

Shaping the Puzzle Piece: Adapting Nursing Curricula to Distance Learning

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Abstract

The Electronic Learning in Nursing Education (eLine) innovative program delivery method was developed through a federal grant as an alternative to traditional classroom undergraduate nursing education. The eLine goal was to enhance nursing resources in a region by increasing the number of new nurses entering the workforce. This collaborative venture between a community college and university provided students previously unable to attend college access to their nationally accredited programs. The central assumption embedded in eLine was that associate and baccalaureate educational programs prepare graduates to enter the workforce as competent clinicians. Commonalities between these programs were identified to create an articulated option for eligible students. The purpose of this article is to describe the process of creating learning experiences consistent with distance learning principles while preserving the unique objectives of the collaborating institutions.

Introduction

In response to the nursing shortage, federal and state legislators created financial incentives for enrollment in nursing programs. Legislation providing student loan forgiveness programs, grants, and scholarships was expected to increase the number of registered nurses in the workplace and thereby reduce the nursing shortage over time (American Nurses Association, 2002; Glazer, Doheny, Geolot, 2004; Goodin, 2003). Leaders used the increased public attention in nursing as an opportunity to recruit highly qualified students into nursing programs. Faculty explored strategies to expand enrollment through educational innovations. Advancements in computer and communication technology provided academic institutions affordable alternatives to traditional on-site classroom instruction (Oermann, 2004; Wirt et al., 2004). The delivery of educational programs through electronic technology enabled institutions to admit more students without enlarging classroom space. The purpose of this article is to describe the processes used to adapt two unrelated undergraduate curricula for delivery through a single totally

online format. Electronic Learning in Nursing Education (*eLine*) described in this article is an educational innovation designed to increase a region's nursing workforce by expanding enrollment capacity in two accredited nursing programs (Johnston, 2006). Distance education technology allows students in *eLine* to complete their undergraduate education without stepping on either campus.

eLine was developed through a collaborative agreement between an associate degree (ADN) and baccalaureate degree (BSN) nursing program. These otherwise competitive programs shared human and financial resources to design a web-based alternative to their existing programs. Previous work completed through the Robert Wood Johnson Foundation *Colleagues in Caring* regional initiative for workforce development provided the model for managing the combined resources (Robert Wood Johnson Foundation, 2004). The *eLine* model allowed each institution to offer students an asynchronous learning alternative while retaining unique program requirements.

Faculty from the collaborating institutions modified existing courses so that students could meet program objectives through a coordinated web-based learning format. The *eLine* delivery alternative is a totally online articulated modular program that allows students to complete their undergraduate education in the communities where they currently live and plan to practice upon graduation. Didactic content is taught by expert faculty familiar with the web-based technology. Clinical content is completed through preceptor relationships that are coordinated by faculty who work with each student to identify the appropriate site for direct care experiences.

***eLine*- The Vision**

The *eLine* vision was to reduce the nursing shortage by increasing the number of nursing graduates from existing nationally accredited nursing programs. The project goal was to create an educational process that prepared competent registered nurses for generalist practice through a collaborative partnership between academic institutions. The final *eLine* educational structure represents the principles of articulation that contribute to professional development of licensed nurses. Individuals enroll in one of the two educational programs and earn the degrees associated with the respective institution upon completion of the course work. Graduates are eligible to sit for the Nursing Council Licensure Examination for Registered Nurses (NCLEX-RN) upon graduation.

Based on the assumption that common knowledge and skill are acquired through both associate degree and baccalaureate educations, all *eLine* students complete a set of modules that cover the basic principles of nursing

knowledge. Module objectives match learning objectives for current courses that cover similar content. All clinical experiences occur after students complete all learning activities in the course-related modules. Students earn credit for courses in their program when they have completed all relevant modules.

The clinical courses provide students with experiential learning that challenges their application of theoretical models to real-life situations. Qualified preceptors guide students through a broad array of experiences that strengthen critical thinking and psychomotor skills. Clinical instructors employed by the respective educational institutions supervise the preceptor-student relationship. This arrangement benefits the student, clinical site, and educational institution. By providing students clinical experiences, these organizations enhance their attraction as employers of these new graduates (American Association of Colleges of Nursing, 2003). Their clinical experiences introduce them to job opportunities in the region where they currently reside. Not only does the *eLine* program increase the participating institutions' capacity for students, it also enhances their ability to support workforce growth in the rural counties surrounding the community where they are located.

eLine modules are organized into levels that correspond to course sequences in the ADN and BSN curricula. The levels move students from basic to more complex principles used in the delivery of effective nursing care. All *eLine* students complete modules covering content associated with the ADN program objectives. Students enrolled in the BSN program move on to complete modules that cover content essential to baccalaureate education.

A noteworthy characteristic of *eLine* is the educational philosophy that guides student progression through the modules. Students can, within guidelines, select the order of the content they will study and the time period that they will focus on specific content. The premise in approach is that students will organize their learning so that they acquire new meaning of previously acquired knowledge. This process will foster deeper understanding of principles (Applefield, Huber, Moallem, 2002; van Meerinboerer & Ayers, 2005). The open structure allows students to set the pace for completing the content and achieving requisite competence in specific areas of nursing knowledge (Skiba, 1997). Students progress to new lessons without the constraints of semester boundaries.

Unique Learning Structure

To promote student learning, lessons that cover related concepts are grouped into modules. The modules are organized in a way that reduces repetition of content across the ADN and BSN modules while still representing courses in the existing ADN and BSN curricula. Students gain access to all of the modules that comprise a course when they register. Students move onto new courses after they have completed all module activities and when they have satisfactorily demonstrated they have mastered the content covered in a course. Conversely, they may use an extended period of time to complete learning activities within the limitations set for nursing educational programs.

Faculty guide student learning through one-on-one interactions. This relationship allows faculty to use a wide array of active learning strategies often prohibited in large classes. Rather than presenting critical information verbally to a group of students, *eLine* faculty act as expert partners in the construction of a knowledge base from which competent clinicians implement effective nursing interventions (Ryan, Hodson-Carlton, & Ali, 2005). Students have opportunities to clarify areas of confusion before examining more complex content.

Conceptual Model for Module Development

The objective of the *eLine* entry level nursing education system is to produce competent clinicians who demonstrate behaviors consistent with professional standards that promote safe and positive outcomes in patients. At entry into professional practice, all registered nurses must demonstrate these desirable behaviors. However, ADN and BSN curricula vary as a condition of the degree requirements (AACN-AONE Task Force on Differentiated Competencies for Nursing Practice, 1995; Poster, et al., 2005). Recognizing that different curricula produce different types of professional behavior, the Texas Board of Nurse Examiners (TBNE) has delineated the behaviors that constitute competent practice for each level of nursing education (Poster et al, 2005). The assumption embedded in the TBNE (2002) *Differentiated Entry Level Competencies of Graduates of Texas Nursing Programs* is that the expected entry level competencies associated with each phase of education can build on learning acquired in previous educational programs. Implicit in the model, however, is the premise that at entry into practice, licensed nurses practice from different knowledge bases because of their education (Poster et al., 2005). Because each level

of education increases the depth of understanding about the human response to illness, the ability to care for more diverse and complex patient populations increases with additional education.

In the differentiated entry level model, nursing competencies are grouped into one of three broad practice categories: Provider of Care, Coordinator of Care, and Member of a Profession. The competencies listed under each category vary according to the knowledge required to demonstrate expected behaviors represented in a competency description (TBNE, 2002). The skill sets represented in the nursing competencies vary according to the scope of activities associated with a competency and the depth of knowledge required to successfully performing expected behaviors for entry level nurses (Poster, 2005; TBNE, 2002). This model, then, provides a framework for building seamless articulation paths across entry level nursing educational programs.

eLine faculty applied the principles of articulated education in the unbundling of courses to identify similarities and differences in content contained in the current ADN and BSN curricula. Content covered in the BSN courses but not found in the ADN course was identified as content associated with higher-level learning. It was then introduced to students in the baccalaureate level modules. The *TBNE Differentiated Entry level Competencies* model provided a useful framework for organizing content into a coordinated structure that combined conceptually-linked principles according to their complexity.

The overarching relationship between modules was classified using the practice role delineated in the *TBNE Differentiated Entry level Competencies* model. Modules were classified as Provider of Care, Coordinator of Care, or Member of a Profession based on their primary focus of study. Labels were then assigned to each module to indicate the conceptual fit with current courses and other modules.

Differences in the depth and breadth of knowledge required for competent practice were also replicated in the *eLine* module structure. Numbers were used to denote a module's fit within each program's course sequence. Although faculty attempted to comply with the "learning anytime anywhere" learning framework, many lessons required that students have knowledge of basic nursing principles on which to build new knowledge. The number one was used with modules that had no prerequisites; modules with prerequisites were identified with the number two. Finally, modules were designated as *A* for ADN-level and *B* for BSN-level content. Only students enrolled in the BSN program complete *B* modules. The level structure supports the BSN graduate's acquisition of expected competencies by building on the knowledge required to function as an RN with an associate degree. Figure 2.

depicts the relationship between competencies, program specific content and module nomenclature.

Figure 1. *eLine* Module Naming Structure

Program requirement	Practice Category: Coordinator of Care	<i>eLine</i> Modules
ADN	<i>“Principles of organizing and managing resources...”</i>	PRA 106 PRA 204 PRA 214
BSN	<i>“Theories of leadership and management: critical thinking, change, budgeting, etc...”</i>	PRB 205 PRB 209 PRB 214

Realities of Nursing Education at Public Institutions

The purpose for *eLine* was to provide an undergraduate nursing education to individuals with limited access to campus-bound nursing programs. To earn the degree associated with their educational program, each student must meet the institution’s graduation requirements. Any changes in the curricular structure or content could affect program approval from state agencies that oversee higher education (Texas Higher Education Coordinating Board, 2003). Therefore, a new educational delivery method had to support the successful delivery of existing curricula that currently comply with national, state and institutional standards. Module objectives had to conform to objectives in existing courses to insure consistency between the online e-Line delivery model and the traditional lecture model at each institution. Consistency had to be readily visible so that program reviewers would recognize the uniformity of curriculum structure despite the difference in delivery method.

The *eLine* structure that emerged through the adaptation of existing curricula conformed to the rules and regulations that govern both associate degree and baccalaureate nursing education in Texas (TBNE, 2002). Students are admitted to one of the two schools before they are admitted to *eLine*. They pay the tuition and fees required by the institution in which they enroll and earn their degree from the school in which they are admitted for their entry into the nursing profession. The lessons they complete have been designed to support student achievement of learning outcomes essential to nursing practice. Each student’s performance on the NCLEX-RN is reported as an outcome of the specific e-Line institution to which the student is admitted.

Module Development Process

The conceptual model and institutional regulations clearly set the framework for the *eLine* curriculum. Existing courses in the ADN and BSN programs were deconstructed by a team consisting of faculty from both institutions. Because this team was familiar with the courses that made up the respective undergraduate programs, they also acted as an advisory group for faculty assigned to module development. These experts in the essentials of undergraduate education established a program matrix that delineated the relationship of modules to course and program objectives.

Faculty acknowledged by members of the advisory team as content experts in each of the nursing roles were invited to create the *eLine* modules. They were oriented to the *eLine* purpose and organizing framework and then provided substantial training in the use of distance education course management software. A timeline for module completion was developed to insure courses would be available to students when enrollment began. The organizing principle for the module developers was: “Learning Anywhere, Any Time” (Johnston, 2006).

Developer Activities

The challenge confronting module developers was the construction of modules that adequately covered the essentials of undergraduate nursing education with minimal redundancy in content covered across programs. To prevent repetition in content, module developers had to work together to establish a common understanding of the principles that support provider of care, coordinator of care, and professional member behaviors and the extent to which the principles should be examined within a specific module. The unbundling of objectives from courses and their assignment to specific modules required careful analysis of the logic used to organize course content in two diverse programs. Communication between module developers was essential to developing a shared framework for a single curriculum that represented two distinct educational programs.

Basic level modules completed by all *eLine* students had to contain sufficient details about the concepts embedded in the principles of practice so that the ADN students could practice competently in a generalist clinical role. These modules also had to introduce students to theoretical implications of principles of practice to prepare the BSN student for a more extensive examination of content in the BSN required modules. The challenge then, was to design a collection of lessons that assisted students to create an initial foundation that would enable them to care for

individual patients and their families from a limited theoretical perspective.

Module developers had to be familiar with the curriculum structure used in both of the participating educational programs. Planning sessions were held to discuss the content that should be covered at various module levels and to examine potential strategies for presenting content in an online web-based format. Philosophical and theoretical perspectives were clearly explored as faculty worked together to outline the appropriate learning objectives for the modules representing the content common to the ADN and BSN curricula and the content unique to baccalaureate nursing education.

The faculty who volunteered to design *eLine* modules were experienced educators. They brought their knowledge of nursing principles and their repository of clinical and class activities used to support student learning. However, familiarity with course content was both an asset and a deterrent to the rapid generation of modules. The adaptation of lessons to fit the student population (ADN and BSN students) and the distance-learning delivery method required careful consideration. The purpose, the depth and breadth of knowledge about a topic, and the mechanisms required to complete an activity had to be examined to insure it could be performed. Before lessons could be written, developers had to determine the appropriateness of lessons or class activities used in a traditional course for the distance learning format.

Individual module developers engaged in an informal quality review process as they worked on the modules. The transformation of existing courses to modules was an iterative process that required frequent review of programmatic learning objectives, course objectives, and relevant standards of practice to insure the final project would be an effective learning structure. A review of modules that made up each preceding level of the program facilitated the linking of more complex principles to previously learned content. Lessons that complemented previous lessons could be used to increase the breadth and depth of knowledge about a topic when it was clear the foundation had been laid in previous lessons. Generally, the modules took longer to complete than had been initially anticipated.

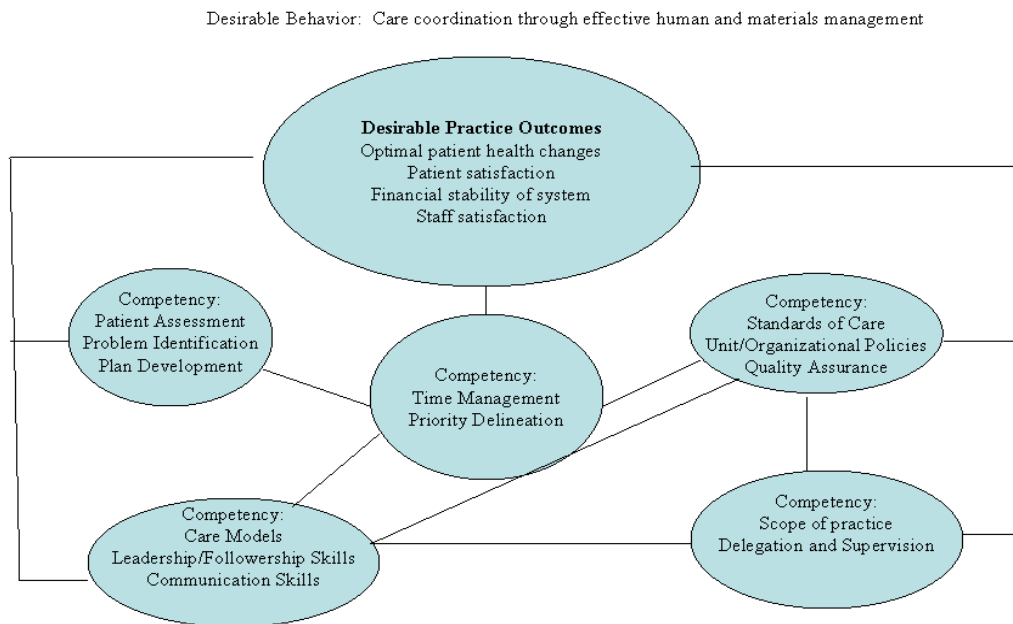
Concept Maps

The primary task confronting each module developer was the creation of a unique collection of lessons and learning activities that covered content essential to undergraduate nursing education using existing course

objectives. The overall characteristics of the curricula for two educational programs had to be maintained but the separate pieces of the curricula could vary so that they functioned well in web-based education. Concept maps provided a useful guide to visually display the links between general nursing principles (essential undergraduate content), program objectives, and entry level competencies (Van Neste-Kenny, Cragg, & Foulds, 1998). Modules that were theoretically linked were grouped together so that students could complete lessons in a way that helped them establish a strong understanding of interconnected principles.

The concept map not only allowed developers to match the lesson content with content covered in existing courses but also to identify the point at which critical concepts should be introduced to students as foundational information for further learning. Figure 3 is an example of a concept map used to depict principles used in the coordination of care across multiple patients. It does not display an exhaustive array of principles that influence resource management in a healthcare organization but it demonstrates the usefulness for organizing course content.

Figure 2. Concept Map Linking Principles for Coordinator of Care Role



The competencies delineated in the TBNE differentiated entry level of model were the starting point for this concept map. The practice outcomes achieved through effective resource management and care coordination

were further specified to insure that the developer considered broad range of organizational factors that influence nurses' access and use of resources. Principles associated with resource management and care coordination were grouped into modules depending on the complexity of relationships represented in the principles. This arrangement enhanced student learning by allowing them to move from relationships that were easily understood to more elaborate system relationships (Schuster, 2002). From this map, the developer was able to determine an appropriate dispersion of content over a group of modules that corresponded with the capstone course for the baccalaureate program.

Critical Supportive Activities

At this point, it should be clear that content experts were critical to the creation of quality *eLine* modules. They were able to unbundled courses into discrete logically coherent units called modules that when completed corresponded to the satisfactory completion of program courses. The use of expert faculty familiar with the *eLine* framework and participating programs facilitated the timely adaptation of courses to modules that fit both the ADN and BSN curricula. Knowledge of module objectives for ADN level content provided a starting point for specifying objectives in the BSN modules that were logically linked to the lower level modules. The objectives could then be compared with the appropriate competencies to verify that *eLine* graduates would have the appropriate entry level knowledge and skills to practice as competent nurses.

Communication among faculty responsible for writing learning objectives, designing learning activities, and evaluating learning outcomes was essential to the timely completion of modules. The *eLine* Faculty Advisory Committee met monthly to facilitate communication among all module developers, program and project administrators, and potential students. They also served as first-line reviewers of modules to identify inconsistencies in content format or potential technical problems. Committee members also worked together to eliminate barriers to the rapid completion of project activities and to outline opportunities to improve student success in this innovative learning environment.

The *eLine* project team included an educational technologist. This individual was responsible for managing the integrity of the module design. A uniform structure was used across all modules to reduce student time spent adjusting to each new set of modules. The common look was also expected to promote a sense of community among

the students and faculty as they progressed through this unique learning experience. Finally, module developers and the Faculty Advisory Committee relied on the educational technologist's skills to devise innovative learning activities that could be delivered through the web-based delivery structure.

The Final Product

The final *eLine* curriculum consists of 107 discrete modules. Students enrolled in the ADN program complete the 81 modules that constitute the ADN course work. Students enrolled in the BSN program complete both the 81 ADN level modules and another 26 modules required in baccalaureate nursing education. Adjunct faculty have been prepared to guide student experiences in clinical laboratory settings throughout Texas. They work in conjunction with many of the module developers who have volunteered to teach the *eLine* component of the existing nursing programs. An exciting outcome to the project has been the strengthening of partnerships with clinical sites that extend beyond *eLine* activities and will support future research and educational activities. The collaborating institutions continue to increase the number of students admitted to their programs without increasing capital expenditures to create additional classroom space.

The first student to complete undergraduate nursing education through the *eLine* alternative earned her Bachelors of Nursing degree in 25 months. She satisfactorily completed the NCLEX-RN and has been offered a position in one of the institutions where she completed her clinical course work. This graduate has enrolled in graduate studies to prepare for an advanced practice nurse role. By every indication, she will be an asset to the professional workforce in South Texas.

The first graduate's performance in the program and passing score on NCLEX-RN provides preliminary evidence that the *eLine* delivery method is an effective alternative to the traditional delivery processes available to most students enrolled in undergraduate nursing programs. The adaptation of traditional courses for electronic learning requires careful analysis of content. A blueprint such as the *Differentiated Entry Level Competencies of Graduates of Texas Nursing Programs* provides a useful framework to examine current curricula and determine their appropriateness for online delivery. Teams of content and instructional experts enhance the likelihood that the final product will support the delivery of nursing program that meets national educational standards. It takes time to uncover the shape something new should take and then actually rearrange it so that it takes on the necessary

characteristics of the new shape without losing its initial quality. However, the pay-off for all participants is in the advancements achieved in professional nursing. The *eLine* collaboration between providers and educators to build a competent nursing workforce is expected to expand as lessons learned through this early venture are applied to new areas.

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