DEVELOPMENT AND USE OF DIGITAL EDUCATIVE OBJECTS IN NURSING TEACHING

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This paper describes a development project of digital learning objects in nursing, and the evaluation of their use by teachers and undergraduate nursing students. The strategies for their development were composed of the following stages: conceptual modeling, development of instructional materials, implementation in a virtual learning environment, and evaluation. This is an ongoing study and preliminary results demonstrate that teachers and students evaluated the design and the content of the nursing digital learning objects satisfactorily, but demonstrate difficulties in using them. The results point to the impact of innovation through the consolidation of the use of educational technologies integrated to the teaching of nursing, as well as a support program for teachers.

DESCRIPTORS: *educational technology; computer-assisted instruction; education; nursing*

CREACIÓN E UTILIZACIÓN DE OBJETOS EDUCATIVOS DIGITALES PARA LA ENSEÑANZA DE ENFERMERÍA

Este trabajo constituye la descripción de un proyecto del desarrollo de objetos educacionales digitales en enfermería, y la evaluación de su utilización por alumnos de la carrera universitaria de enfermería. Las estrategias para su desarrollo se constituyeron por las etapas de modelaje conceptual, de desarrollo de los materiales instruccionales, su implementación en ambiente virtual de aprendizaje y la evaluación. El estudio se encuentra en curso, y los resultados preliminares demuestran que los profesores y los estudiantes evaluaron el diseño y el contenido de los objetos educacionales digitales en enfermería satisfactoriamente, pero demuestran dificultades al usarlas. Los resultados apuntan para el impacto con relación a la innovación, por la consolidación del uso de tecnologías educacionales integradas a la enseñanza de enfermería, así como un programa de ayuda para los profesores.

DESCRIPTORES: *tecnología educacional; instrucción por computador; educación en enfermería*

DESENVOLVIMENTO E UTILIZAÇÃO DE OBJETOS EDUCACIONAIS DIGITAIS NO ENSINO DE ENFERMAGEM

Este trabalho descreve um projeto de desenvolvimento de objetos educacionais digitais em enfermagem e a avaliação da sua utilização junto aos alunos e professores de um curso de graduação em enfermagem. As estratégias para o desenvolvimento de objetos educacionais digitais em enfermagem foram constituídas pelas etapas de modelagem conceitual, de desenvolvimento dos materiais instrucionais, sua implementação em ambiente virtual de aprendizagem e a avaliação. O estudo encontra-se em andamento e os resultados preliminares demonstram que os professores e os alunos consideram os objetos educacionais digitais sobre semiotécnica adequados quanto à sua apresentação visual e seu conteúdo, porém apresentam dificuldades quanto à utilização. Os resultados apontam para o impacto da inovação, que o uso de tecnologias educacionais digitais traz ao ensino de enfermagem, assim como a necessidade de atualização do corpo docente sobre o processo de ensino em ambiente virtual.

DESCRITORES: *tecnologia educacional; instrução por computador; educação em enfermagem*

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INTRODUCTION

Nursing has accompanied the introduction process of computer technologies in education and has been innovating to the extent that it tries to adapt these technologies to its needs, whether in producing websites[1] or educational software[2]. The experiences with virtual learning environments have demonstrated that interactivity is fundamental in the learning process[3]. The hypertexts and images need to meet visual requirements, making them attractive and comprehensible to students, besides permitting the possibility of "navigating" the way they want to and respecting their learning speed[4].

The characteristics described above have been observed in the production of educational elements, which are characterized as being didactic materials that use multimedia and interactivity with computer and communication technology resources, based on a pedagogical perspective[5].

The main advantage in developing educational materials is the fact that they are reusable, that is, they can be available in repository sites on the internet that permit access to and use of these materials by any individual interested in their content. Other qualities include interoperability, a characteristic that allows for their use in different platforms, and durability, because they are independent of the technological base that houses them[5].

In the case of nursing, the development of digital educational objects is a resource that supports face to face learning and respects the student's autonomy, anticipating, by means of virtual simulation, the reality they will find in their future practice[6]. This article aims to describe the elaboration steps of the educational materials and the proposal to assess their use with students at the Rio Grande do Sul Federal University College of Nursing (EENFUFRGS).

DEVELOPMENT OF EDUCATIONAL MATERIALS AND THEIR EVALUATION

A total of 20 digital educational materials were developed: eight hypertexts, eight educational games and four simulations, focusing on semiologic themes in nursing, following the steps of conceptual modeling, implementation and usage evaluation. The pedagogical reference frameworks of problem-based learning and constructivist interactionism were used in the materials conception.

The technologies applied for the development of the educational objects involved image editing (Photoshop®) and authorship (FlashMX®) software, because they offer a wide range of animation and interaction resources, resulting in small files in comparison with other software. The hypertexts, available in the virtual learning environment Teleduc®, explore themes that range from previous knowledge that collaborates in their understanding to complementary reading and review exercises, illustrated by digital images of equipment and procedures stages. The educational simulation and games allow students to virtually execute procedures.

The material evaluation phase consisted of the application of an exploratory descriptive research, authorized by the Institutional Review Board of the University (No 2005482), involving ten faculty and 44 students of subjects that address semiologic nursing content. The questionnaire included items regarding visual presentation, use of the objects and content appropriateness.

Among the results checked so far, it was verified that both faculty and students considered the educational objects in terms of visual presentation and content appropriateness. Both groups presented difficulties to visualize the material and save it on their computers due to the need to install the *plug in* from *FlashMX®* software.

PRELIMINARY CONSIDERATIONS

The project under development has demonstrated the impact of the use of computer technologies integrated to undergraduate nursing teaching and the need for digital inclusion of faculty members and students. It is also expected that the use of computer technologies will allow for a more creative teaching process, promoting more active learning by students in teaching laboratory activities.

Besides expanding the College of Nursing's actions in the implementation of computer technologies in teaching, the development of educational objects for the subject Fundamentals of Human Care III will promote a set of resources that can be shared in the institution by undergraduate, extension and graduate programs, as well as with other interested institutions.

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