replace classroom education. A limitation of this research was only interviewing ten teachers,

thus creating a small sample size for the interview portion of the study. A strength, however, is including two different methods of data collection (Gould, Papadopoulos, & Kelly, 2014).

Another group of researchers (Ni, et al., 2014) designed a cross-sectional survey to explore the impact of continuing education (CE) on nurses in China. Participants completed a quantitative survey that had 30 questions pertaining to attitudes and perceptions of current CE offerings and the barriers that keep nurses from participating in CE. Ten hospitals were randomly selected to participate in the study in different geographical regions of China. Out of these hospitals, 2,753 RNs participated. They were at least 18 years of age or older, and all participants were females. The mean age was 26.3 years. SPSS 17.0 software was used for statistical analysis of the data collected from the survey. The authors revealed that 92.8% of nurses found CE important. A majority of nurses agreed that the 5 most motivating factors to participate in CE included the need to update their own knowledge, to improve their clinical skills, to improve their comprehension, to obtain knowledge necessary to achieve professional status, and to raise their level of scholarship. The 5 factors that hinder participation included time constraints, work commitments, lack of opportunity to attend CE, the cost of the courses, and negative experiences with CE. Strengths noted with this research were the large sample size, and the data was collected in different geographical regions in China, which reduced the risk that the results were specific to one area of the country (Ni, et al., 2014).

Stout (2013) designed a non-randomized controlled trial to explore different modes of education for transfusion training, and their effect on nurses. The author created a questionnaire with items pertaining to the nurses' perceived benefits, expectations, and barriers to undertaking the transfusion education, as well as comparisons between traditional face-to-face education and e-learning. The questionnaire contained both quantitative and qualitative data, and it was

distributed to RNs of a hospital in Scotland. He used a modified Likert scale for the questionnaire. Purposive sampling was used to invite all the nurses in one hospital to participate. 98 participants completed the questionnaire, and they were predominantly female. The quantitative data were analyzed using SPSS software. The qualitative data were analyzed using a thematic approach. Participants' responses were compared using cross tabulations and assessed by Chi-squared and Fischer testing. Stout (2013) discovered that 60% (n=55) of nurses did e-learning instead of face-to-face learning for flexibility reasons. He found that 80 of the 98 respondents did their e-learning during working hours, meaning that only 13% of staff did their e-learning at home, since they were given protected time during work hours to complete the education. Seven staff commented that the ward was too busy to complete training during working hours. 100% of staff saw improvement in their clinical knowledge after either mode of training. The researcher found a high level of satisfaction with this training, but there were no statistical differences between learning methods ($p>0.05$). Participants did feel that local issues were covered better in face-to-face learning than e-learning ($p=0.04$). Stout stated that "conflicting priorities with regard to time were viewed by 72% (n=71) of staff as being a barrier and 72% (n=70) stated staff shortages were a barrier" (2013, p. S26). Limitations of this design were small sample size and purposive sampling. A strength of the study is that it compares two modes of preferred education, rather than focusing on the efficacy of only one method (Stout, 2013).

Ulrich, Lavandero, Woods and Early (2014) put together a qualitative action research study to evaluate RN opinions of the critical care nursing work environment. Participants were invited by email to complete the AACN Critical Care Nurse Work Environment Survey. The researchers collected a convenience sample which involved all 8444 nurses that participated by

completing the survey. The questions presented to the participants pertained to the factors of a healthy work environment and demographics. The 2013 survey was compared with the 2008 survey. Questions that were similar to Likert scale items and some open-ended questions were used in the survey tool. Descriptive statistics were used to analyze the items. Responses to the work environment questions were cross-tabulated against demographic variables to determine if there was any significant correlation. The researchers discovered results that fit into several different themes of the work environment: skilled communication, true collaboration, effective decision making, appropriate staffing, meaningful recognition, authentic leadership, quality of patient care, physical and mental safety, moral distress, support for certification and continuing education, and job satisfaction and career plans. They found that even though the nurses reported increased communication skills from 2008 to 2013, there was a decrease in the rating for support and access to educational programs which develop communication and collaboration skills. Nurses also reported decreased support and access to educational programs that develop leadership skills. Appropriate staffing ratings declined from 2008 to 2013, with nurses responding that less than 50% of the time their units had adequate staff to meet patient needs. When asked what work gets done in a typical shift, the types of work that were completed less were critical thinking and planning activities, such as discharge planning, updating care plans, teaching. The work that was completed the most was patient care activities. The researchers found there was decreased support for continuing education from 2008 to 2013. Only 37.5% of participants stated that they received paid-time off for continuing education, compared with 51.6% in 2008. Additionally, 25.2% of participants stated they received time off without pay for continuing education, compared with 31.8% in 2008. A portion of respondents expressed interest in leaving their position, and when asked for reasoning, the highest rated responses were for

better leadership, better staffing, and more respect from management and administration. The AACN Critical Care Nurse Work Environment Survey yielded some results which support that there is a decline in aspects of the healthy work environment for RNs. Decreased support and access to education and inappropriate staffing were found to be more of a burden to the RNs in 2013 than before. Due to inadequate staffing, nurses are conflicted with not being able to complete all the activities that are expected of them, such as planning and critical thinking, as patient care almost always comes first. The authors concluded that decreased support for continuing education is detrimental to nurse and patient safety, as well as to quality of care. A strength of this action research study was the large sample of participants from all over the country. A limitation of the article was that the researchers used convenience sampling (Ulrich, Lavandero, Woods, & Early, 2014).

Brooks and Barr (2004) evaluated the opinions of primary care staff of protected learning time in a qualitative case study. The researchers conducted semi-structured interviews at three different primary care groups that merged into one primary care trust. The participants included clinical and non-clinical staff. Of 26 offered staff, 19 agreed to participate in the interviews. The interviews were conducted either face-to-face or over the phone. The interview questions pertained to ease of access, relevance, strengths and limitations of protected learning time sessions that were offered by their facilities. Interview participants reported that protected learning time was "a method for learning, networking, gaining cohesion (across practices and staff groups), reflecting, discussing and addressing issues" (Brooks & Barr, 2004, p. 31). The staff reported that access to protected learning time was good, and they were aware of learning opportunities in advance so that they could coordinate their work schedule around them. If there were protected learning time sessions held after office hours, participants stated that they were

reluctant to attend them. They did not wish to spend their time off attending the sessions, or they had other personal commitments during their time off. Clinical staff found the protected learning time to be of more benefit than did the non-clinical staff. Staff in the primary care groups had no barriers to attending protected learning time sessions. The recommendations for improvement of protected learning time included having separate sessions for clinical and non-clinical staff, and varying the times that they are offered throughout the working day. Another suggestion made for primary practice is providing a service to triage telephone calls while the protected learning time sessions are underway. A strength of this research study was that there was not an abundance of research done on protected learning time at the time of the study. Limitations were that the sample size was small, and that protected learning time was only looked at in primary care groups, not any other medical facilities (Brooks & Barr, 2004).

Emerging Applicable Themes

Several themes emerged from the literature review which applied to this project. While there were some factors cited that motivated nurses to participate in e-learning, the literature also yielded factors that hinder nurses from participating in e-learning. Nurses claimed that time constraints and work commitments made it difficult to participate. Negative experiences with online continuing education were also cited as a hindering factor (Ni et al., 2014). Shortage of staff was another reason that e-learning was difficult to participate in, because nurses felt they were spread too thin (Stout, 2013). Inadequate staffing was cited by another group of researchers as the reason that nurses are unable to do much more than patient care in a workday (Ulrich, Lavandero, Woods, & Early, 2014). Nurses reported in three of the articles that certain e-learning programs would be difficult to complete due to the busy nature of their jobs (Franz, Behrends,

Haack, & Marschollek, 2015; Gould, Papadopoulos, & Kelly, 2014; Karaman, Kucuk, & Aydemir, 2016).

Another theme discovered through the literature search was that there are improvements that could be made to e-learning. Keeping modules short – 20 minutes or less – was identified as important to nurses (Franz, Behrends, Haack, & Marschollek, 2015). Additionally, e-learning should not be used to replace classroom learning, but rather supplement it (Gould, Papadopoulos, & Kelly, 2014; Karaman, Kucuk, & Aydemir, 2016).

A final theme which directly tied with this project was incorporating e-learning into the workday. While one study did support that nurses would rather complete their e-learning at home due to the unit being too busy and distracting (Broglio & Bookbinder, 2014), several other articles reviewed supported providing protected learning time during the workday. One hospital provided protected time for its nurses to complete their mandatory training. This prevented the nurses from having to complete the training on their own time, thus contributing to improved nurse satisfaction of the e-learning (Stout, 2013). Nurses relayed that they do not wish to spend their time away from work completing their required education, as they often have personal commitments they wish to attend to. Protected time should be provided during work hours (Brooks & Barr, 2004). Another study supported that protected time was significant to nurses (Franz, Behrends, Haack, & Marschollek, 2015). Riley & Schmidt (2016) noted the importance of completing education in a separate quiet location, away from the noise and distractions of the unit. While one group of researchers did not specifically investigate protected learning time, they did recommend that organizations provide more support and access to education for their nurses. Otherwise, patient and nurse safety as well as the quality of care provided may suffer (Ulrich,

Lavandero, Woods, & Early, 2014). It was clear through this synthesis of evidence that providing protected learning time is an evidence-based intervention.

Conceptual or Theoretical Framework

The theory used to guide the scholarly project was the theory of *andragogy*, or adult learning, by Malcolm Knowles (1996). Knowles identified four assumptions of adult learning in his theory of andragogy. The first assumption is that adults need not depend on others, but rather they become self-directed. The second assumption is that adults use their wealth of experiences as resources for learning. The third assumption is that adults have a motivation to learn that is oriented to their social roles. Finally, the last assumption is that adults desire learning that is immediately applicable, and their "orientation toward learning shifts from one of subject-centeredness to one of problem-centeredness" (Knowles, 1996, p. 55). The author used the theory of andragogy as a relevant framework, as the project had much to do with adult learning preferences, and improvements to current online education processes for nurses.

II. Methods

In this section, the author will describe in detail the needs assessment, project design, setting, population and sample, instruments, project plan, data analysis, ethical issues, and institutional review board approval for the project.

Needs Assessment

This author conversed with the clinical educator of the unit, the unit manager, the Director of Nursing Practice & Operations, the Regulatory Coordinator and the Director of Inpatient Nursing Services at the organization of interest. These individuals all supported that improvement could be made to the process of staff education at the facility. The main issue that they had was that staff did not seem to be taking the modules in the way that they were designed to be completed. They were aware that employees tend to rush through their assigned online learning during work hours. Because the employees would click through the modules quickly and not actually retain the content, the staff often have to repeat the modules, as they would not receive a passing score on them the first time. They understood that the conditions of the busy unit may not be conducive to employees retaining the information they are presented with in their mandatory e-learning modules. After discussing the project with these individuals, they were in agreement that providing protected learning time may offer a solution to improve the conditions under which staff complete their mandatory online learning. The author also discussed the issue with employees of the nursing unit. Many expressed decreased satisfaction with the current process, and stated that they would be interested in completing their assigned e-learning under the provision of protected learning time.

Project Design

The scholarly project had a quasi-experimental, repeated measures design with a post-test administered to participants immediately following the implementation of an educational module and assignment into either the control or the implementation group, as well as a post-test and survey two to four weeks following the module. The post-test and survey measured both knowledge retention and staff satisfaction. Quasi-experimental design involves the project coordinator assigning participants to either a control or an intervention, or implementation, group. The assignment into these groups is non-randomized and is typically based on convenience (Center for Innovation in Research and Teaching, n. d.). This design was chosen for the project as it helped to determine the impact that protected learning time during the workday had on nursing satisfaction and knowledge retention compared with not providing protected learning time. The control and implementation groups provided a strong foundation for the research that was conducted.

Setting

The setting for this project was a medical-surgical unit at a 149-bed hospital which employs 333 medical personnel. The unit has a few less than 60 beds, and staffs approximately six to ten nurses per shift, including one charge RN. The hospital is one of two in a twin-city location, with a population of 132,902 people (Bloomington Normal Economic Development Council, 2018). The unit is set up with two nursing stations, each with multiple computers for nurses to use. The computer lab where the participants in the implementation group completed their online module is on a separate floor from the nursing unit. It also serves as a simulation lab, but it is only used by appointment only. During the project hours, the simulation lab was empty aside from the participant and the educator who was serving the project as a computer lab monitor.

Population/Sample

The population from which the sample was obtained was the registered nurses who were employed on the medical-surgical unit. The project required approximately eight to ten participants assigned to the implementation group, and the remaining staff nurses on the medical-surgical unit who participated were assigned to the control group. The participants assigned to the implementation group were selected based on availability during the chosen implementation days. On the implementation days, the nurses were assigned to between four and five patients each. The author was responsible for watching the patients of the nurses in the implementation group during the hour that they participated. Each implementation group participant then went to the computer lab for an hour to complete his or her Healthstream module under the supervision of the computer lab monitor, who was the educator for the unit. Any extra time that the participant had during that hour could be used to work on more modules that were assigned to him or her. After the hour was over, the nurse then came back to the unit and received updates on his or her patients from the author. This process was the implementation of protected learning time.

The project included a convenience sample of 21 registered nurses on the medical-surgical unit of the organization of interest. Inclusion criteria were registered nurses who worked the day shift and worked full-time. Exclusion criteria were registered nurses who were currently in new employee orientation or who were not dedicated employees to the unit (as in nurses employed in the float pool or employed on other units). An additional exclusion criterion was employees on the unit who were not registered nurses (i.e. patient care technicians and patient care liaisons).

Participants were recruited via email invitation (Appendix B). The author explained the intent of the scholarly project in an emailed informed consent form to the registered nurses on the medical-surgical unit (Appendix A). The candidates were informed that their participation was voluntary and confidential. The participants were not required to sign the informed consent form, but were asked to respond to the author by a certain date if they did not wish to participate. The email contained the author's contact information in case the candidates had any questions. The author also posted flyers in the staff breakroom and staff bathroom for visual reminders of the opportunity to participate (Appendix C).

Instruments

The online learning management system that was used in this project was Healthstream. An education module was assigned to the staff nurses. This was not a module designed for the purpose of this project, but rather a module that the organization's education department assigned to the staff for the purpose of employee education as a requirement of employment. Data collection was timed around the release of the education module. The immediate post-test (Appendix F) was administered to the staff as part of the design of the educational module and had four multiple-choice items pertaining to the content of the Healthstream module, which was about drug diversion. The module was designed so that if the employee did not pass the post-test initially, he or she would be able to repeat the test until a passing score resulted. Unit managers, clinical educators, and Healthstream administration staff had access to scores of the initial test for all employees. The unit's clinical educator provided the author a copy of all of the participants' scores of the Healthstream module.

A questionnaire invitation was sent to participants via email (Appendix D). The electronic survey program Survey Monkey was used to develop and administer the

questionnaire. The questionnaire had items on a Likert scale that pertained to staff satisfaction. There was one question in which participants were asked where they were when they completed the module of interest. The author used a setting on the Survey Monkey website which permitted participants to only respond once per email address to avoid multiple responses from a single participant, which would cause discrepancies in the data.

A post-test was administered to the participants two weeks following the due date of the Healthstream module. The post-test contained the same multiple-choice question items as did the post-test that was included in the Healthstream module (Appendix F). This follow-up post-test was included in the questionnaire sent to the participants of the study via Survey Monkey.

All collected data were stored on the author's personal computer, as well as a flash drive for backup. The personal computer was password protected, and the flash drive was stored in a locked box in the author's home. The information was destroyed at the completion of the Capstone project.

Project Plan

The implementation of the project was planned around the release of a Healthstream module from the education department. The original design of the project included a new Healthstream module that the staff had never before been assigned. In this case, pretests would not have been required, because the module would have contained content that the staff have not been educated on previously. However, no new Healthstream modules were released at the time of the project, so a module that was not new, but had been recently updated was chosen. No pretest was assigned to the staff. Informed consent was not necessary per the Institutional Review Board (Appendix E). Three days were chosen for the intervention based on author and

educator availability, and the intervention occurred in four-hour time periods. Nine participants were selected to participate in the intervention group based on their availability on the chosen days for the intervention. The rest of the participants were included in the control group of the project, which means that they completed their e-learning module as they normally would, whether it was at work, home, or under any circumstance of their choosing. The author played an active role in the project implementation by being a relief RN for the staff participating in the intervention. On designated intervention days, the author arrived on the unit and received a brief report from the nurse participating in the intervention. The nurse was then dismissed from his or her patient care responsibilities on the floor for one hour. During that hour, the RN went to the designated computer lab within the facility and completed the Healthstream module, and the post-test that accompanied it. After the module was complete, the nurse could use any extra time to complete other education modules if he or she had time. An educator from the facility was a computer lab monitor during that time to ensure that the RN was completing the required education. At the end of the hour, the nurse returned to the unit and received updates from the author regarding the nurse's assigned patients. The author then repeated this entire process with the next nurse that participated in the intervention. In a four-hour period, the author expected to relieve three nurses for the intervention.

At the due date of the Healthstream module, a report was run for data collection. First, data were collected regarding all the participants' initial pass rates. In other words, the author received a report of the scores of the first test that the participants took immediately following the module. Two weeks after the due date of the Healthstream module, a questionnaire was sent to all participants of the study (Appendix D). The questionnaire had items pertaining to satisfaction with the current education process. Additionally, the questionnaire also had items

that were the exact same questions that were presented in the post-test included in the Healthstream module.

The author pulled the scores from the participants' initial post-test and the post-test two weeks following the module due date sent via Survey Monkey. The author planned to analyze this data using descriptive statistics. The mean scores of the initial post-test were compared between the control group and the implementation group. Likewise, the mean scores of the second post-test were compared between the two groups. Then, the author planned to calculate the percentages for the survey items pertaining to staff satisfaction. Finally, the author planned to insert this data manually into tables created in Microsoft Word.

Data Analysis

Data collection from the implementation portion of the project yielded quantitative data collected from the immediate post-test as well as the questionnaire two weeks following the due date of the module. These data included one question pertaining to the location in which participants completed the Healthstream module, several Likert scale satisfaction items, and several post-test items. The quantitative data were analyzed using descriptive statistics. The author located the mean scores of the immediate post-test items and the post-test items in the questionnaire two weeks following the module's due date for both the control and the implementation group. Percentages were found for the remaining survey items for both the control and implementation groups. The data were analyzed manually and inserted into tables that were created using Microsoft Word.

Ethical Issues

The scholarly project proposal received approval from the organization's Institutional Review Board (Appendix E) as well as CUSHR at Bradley University. The author wrote a letter to participants explaining the intent of the scholarly project (Appendix B). The participants were informed that their participation was voluntary and confidential, and that their refusal to participate would not affect their position in the organization in any way. In an effort to preserve privacy and confidentiality, names and other identifying information were redacted from the Healthstream reports. Participants completing the questionnaire via Survey Monkey were identified by their email addresses, but this information was kept confidential by the primary investigator. Email addresses were redacted from questionnaire results. This scholarly project did not involve a vulnerable population.

This project may lead to the development of new educational processes at the organization of interest, which could be of benefit to the primary investigator as she is employed there. This conflict of interest was fully disclosed to Bradley University and the organization of interest.

Institutional Review Board Approval

This project was reviewed and approved by the University of Illinois College of Medicine in Peoria (UICOMP) Institutional Review Board (Appendix E).

III. Organizational Assessment & Budget

The organization of interest for the scholarly project proposal is one that is supportive of implementing evidence-based practice. This facilitated the implementation of the project, as it is a quality-improvement project based on evidence-based practice. Educators of the organization are also aware that the current circumstances under which nurses complete their Healthstream modules are not ideal for knowledge retention. This is another motivating factor for the implementation of protected learning time. The organization was ready for change and improvement in this education process.

A barrier to implementation may be the nurse-to-patient ratios at times. If one nurse is caring for many patients, he or she may have too many patient care demands for the implementation to be successful. This may be because rather than staffing an employee to cover the patients of a nurse so they can have protected learning time, the organization might instead staff an employee as a nurse to reduce the nurse-to-patient ratio. Another barrier to implementation may be budgeting for a nurse to cover another nurse's patients while he or she leaves the unit to complete education. A strategy for handling this dilemma may be to incorporate protected learning time into the new culture of education this author hopes to present. An extra nurse may not need to be staffed to relieve the nurse wishing to complete education, but rather a clinical educator could potentially be responsible for providing protected learning time and covering a nurse's patients so that he or she can complete their mandatory learning in a quiet environment with less distractions. The clinical educator may be able to do this during his or her workday, and may benefit from the clinical contact.

The budget for the scholarly project had few expenses. The main anticipated expense was labor costs for the author to relieve nurses in the designated four-hour increments ($450). The

budget did not need to account for payment of the computer lab monitor, as the educator that volunteered was already on the clock for the organization.

IV. Results

In this section, the results of the data analysis will be presented. This includes analysis of the quantitative data collected from the immediate post-test, as well as the from the questionnaire that was emailed to participants two weeks after the due date of the Healthstream module.

The dates that the intervention took place were September 20th, September 24th, and September 27th of 2018. Nine participants were contacted prior to the intervention to inform them that they would be participating in the implementation group on one of the three dates. Of these nine participants contacted, eight participants actually participated in the intervention. One participant had already completed the Healthstream module on their own time during work. The control group was made up of 13 participants. The post-test had a total of four questions. The scores of the module post-test were compared for participants in the control and implementation group. The mean immediate post-test score for the implementation group was 100 percent. The mean immediate post-test score for the control group was 90.4 percent (Table 1.1).

Scores of Immediate Healthstream Post-Test	
Implementation Participants	100% (8 participants)
Control Participants	90.4% (13 participants)

Table 1.1 Scores of Immediate Healthstream Post-Test

The questionnaire was sent via email with a link to Survey Monkey to all 21 participants on October 15th, 2018. Responses were collected from October 15th through November 6th, 2018. Of the 21 participants invited, 16 responded to the questionnaire. Eight of the respondents were from the control group, and eight were from the implementation group. The first four items of the questionnaire were identical to the four questions that participants answered in the post-test that immediately followed the Healthstream module. The scores of these items were compared for participants in the control group and the intervention group. The mean score of the post-test

two weeks after the due date of the Healthstream for the implementation group was 100 percent. The mean score of this post-test for the control group was 96.9 percent (Table 1.2).

Scores of Post-Test 2 Weeks After Healthstream Due Date	
Implementation Participants	100% (8 participants)
Control Participants	96.9% (8 participants)

Table 1.2 Scores of Post-Test 2 Weeks After Healthstream Due Date

The next question on the survey that was sent to the participants was "Where did you complete the Healthstream module SJMC 2018 Drug Diversion in Healthcare?" As expected, eight participants responded that they completed the module in the computer lab during the workday while a relief RN watched their patients. Seven participants responded that they completed the module at work, and one participant responded that they completed the module at home.

The remaining five items of the questionnaire pertained to the employees' opinions regarding the current process of completing their assigned education modules. The items were based on a Likert scale. The first survey item was "While completing the Healthstream module SJMC 2018 Drug Diversion in Healthcare, I felt very distracted by things in my environment." 50 percent of the implementation participants strongly disagreed with the statement, and the remaining 50 percent disagreed with the statement. The control participants mostly agreed with the statement (62.5 percent). Two of the participants (25 percent) disagreed with the statement, however, one of these participants previously stated that they completed the Healthstream module at home. One participant strongly agreed with the statement (12.5 percent) (Table 1.3).

While completing the Healthstream module SJMC 2018 Drug Diversion in Healthcare, I felt very distracted by things in my environment.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number of Implementation Participants	4 (50%)	4 (50%)	0	0	0
Number of Control Participants	0	2 (25%) (1 was at home)	0	5 (62.5%)	1 (12.5%)

Table 1.3 Education Survey Question Six

The next survey item was "While completing the Healthstream module SJMC 2018 Drug Diversion in Healthcare, I was very satisfied with the circumstances (setting, level of distraction, etc.) under which I did my e-learning." 75 percent of the implementation participants strongly agreed with the statement, and the remaining 25 percent agreed with the statement. 50 percent of the control participants disagreed with the statement. The remaining control responses varied, with one participant strongly disagreeing with the statement (12.5 percent), one agreeing with the statement (12.5 percent), and 2 remaining neutral (25 percent) (Table 1.4)

While completing the Healthstream module SJMC 2018 Drug Diversion in Healthcare, I was very satisfied with the circumstances (setting, level of distraction, etc.) under which I did my e-learning.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number of Implementation Participants	0	0	0	2 (25%)	6 (75%)
Number of Control Participants	1 (12.5%)	4 (50%)	2 (25%) (1 was at home)	1 (12.5%)	0

Table 1.4 Education Survey Question Seven

The next survey item read "I feel that I retained the content provided in the Healthstream module SJMC 2018 Drug Diversion in Healthcare." The implementation participants all agreed with this statement, with four participants (50 percent) selecting "Agree" and three participants

(37.5 percent) selecting “Strongly Agree.” One implementation participant skipped this item in the survey. Six participants (75 percent) of the control group agreed with the statement, while one participant (12.5 percent) remained neutral, and one participant (12.5 percent) strongly disagreed (Table 1.5).

I feel that I retained the content provided in the Healthstream module SJMC 2018 Drug Diversion in Healthcare.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number of Implementation Participants	0	0	0	4 (50%)	3 (37.5%)
Number of Control Participants	1 (12.5%)	0	1 (12.5%)	6 (75%)	0

Table 1.5 Education Survey Question Eight

Another survey item presented to the participants was “In general, I feel that there are too many distractions on the unit to fully devote my attention to e-learning modules.” The majority of the implementation participants agreed with this statement, with 37.5 percent (three participants) responding with “Agree” and 50 percent (four participants) responding with “Strongly Agree.” One intervention participant remained neutral (12.5 percent). The majority of the control participants also agreed with the statement, with 75 percent (six participants) responding with “Agree” and 12.5 percent (one participant) responding with “Strongly Agree.” One control participant remained neutral (12.5 percent) (Table 1.6).

In general, I feel that there are too many distractions on the unit to fully devote my attention to e-learning modules.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number of Intervention Participants	0	0	1 (12.5%)	3 (37.5%)	4 (50%)
Number of Control Participants	0	0	1 (12.5%)	6 (75%)	1 (12.5%)

Table 1.6 Education Survey Question Nine

The final survey item read "In general, I would recommend a process where nurses can complete their education during the workday in a quiet environment away from distractions." All of both the implementation group and the control group agreed with this statement. Two implementation participants (25 percent) and five control participants (62.5 percent) agreed with the item, while five implementation participants (75 percent) and three control participants (37.5 percent) strongly agreed with the item (Table 1.7)

In general, I would recommend a process where nurses can complete their education during the workday in a quiet environment away from distractions.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number of Intervention Participants	0	0	0	2 (25%)	6 (75%)
Number of Control Participants	0	0	0	5 (62.5%)	3 (37.5%)

Table 1.7 Education Survey Question Ten

The quantitative data collected from the immediate post-test as well as the questionnaire that participants completed several weeks after the due date of the Healthstream module provided evidence to support that providing protected learning time has a positive impact on registered nurse satisfaction and knowledge retention. The results will be discussed in the next section.

V. Discussion

In this quasi-experimental project, the author sought to understand if providing protected learning time to registered nurses would increase their satisfaction and knowledge retention. This was compared with not providing protected learning time to registered nurses. The findings were presented in the Results section of this paper and the author will discuss them in this section.

Key Findings

First, the findings verified that being provided protected learning time is beneficial for the immediate knowledge gained by the staff. This was demonstrated by the implementation group having a higher average immediate post-test score following the Healthstream module than the control group. The implementation group also scored higher on the post-test taken two weeks following the due date of the Healthstream module than did the control group. This indicated better knowledge retention with protected learning time as well. This was a positive outcome for the first objective associated with this project: Registered nurses, after being provided protected learning time during this project, will demonstrate increased knowledge retention as evidenced by a higher mean immediate post-test score as well as a higher mean post-test score two weeks after the due date of the Healthstream module than the scores of registered nurses who were not provided protected learning time. Another finding from the project was that most nurses in both groups perceived that they retained the knowledge presented to them by the module, however, two participants in the control group responded with “Neutral” and “Strongly Disagree.” This finding reinforced that nurses find protected learning time beneficial for their knowledge retention.

The nurses who were provided protected learning time reported that they felt less distracted, and more satisfied completing their mandatory online education in a quiet computer lab without the distractions of the unit. Conversely, the majority of the nurses in the control group who were not provided protected learning time did feel distracted and less satisfied with not being able to complete their mandatory learning in a quiet and controlled environment. These findings demonstrated that registered nurses may find more satisfaction in completing their mandatory online education under protected learning time. This was a positive outcome for the second objective associated with this project: Registered nurses, after being provided protected learning time during this project, will report increased satisfaction with the education process as evidenced by choosing “Agree” or “Strongly Agree” on Likert scale items that pertain to staff satisfaction.

Finally, most of the nurses in both groups agreed that the unit is too distracting to complete their mandatory learning. Additionally, all of the nurses supported that they would recommend nurses complete their education in quiet environments during the workday away from the distractions of the unit. These findings showed that nurses have found the current conditions of staff education flawed, and they would find value in provision of protected learning time to registered nurses during the workday.

Implications

Based on the findings presented by this author, the current practice of having nurses complete their education whenever they can, even if this means attempting to accomplish their mandatory online learning while being tasked with other responsibilities of the unit for which they work, needs to change. The organization of interest should consider providing protected learning time to registered nurses during the workday to allow them to complete their mandatory

education. This provision of protected learning has been shown to improve staff satisfaction and is beneficial for knowledge retention. The organization may choose to follow a process like the one implemented in this study, which is designating a relief RN to care for the patients for an RN that needs to do their online learning. The organization would need to factor staffing an additional nurse to act as a relief RN into the budget for each unit that implemented protected learning time. Alternatively, the organization could take the findings presented by this study and implement them into a process of protected learning time that suits the needs of the staff and the organization.

Future Research

This project was performed as part of a pilot study for the organization of interest. A small sample size was used of only 21 registered nurses. The sample was further limited to nurses that worked day shift. Further research should be done using a larger sample size. A sample with more registered nurses may be considered. Additionally, the population could be expanded to include staff that are not registered nurses, such as patient care technicians, respiratory therapists, physical therapists, or other employees from different disciplines. The population may also include registered nurses that work night shift for a different perspective.

Limitations

One limitation of this project was that it employed convenience sampling in its quasi-experimental design. This particular project required the research to be conducted in this manner, but a randomized sample may provide results without bias in future research. Another limitation of the project was the small sample size. Since this was a pilot study to serve the organization of interest, a small sample size was acceptable. However, results may vary slightly with a larger

sample size. Finally, the original design of the project was to have nurses complete a Healthstream module that they had never seen before. This would help to ensure that any knowledge gained by the participants was new from the module. The timing of the project eliminated the possibility of using a new module, and so it is difficult to determine if the immediate post-test scores and post-test scores 2 weeks after the Healthstream module are the result of knowledge gained by this module, or the result of knowledge that the participants already had. Future research should strive to use a new learning module or should include a pre-test to improve the validity of the project.

VI. Conclusion

This DNP candidate examined the impact of protected learning time on registered nurses' satisfaction and knowledge retention, with the intent that the results of this quality improvement project might further promote a culture within the organization of educating employees in environments that are more conducive to adult learning. The outcomes of this project support the need for a change to the circumstances under which registered nurses on a medical-surgical unit complete their mandatory online education. Protected learning time has value in the continuing education of registered nurses, as was demonstrated by this study. Finally, to address the shortcomings that currently exist within the culture of education of nursing staff, this DNP candidate would strongly urge organizations to either enforce protected learning time, or at least investigate ways to reduce distractions for the employees while they complete their mandatory online learning. Not only would employee satisfaction potentially improve, but also patient outcomes could certainly benefit from the enhanced process of registered nurse education.

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Appendix A

RESEARCH SUBJECT INFORMED CONSENT FORM

Protocol Title: Evaluating the Impact of Protected Learning Time for Mandatory E-Learning on Registered Nurses' Satisfaction and Knowledge Retention

Principal Investigator: Paige Dennis
360 W. Lincoln St., El Paso, IL 61738
(309) 242-0275

Why am I being invited to volunteer?

You are being invited to participate in a research study. "Research" designates an activity designed to test a hypothesis, permit conclusions to be drawn and thereby to develop or contribute to generalizable knowledge, whereas "practice of medicine" refers to interventions designed solely to enhance the well-being of an individual patient. Research subjects may or may not benefit from research procedures. Federal regulations require that you are informed of the research you are being invited to volunteer for and your signature indicating that you have been informed about the research. You are being invited to volunteer since you meet the requirements for enrollment into this study. Your participation is voluntary which means you can choose whether or not you want to participate. Before you can make your decision, you will need to know what the study is about, the possible risks and benefits of being in this study, and what you will have to do in this study. The research team is going to talk to you about the research study, and they will give you this consent form to read. You may also decide to discuss it with your family or friends. If you decide to participate, you will be invited to sign this form. Your signature on this form is voluntary and does not waive any of your legal rights or make any institutions or persons involved in this research any less responsible for your well-being. You are free to refuse to participate or to withdraw from the study at any time without penalty or loss of benefits to which you would otherwise be entitled.

Who is the Principal Investigator for this Study?

Paige Dennis
(309) 242-0275
pdevary@mail.bradley.edu

What is the purpose of this research study?

The purpose of this study is to determine if there is value in providing protected learning time during the workday for registered nurses to complete their mandatory e-learning away from the distractions of the nursing unit.

How long will I be in the study?

We think you will be in this study for approximately 2 months, until completion of a questionnaire 2-4 weeks following the due date of an assigned Healthstream module.

How many other people will be in the study?

About 45 people will take part in this study.

What is involved in this study?

The study procedures are as follows:

All registered nurses on the medical-surgical unit will be required to complete a mandatory Healthstream module for the organization, regardless of consenting to participate in the research study. Participants of the study will be assigned to a control group or an intervention group. The control group participants will complete the Healthstream module under the conditions that they normally would. Participants in the intervention group will be provided one hour during the workday to go to the computer training room and complete this assigned Healthstream module, and if time allows, other mandatory e-learning. These participants will give a brief report of their patients to a specified relief nurse for that time.

Two to four weeks after the due date of the Healthstream module, all participants will be emailed with a post-test about the Healthstream module to complete. After the post-test items, the participants will be asked to complete a survey. This will conclude the research.

What about Confidentiality?

We will keep your participation in this research study confidential to the extent permitted by law. However, it is possible that other people such as those indicated below may become aware of your participation in this study and may inspect and copy records pertaining to this research. Some of these records could contain information that personally identifies you.

- Federal government regulatory agencies
- The Peoria Institutional Review Boards (the committees charged with overseeing research on human subjects)

- The Office of Human Research Oversight (the office which monitors research studies)

For the purposes of this research study, your survey comments and test scores will not be anonymous. Every effort will be made by the researcher to preserve your confidentiality including the following:

- Redacting identifying email address from emailed questionnaire results.
- Redacting names or other identifying information from Healthstream reports.
- Reporting group results in research documentation rather than individual results.
- Storing data on primary investigator's personal laptop, which is password protected.
- Data will be backed up onto a flash drive, which will be kept in a locked box in the primary investigator's home.

What are the possible risks or discomforts?

Since this intervention is unproven, there may be unexpected or unanticipated problems that may arise during your participation in this study. Some risks may be currently unknown or unforeseeable. Risks related to the intervention we are studying include:

- For the purposes of this study, participants will not remain anonymous, so there is an unlikely chance that your individual results could be seen by others. Every attempt will be made to keep results and survey answers confidential.

What if new information becomes available about the study?

During the course of this study, we may find more information that could be important to you. This includes information that, once learned, might cause you to change your mind about being in the study. We will notify you as soon as possible if such information becomes available.

What are the possible benefits of the study?

There may be no direct benefit to you if you decide to participate in this research. The value of the intervention is unproven.

This quality improvement project may demonstrate a need for a change to the circumstances under which nurses complete their mandatory online education. This may benefit nurses because protected learning time would allow them to do their assigned modules in an environment that is more conducive to learning.

What other choices do I have if I do not participate?

Instead of being in this study, you have these options:

- You could choose not to participate in this study

Will I be paid for being in this study?

You will receive no payment for taking part in this study.

What are the costs for participating in this research?

There are no costs to you for participating in this research.

When does the Study end?

You can stop participating at any time. However, if you decide to stop participating in this study, we encourage you to talk to the researcher first.

Who can I call about my rights as a research subject?

If you have questions regarding your participation in this research study or if you have any questions about your rights as a research subject don't hesitate to speak with the Principal Investigator listed on page one of this form. Concerning your rights as a research subject, you may also contact the Peoria Institutional Review Board by calling (309) 680-8630.

A copy of this consent form will be given to you.

Appendix B

Recruitment Email

Dear Registered Nurse,

My name is Paige Dennis and I am a DNP student at Bradley University. I am writing to invite you to participate in my research study about protected learning time during the workday for registered nurses. You're eligible to be in this study because you are a registered nurse employed by the Family Care Center at OSF St. Joseph Medical Center that works during the dayshift.

If you decide to participate in this study, you will be assigned to a control group or an intervention group. The control group participants will complete a required Healthstream module (one that all employees will have to take regardless of participation in the study) under the conditions that they normally would. Participants in the intervention group will be provided one hour during the workday to go to the computer training room and complete this assigned Healthstream module, and if time allows, other mandatory e-learning. These participants will give a brief report of their patients to a specified relief nurse for that time.

Remember, this is completely voluntary. You can choose to be in the study or not. Should you choose not to participate, it will not negatively affect your position in any way. Please read the attached informed consent document. If you would **NOT** like to participate in this study, please let me know by September 11, 2018. If you have any questions about the study, please email me at pdevary@mail.bradley.edu.

Thank you very much.

Sincerely,

Paige C. Dennis

Appendix C

Recruitment Flyer

REGISTERED NURSES NEEDED FOR RESEARCH STUDY!

This research study looks at the impact of providing protected learning time for mandatory e-learning on registered nurses' satisfaction and knowledge retention. This study will be conducted under the direction of Paige Dennis, DNP Candidate at Bradley University.

If you are interested, eligible candidates:

- Must be Registered Nurses
- Must be employed on FCC
- Must work day shift

The study involves:

- Assignment into control or intervention group.
- Completing an assigned Healthstream module (this is a module that all nurses will have to complete regardless of participation in the study!).
- Control group participants will do e-learning the way they normally would.
- Intervention group participants will be provided 1 hour of protected learning time during the workday to do e-learning while a relief RN watches their patients.
- Participants will complete a post-test as part of the Healthstream module.
- Participants will receive a questionnaire to complete several weeks after the Healthstream module due date.

Look for more information and an invitation to sign informed consent to participate in your work email inbox soon!

For more information, please contact:
Paige Dennis
pdevary@mail.bradley.edu

Appendix D

Participant Survey

1. Where did you complete the Healthstream module (insert name of module here)?
   a. At work
   b. At home
   c. In the computer lab during the workday while a relief RN watched my patients

2. While completing the Healthstream module (insert name of module here), I felt very distracted by things in my environment.
   1. Strongly disagree
   2. Disagree
   3. Neutral
   4. Agree
   5. Strongly agree

3. While completing the Healthstream module (insert name of module here), I was very satisfied with the circumstances (setting, level of distraction, etc.) under which I did my e-learning.
   1. Strongly disagree
   2. Disagree
   3. Neutral
   4. Agree
   5. Strongly agree

4. I feel that I retained the content provided in the Healthstream module (insert name of module here).
   1. Strongly disagree
   2. Disagree
   3. Neutral
   4. Agree
   5. Strongly agree

5. In general, I feel that there are too many distractions on the unit to fully devote my attention to e-learning modules.
   1. Strongly disagree
   2. Disagree
   3. Neutral
   4. Agree
   5. Strongly agree

6. In general, I would recommend a process where nurses can complete their education during the workday in a quiet environment away from distractions.
    1. Strongly disagree
    2. Disagree
    3. Neutral
    4. Agree
    5. Strongly agree

Appendix E

Peoria Institutional Review Board FWA 00005172
One Illini Drive
Peoria, Illinois 61605 IRB #00000688

IRB #00000689

DATE: August 13, 2018

TO: Paige Dennis, DNP Candidate
FROM: University of Illinois College of Medicine at Peoria IRB 1

STUDY TITLE: [1209959-1] Evaluating the Impact of Protected Learning Time for Mandatory E-Learning on Registered Nurses' Satisfaction and Knowledge Retention

IRB REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: APPROVED APPROVAL
DATE: August 2, 2018
EXPIRATION DATE: August 1, 2019
REVIEW TYPE: Expedited Review

Approval has been granted for one year pursuant to 45CFR46.110(a)(F)(7) "Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies."

This research meets the regulatory requirements for approval as specified in 45 CFR 46.111 and 21 CFR
56.111. Specifically, the risks to subjects are minimized and reasonable in relation to anticipated benefits to subjects and the importance of the knowledge that may reasonably be expected to result, and that written informed consent will be sought from each prospective subject.

The informed consent document meets the regulatory requirements as outlined in 45 CFR 46.116 [and 21 CFR 50.25]. The IRB is waiving the requirement for the investigator to obtain a signed consent form for all subjects pursuant to 45CFR46.117(c)(2) "That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context." (Please note that the signature boxes have been deleted from the consent form).

PLEASE NOTE: Research must be conducted according to the proposal that was approved by the IRB. Any revisions to the previously approved materials must be approved by this office prior to initiation.

Please use the appropriate revision forms for this procedure.

When your study is complete, please submit a Final Report to

IRBNet. Please retain research records for a minimum of three (3)

years.

A Continuing Review will be requested prior to the end of one year

of study. This study will expire: 8/1/19.

This study will be reviewed at the 7/11/19 meeting of the IRB.

A completed Continuing Review Form is expected by: 6/25/19.

Attached you will find the current IRB approved consent form stamped with the approval and expiration dates. Please use this version of the consent form in the consenting process.

The University of Illinois College of Medicine at Peoria's (UICOMP) Office of Human Research Oversight (OHRP) will no longer accept local or non-local adverse events or safety reports for IRB review that do not meet the definition of an unanticipated problem involving risks to subjects or others (UPIRSO).

UPIRSOs are any incident, experience, or outcome that meets all of the following criteria:

a. are not expected (in terms of nature, severity or frequency) given (a) the research procedures that are described in the protocol-related documents (such as the research protocol and informed consent document); and (b) the characteristics of the subject population being studied;

b. are related or possibly related to participation in the research; and

c. suggest that the research places subjects or others at greater risk of harm (including physical, psychological, economic, or social harm) than was previously known or recognized.

1. To qualify as an UPIRSO, an adverse event must either be : 1). serious, unexpected (in terms of either the nature, severity or frequency of its occurrence), and related or possibly related to participation in the research or 2). not serious, but unexpected, related or possibly related to the research and suggest that the research places subjects or others at a greater risk of physical or psychological harm than was previously known or recognized.

In accordance with the monitoring plan described in the IRB-approved protocol, adverse events occurring in a multicenter study (NON-LOCAL EVENTS) should be reviewed and analyzed by a monitoring entity that assesses whether the adverse event represents an unanticipated problem by applying the criteria
for a UPIRSO as described above. The monitoring entity should report such a determination to the investigator for prompt reporting to the IRB.

PLEASE NOTE: The UICOMP IRB will ONLY accept for review multicenter (non-local events) that have been determined to meet the definition of an UPIRSO by the monitoring entity.

In the absence of a letter from the sponsor or monitoring entity identifying the event as a UPIRSO, or by identifying that the event has met the above referenced three criteria, it is the responsibility of the local PI to determine the meaningfulness of the reported event. If the investigator determines that the

report is not useful or meaningful in the form presented, the IRB recommends contacting the sponsor and communicating this to them for further instruction. If the local PI does not contact the sponsor, it will be his/her responsibility to judge the meaningfulness of the report by relying on the sponsor's assessment and his/her own judgment as to whether the event meets the definition of a UPIRSO.

Local adverse events meeting the definition of a UPIRSO, per the PI, should be reported to the UICOMP IRB using the Unanticipated Problems Involving Risks to Others Form at:

http://peoria.medicine.uic.edu/departments_programs/institutional_review_board/PIRB_Forms/ Local

adverse events not meeting the definition of an UPIRSO will be returned without IRB review.

Non-local adverse events lacking a UPIRSO determination from the monitoring entity will be returned without IRB review.

For additional information please refer to UICOMP UPIRSO policy at: http://peoria.medicine.uic.edu/UserFiles/Servers/Server_442934/File/Peoria/Departments%20and%20Programs/IRB/pp09.pd

Appendix F

SJMC 2018 Drug Diversion in Healthcare Healthstream Post-Test Questions

1. Which of the following are reasons healthcare workers might divert medications?

   A. Financial problems
   B. Chronic pain or injuries
   C. Access to medications
   D. All of the above

2. Not reporting disregards the well being of the diverter and is not an act of compassion.

   A. True
   B. False

3. You must be 100% certain before reporting a concern regarding drug diversion.

   A. True
   B. False

4. Data from our automated drug cabinets captures all instances of diversion.

   A. True
   B. False