



## Virtual learning environment in continuing education in nursing

*Ambiente virtual de aprendizagem na educação continuada em enfermagem*

*Ambiente virtual de aprendizaje en educación continuada en enfermería*

**Lucia Marta Giunta da Silva<sup>1</sup>, Maria Gaby Rivero de Gutiérrez<sup>2</sup>, Edvane Birelo Lopes De Domenico<sup>3</sup>**

### ABSTRACT

This study is a report of a learning experience that had as objective to describe how was structured the virtual learning environment Moodle for training at work. This is a semi-distance education project for controlling a surgical site infection, oriented to the nurses of a university hospital. The study was organized having as a base the interactionist Skopos Model and on humanist principles. The activities were organized on topics aimed at: informing and updating the central aspects of the topic; generating problematization of situations and extend the individual and collective discussion; promoting integration; and encouraging a joint development of a proposal for action. The Moodle resources helped to select the teaching strategies to update knowledge, to generate ideas, and to promote the integration and collective construction of propositions.

**Keywords:** Education, Nursing, Continuing; Distance education; Quality assurance, Health Care; Surgical wound infection

### RESUMO

Este estudo, dotipo relato de experiência, objetivou escrever como o ambiente virtual de ensino *Moodle*, foi estruturado para o treinamento em serviço. Trata-se de um projeto educativo semipresencial, para controle de infecção de sítio cirúrgico, direcionado aos enfermeiros de um hospital universitário. Foi organizado com base no Modelo Skopos e baseado nos princípios interacionistas e humanistas. As atividades foram organizadas em tópicos direcionados para informar e atualizar os aspectos do tema central, gerar situações problematizadoras para ampliar a discussão individual e coletiva, promover a integração e incentivar a elaboração conjunta de uma proposta de ação. Os recursos do *Moodle* auxiliaram na escolha de estratégias de ensino com a finalidade de atualizar, como também de gerar a exposição de ideias, de promover a integração e a construção coletiva de proposições.

**Descritores:** Educação continuada em enfermagem; Educação à distância; Garantia da qualidade dos cuidados de saúde; Infecção da ferida operatória

### RESUMEN

Este estudio, del tipo relato de experiencia, tuvo por objetivo describir como el ambiente virtual de enseñanza *Moodle*, fue estructurado para entrenamiento en el trabajo. Se trata de un proyecto educativo semi-presencial, para control de infección de sítio quirúrgico, dirigido a los enfermeros de un hospital universitario. Fue organizado con base en el Modelo Skopos y basado en los principios interaccionistas y humanistas. Las actividades fueron organizadas en tópicos dirigidos para informar y actualizar los aspectos del tema central, a generar situaciones problematizadoras para ampliar la discusión individual y colectiva, para promover la integración y, para incentivar la elaboración conjunta de una propuesta de acción. Los recursos del *Moodle* auxiliaron en la elección de estrategias de enseñanza con la finalidad de actualizar, de generar la exposición de ideas y, de promover la integración y la construcción colectiva de proposiciones.

**Descriptores:** Educación continua en enfermería; Educación a distancia; Garantía de la calidad de la atención de salud; Infeción de herida operatoria

<sup>1</sup> Graduate Student (PhD) of the Nursing Post-Graduation Program, Universidade Federal de São Paulo - UNIFESP - São Paulo (SP), Brazil.

<sup>2</sup> Nursing Faculty Member. Associate Professor of the Nursing College of São Paulo, Universidade Federal de São Paulo - UNIFESP - São Paulo (SP), Brazil.

<sup>3</sup> PhD in Nursing. Assistant Professor of the Nursing College of São Paulo, Universidade Federal de São Paulo - UNIFESP - São Paulo (SP), Brazil.

## INTRODUCTION

In the healthcare context, the recognition of a flaw is, or should be, the condition for an immediate decision to be made in order to find the problem solution. According to current healthcare quality management models, educational programs aiming to maintain professionals up to date, bring theory closer to practice, as well as the creation and maintenance of assistance and administration processes that ensure the care giving quality and patients' safety are demanded and monitored by the quality certification agencies<sup>(1-2)</sup>.

The need for a growing number of educational programs and particularly, reaching results that meet the established quality standards, has been favorably forcing the traditionally applied educational model to be reviewed and replaced<sup>(3)</sup>.

Generally speaking, healthcare educational programs followed the same models as the traditional educational model, in which the belief was that contents were transmitted and chosen by an issuer and received by a receptor, with little interaction between them, resulting in the inability of generating favorable environments to discuss the application possibilities of what had been transmitted or formalized<sup>(4-5)</sup>. However, advances have been idealized, implemented and assessed so as to transform such model, based on the assumption that scientific information in the healthcare context grows a lot quicker than what is possible to incorporate to program planning<sup>(6)</sup>.

The innovative permanent education proposals keynote has been the prioritization of educational strategies promoting different areas knowledge integration so as to solve problems and help on the decision making process, through analysis, assessment, and syntheses. That is, the collective and effective subjects' participation concept, for intellectual, affective and psychomotor development is inherent to such proposal<sup>(4-6)</sup>. Therefore, considering the task of sharing data obtained in prior studies indicating a high surgical site infection (SSI)<sup>(7)</sup> level with the participating nurses, besides inadequate assistance and structural aspects in the care provided to women undergoing breast oncology surgery<sup>(8)</sup>, an educational program was planned.

The conceptual base was providing a dynamic program that could be developed online, and was able to trigger thoughts over everyday professional activities, allow the ideas exposure and, further on, favor a collective reconstruction of work processes. Among the available computer resources, the *Moodle* environment was chosen to host the educational project program, due to factors such as interactivity, resources integration, didactic services and communication.

## OBJECTIVE

To describe how the virtual educational environment,

*Moodle*, was structured to host an educational program focusing on the SSI prevention.

## METHODS

The present study is an experience report comprising the construction process of an educational program for nurses working at a gynecology hospitalization unit and the mastology ambulatory of a university hospital, situated in São Paulo (SP), Brazil, to help control SSI. It was based on the Skopos<sup>(9)</sup> model and organized according to *Moodle's* resources, available in the Núcleo de Enfermagem em Oncologia – NEO (Oncology Nursing Center) website, <http://www.unifesp.br/denf/neo/>.

The educational program was idealized and planned between October 2008 and February 2009, after meetings with the Institution Nursing and Medical Boards, and developed from March to September, 2009, with the continuous participation of four nurses from the sectors above mentioned. The study was part of a PhD thesis, whose project was submitted to and approved by the Research Ethics Committee (CEP/UNIFESP-HSP n.o.1486/07).

## DEVELOPMENT

### The educational project

The program was based on the Skopos<sup>(9)</sup> Model, and was divided into the following components: scope, action plan, control plan, and assessment. Such model was chosen due to a clearly defined generator situation, verified through data obtained from previously performed investigations<sup>(7-8)</sup> that subsidized the justification for the educational action, as well as its objectives, expected results and scope. As to the pedagogical model, the educational intervention was based on the interactionism<sup>(10)</sup> and humanism<sup>(11)</sup> principles, aiming to establish dialogue and a fertile environment for the participants to be able to overcome the theory limits and review work processes within another logic, based on the possibility of knowledge reconstruction concerning the aspects surrounding the central theme.

### Educational project operational steps

#### Scope

Structure and nursing assistance process of the mastology ambulatory and the gynecology hospitalization unit of a university hospital.

#### Justification

The educational action assumes professional commitment, so that the current operational conditions are reviewed and collectively built, according to the criteria and agreements established. Thus, the **educational action**

**objectives** were: to discuss data related to the nursing routine and procedures performed in the pre and postoperative periods, for breast cancer patients who had to undergo the surgical treatment; to recognize what complies and does not comply with what is proposed by the literature, such as best practices for surgical site infection prevention; to assess the nursing procedures inherent to the surgical treatment of breast cancer patients; to identify strategies in order to adapt the structure and nursing care process so as to prevent SSI.

The **expected results** aimed to: recognize the complexity and importance of the theme and work to be developed; develop the ability of comparing and transferring scientific evidence to the care practice; utilize quality monitoring parameters to measure the care practice and quality continuous improvement plans.

The **action plan** was exposed to the participants in the first presentational meeting, when they were also informed about *Moodle* and the tasks to be performed, besides the complementary reading suggestions. The option of using printed material was also offered to the ones who did not feel they were able to use *Moodle*. *Moodle* is an environment for learning development with the main functionalities of a Virtual Learning Environment (VLE), that is, tools that allow assessments, opinion researches, questionnaires, tasks, chats, forums, messages, and workshops to be performed, besides being also a space for collaborative texts creation<sup>(12)</sup>.

The **main activities** were divided in nine topics: Presentation and discussion of the Educational Program; Hand Hygiene; Structure and nursing care process, with focus on preventing surgical site infections; Action plan elaboration; Quality and continuous improvement indicators; Collaborative project – analysis and action proposals; Finalization and closure. In each topic, activities were related to: problem identification, cause and effect analysis, and corrective actions planning.

Reading, Thinking, and Answering (RTA) activities were considered to be part of supervised studies, whose texts and questions had been edited by the researchers, generally with summarized data about the problems found in the nurses' work environment, associated to other scientific investigations and regulatory documents in vigor<sup>(13-15)</sup>. The case study and problem-situation activities, elaborated based on real data concerning the participants' work conditions, generated the Reading, Thinking, and Suggesting activities (RTS). As of the problems identified in the RTS, the following step implied prioritizing critical processes and organizing suggestions and improvement actions. In order to do so, the quality measurement tool HFMEA® – *Healthcare Failure Mode and Effect Analysis*<sup>(16)</sup> was explained to the participants during a presentational meeting and a summarized document, with orientation for its elaboration, was posted for consultation.

The HFMEA® tool is an analysis process that demands a multi-disciplinary team to pro-actively assess healthcare processes. The work team uses HFMEA®'s process flow diagram, risk score matrix, decision tree in order to identify and assess possible process vulnerabilities<sup>(16)</sup>. The cause and effect diagram, or Ishikawa Diagram, was also used to graphically represent the main problems identified by the group<sup>(17)</sup>.

Several resources were posted as activities to provide instruments and make the group's participation easier: Fluxograms (n:3) and Spreadsheets (n:3) that had to be filled out by the participants, and *wiki* was chosen for the synthesis text<sup>(18)</sup> construction. In order to obtain a more comprehensive critical analysis, a tenth topic was created, and called "Scientific Evidence". It was comprised of 13 articles obtained from electronic databases. To access *Moodle*, each participant received an access password and was registered in the system, besides a script describing each activity type and orientation on how to access the environment.

The last step, according to the Skopos(9) Model, the **control plan**, aimed to make the formative model operational, based on task suggestions and regulatory assessments of the presented performance and the possibility of reaching the expected results.

The activities that formally or informally enabled the continuous assessment process comprehended: Questionnaires in the beginning and in the end of the educational program, in order to obtain information about expectations towards its fulfillment, experience regarding Online Learning Systems and current expectations; Monitoring of *Moodle* activities accesses and posts; Presentational meetings for the opinions exposure, doubt clarifications and re-orientation for the tasks execution and their availability in *Moodle*.

The route covered by the participants was explained in a timely manner, during all operational steps; and as the program discussed is part of a research project, all participants signed the Informed Consent term, so that the educational project results reported could become a scientific production.

## CONCLUSION

During the educational program construction, the task organization possibilities and resources available in *Moodle*, as educational strategies, facilitated the activities organization and creation processes in each stage of the idealized educational program.

Resources such as the forum and *wiki* facilitated the creation, planning, and execution of supervised studies, case studies, and problem-situations, which are educational strategies that favor a critical and thoughtful posture, and thus were used in the training. The dialogue classes and

summarized documents about scientific updates, or care standards organized by the tutors were posted in different modules in an associate way, so that the professionals were able to amplify the class content readings whenever and wherever they wanted, and thus, have tools to create change proposals.

Because the program was the first experience using educational technology in the institution in question, online activities were mixed with presential meetings for group discussion, orientation, and construction. Studies that provide evidence on the VLE – Moodle usage real

contributions to the operational model described in the present article are certainly important for its validation and improvement.

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