

EXPERIENCE REPORT

CONSTRUCTION OF VIRTUAL LEARNING OBJECTS FOR TEACHING THE HISTORY OF NURSING

CONSTRUÇÃO DE OBJETOS VIRTUAIS DE APRENDIZAGEM PARA O ENSINO DA HISTÓRIA EM ENFERMAGEM
CONSTRUCCIÓN DE OBJETOS VIRTUALES DE APRENDIZAJE PARA LA ENSEÑANZA DE LA HISTORIA EN ENFERMERÍA

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Submitted on: 2013/11/12

Approved on: 2014/08/18

ABSTRACT

The aim of this study was to describe the development of virtual learning objects for teaching the History of Nursing. The object produced was applied to 30 nursing students attending the History of Nursing discipline at the undergraduate program in Nursing, in a university in the countryside of São Paulo, in 2013. The methodology of definition, architecture, *design*, and implementation (DADI) was used in the development and combined with resources from the Prezi® platform. This tool enabled the creation of virtual learning objects aiming at facilitating the active, innovative, and problematical learning. This study contributes to the adoption of educational practices based on the use of information technologies, enabling new perspectives for the History of Nursing education and reflection on the professional identity.

Keywords: Education, Distance; History of Nursing; Information Technology; Teaching

RESUMO

O objetivo deste trabalho foi descrever sobre o desenvolvimento de objetos virtuais de aprendizagem para o ensino da História da Enfermagem. O objeto produzido foi aplicado na disciplina História da Enfermagem, no curso de graduação em Enfermagem, aos 30 estudantes do curso de Enfermagem, em uma universidade no interior de São Paulo, no ano de 2013. No desenvolvimento foi utilizada a metodologia definição, arquitetura, design, implementação (DADI), combinando os recursos na plataforma Prezi®. Essa ferramenta possibilitou a criação de objeto virtual de aprendizagem, visando à facilitação da aprendizagem de maneira ativa, inovadora e problematizadora. Este estudo contribui para a adoção de práticas educacionais pautadas no uso de tecnologias de informação, possibilitando novas perspectivas para o ensino da História da Enfermagem e reflexão sobre a identidade profissional.

Palavras-chave: Educação à Distância; História da Enfermagem; Tecnologia da Informação; Ensino.

RESUMEN

El objetivo de este estudio fue describir el desarrollo de objetos virtuales de aprendizaje para la enseñanza de Historia de la Enfermería. El objeto producido se utilizó en 2013 en la asignatura Historia de Enfermería con 30 alumnos del curso de grado en Enfermería de una universidad del interior del Estado de San Pablo. En el desarrollo del objeto fue utilizada la metodología DADI (Definición, Arquitectura, Diseño, Implementación), combinando los recursos en la plataforma Prezi®. Esta herramienta permitió crear un objeto virtual con miras a facilitar el aprendizaje de forma activa, innovadora y problematizadora. El presente estudio contribuye a la adopción de prácticas educativas basadas en el uso de tecnologías de la información, permitiendo nuevas perspectivas a la enseñanza de dicha asignatura y reflexionar sobre la identidad profesional.

Palabras clave: Educación a Distancia; Historia de la Enfermería; Tecnología de la Información; Enseñanza.

INTRODUCTION

The use of information technology in education is in full development demonstrating that the use of information technology resources constitutes a facilitator mean for learning.¹

Faced with the rapid evolution and social and economic transformations, internationalization of markets, new information technologies, and knowledge and changes in employment and worker profiles, the Distance Education (DE) acquires a new dimension. It is configured as an alternative to reduce barriers and overcome geographical barriers, facilitating the access to knowledge and advancing professional training in Brazil and in the world. The importance of this modality has increased progressively motivating spheres in the government involved in regulations for the implementation of DE, such as Ordinance nº 4,059 from 2004, which states that 20% of the total workload in a face-to-face course can be taught remotely.²

This modality is offered mostly by private institutions within the framework of the institutions of higher education. Although DE favors the inclusion of the student, it is noted that the level of learning is similar between the face-to-face and distance courses.³

In the field of nursing, the research and development of information technology solutions and education gained expression after the publication of the book entitled "Informatics in Nursing" and has been growing as a knowledge area with a large number of published studies.^{4,5} In DE, the use of resources, discussion, and synchronous and asynchronous communication such as *chat* and virtual forums are evidenced. In this scenario, the formation of study groups and research about the use of technology in nursing contributes to the advancement in the area such as scientific productions from scientific sites and research groups, such as the Group of Studies and Research on Information Technology in Work Processes in Nursing (GEPETE).⁵

In line with these advances, changes in educational programs, both undergraduate and graduate, have incorporated several technological tools highlighting that the process of informatization in nursing education is the current reality benefiting teaching and learning. However, it is a process that requires skills to work with new tools, a new vision of education on the part of teachers, and other forms of computer use, which vary according to the concept of education embedded by the teacher.⁶

New generations of students, as digital natives, present peculiar characteristics, manage technology with extreme ease, speed of thought and reasoning, which makes them impatient and slightly stimulated before traditional teaching strategies. This question is challenging to teachers, who mostly were not born in the digital age, and as digital immigrants need to become updated and teach differently and more dynamically using active methodologies.

Among the available technological resources, the development of virtual objects presents numerous advantages in Nurs-

ing education such as the expansion of educators' upgrading processes and facilitation of school performance of students.⁷

Learning objects (LO) are computer-based instruction elements that can be reused in many contexts, in teaching and learning.⁷ They are also known as instructional, educational, smart, of data, and virtual learning objects, and have characteristics that favor their use in the educational area.⁸

Flexibility is highlighted in the characterization of LO because once constructed in simple forms they can be reused, without cost or with low cost of maintenance. The **interoperability** allows compatibility with any teaching platform in the world through the standardization of computerization systems. The **reusability** is possible when the same object can be reused in different areas by various professionals, in different contexts, favoring customization. Because LOs are independent, they can be used in one course or in several courses at the same time, arranged in the most convenient way. With this, the updating can be performed in real time if the data related to the object are gathered in the same information database. The definition of the information storage standard needed for indexing LOs facilitates the search for material and its accessibility; after creating the object, the organization of the data needed for building metadata promotes its localization.⁸

To facilitate access, the produced LOs can be stored in repositories, although some institutions opt for keeping only the metadata and access *links* in reference repositories.⁹

The present study aimed to describe the experience of developing virtual learning objects for teaching the History of Nursing.

METHODOLOGY

This study is the a experience report based on the technological production used for the construction of virtual learning objects, presented in 2013 to 30 students regularly enrolled in the Nursing History discipline that makes up the curricular matrix of the Nursing degree. The discipline is taught in the first semester, between the months of February and July, weekly, with an average duration of 20 weeks or five months in a private institution of higher education located within the State of São Paulo.

In the curricular matrix composition in this institution, the face-to-face education is complemented with courses offered in a distant mode. Thus, the discipline History of Nursing has a total workload of 40 hours and it is being taught in a hybrid way with 30 hours in the classroom and 10 hours of supervised practical activities.

As an educational reference, when it comes to adults, this study was guided by assumptions of Andragogy. In this perspective, educational activities are primarily focused on learning; education; many adults find it difficult to concentrate in lectures

but can focus at length on research and studies when interested. They share experiences, problematize, and decide on what they want to learn. The adult is not satisfied with closed curricular organizations and depend on inner motivation for learning.¹⁰

In the face of such findings, we decided to use innovative features in the construction of knowledge by students, centered on the construction of virtual learning objects as facilitators of learning, as a new approach in the discipline History of Nursing, though theoretical in nature, it can be glimpsed under the optics of technology promoting the understanding of the historical trajectory of Nursing and its evolution.¹¹

The construction of learning objects based on the DADI methodology allows the organization regarding the division of labor, gathers information, chooses the *layout*, and implements programming. This benchmark presents four stages called definition, architecture, *design*, and implementation as described below.¹²

DEFINITION

In this stage, the topics of interest, goals, feasibility study, budget, and planning the educational proposal are predicted.

In this study, the curriculum of the university was the basis considering the scope, technologies to be used, disciplinary contents related to the History of Nursing, and profile of students because they were college students with digital fluency, knowledge and resources for internet browsing, and access to virtual classrooms.

Authors and relevant bibliographic reference sources on the History of Nursing were identified; the survey and collection of texts, images, and illustrations selected for the composition of the work followed.

It is necessary to evaluate the value and meaning of each material found in this historiographical process, articulating the chaining of facts, requiring time, patience, and clarity on the objectives to be achieved beyond wandering through facts from the past to be presented as a portrait of the profession's memory.¹³

Images available in various internet sources were used in the construction of virtual objects, properly cited in the prototype, according to established *copyright* rules, although the majority was free content. The combination of images and information with the referenced methodological applications resulted in 170 structures (*frames*), of which, 30 were selected for inclusion in this construction.

After juxtaposition of images and information, the next step was the creation of a method for information assimilation and retention. Questioning was the strategy used to promote the thinking and critical analysis by the student to exercise the development of skills and ability to solve proposed problems.

The use of images has been fostered in the educational spheres as an object of interest within DE, adopting several

media tools. In this perspective, the imagery culture has been configured in defiance in the perceptive field, understanding thinking in a more complex concept of representation. The way each subject receives and responds to each object, fact, or image is part of the construction of life story.¹⁴

Thus, the knowledge on semiotics and imagery enhances the adoption of resources that allow the student, in this case, to understand the chronology of the History of Nursing, valuing the advances and achievements in the area, reflecting on his own performance as a future professional.¹⁵

ARCHITECTURE

In this step, the structuring of information, user interactivity, and navigability is pondered to facilitate the access to information.

We decided to use the Prezi® platform due to the ease of access and free option, without costs to the developer and user, and its attractiveness, favoring an embracing the experience of teaching and learning as more dynamic and attractive.

Prezi® is a system available to people with access to computers (*desktops* or *laptops*) if the *Adobe Flash Player*® software is installed on the internet browser. Is a useful tool to assist or produce professional presentations of lectures or classes, whose differential is the eye-catching of users through effects of depth or "zoom", featuring "*zooming presentations*", approaching and distancing the content, combining several features such as images, audio, and video. It is compatible with devices equipped with a "*touch screen*" feature, easily connected with multiple social networks, enabling interaction with different multimedia. The platform has predefined architecture; however, the developer can also create his own.

In this stage, the assessment of *frames* in the *timeline* was analyzed i.e., the sequence in which each component would be structured to make sense in a chronological line about every historical period in the History of Nursing, while the user navigates through the virtual learning environment.

DESIGN

In this step, the information is arranged in such a way as to facilitate viewing, with the definition of the type and font sizes, disposition of images, and style guide.

Thus, in this study, the first phase of the process was transferring the information found in basic references for DE content using thematic related images, selected with quality digital graphics (pixels) in *High Definition* (HD).

Rules for the organization and distribution of selected contents were established in which hierarchical structure was considered the typographical elements pertaining to the *de-*

sign. Digital characters were maintained as attractive as possible, avoiding excesses in visual communication or confusion in the interpretation of messages by the user. The texts were set to keep a relationship with the images, evaluating proportions, use of harmonic colors, featured titles written with fonts that encourage easy reading and readability, as well as the writing of short texts, integrated by digital resources.

In addition to the virtual tools in Prezi[®], the following applications were also used as complementary resources to produce images: PowerPoint[®] 2010; Adobe Fire Works CS4[®]; Adobe Flash Player[®]; Corel Drawn 15[®].

The History of Nursing is a disciplinary component that is integral to the education of Nursing students in which a variety of bibliographies is studied about historical facts of the profession. Much more than a timeline, the opportunity is valuable for the student to understand the evolution and building processes related to Nursing until the present moment and future prospects. Actively, the student learns to interpret the different influences from the political, economic, social, and cultural scenes in the deconstruction and reconstruction of Nursing, breaking old paradigms and concepts and practices, in a liberating way, obtaining awareness as a subject in the historical process of the future profession.¹³

In this process, the notion of responsibility becomes more significant when studying through distant learning that is presented in an attractive and interactive way with images, videos, audios, movies, songs, poems, and other elements of art. Thus, the student begins to feel involved as part of the context, with the impression of entering the past; this mobilization promotes new student involvement with their future profession when they learn its origins. It is necessary to contemplate such contents in the History of Nursing as a guiding element in shaping the future professional, to learn to value past achievements, recognizing and strengthening the social and political force of Nursing in society.¹³

IMPLEMENTATION

This is the final step of the project in which all the functions are tested. Every detail must be tested, all the *links* must be clicked, navigability and interface must be verified. Subsequently, dissemination is prepared so that everyone can benefit from the project.

From the elements of programming and navigation testing in the interface, server, and address generated for *online* storage, the great advantage of the platform used consists in its automatic implementation.

The *link* for content access was disclosed for student participation in a virtual learning environment along with guidelines for the study of disciplinary bases.

Prior to the development of the virtual learning object, the discipline History of Nursing was taught with a full load of 40 hours, being 30 hours of class attendance with the development of theoretical subjects in the classroom and through traditional methods of expositive and dialogued lectures and 10 hours of the extra-curricular study through readings, resolution of exercises, and directed studies.

The present proposal for developing virtual learning objects to deliver content *online* was innovative and of great importance for refocusing the structure of the discipline History of Nursing. These virtual classes were developed to support pedagogical activities and stimulated the extra-curricular study, allowing students to navigate freely in the virtual learning environment, to take ownership of the contents on the subject, and execute the proposed activities on the problematization of contents for the solution of exercises and case studies with a view to learning.

Because of the expressive student adhesion and positive responses before the proposal presented during classes that followed in that semester, in the said university, the possibility of articulating a new process of design and adaptation in teaching the discipline History of Nursing and of others too to be taught in DE or in a combined mode of face-to-face moments in the modality *blended learning* was presented.

In this scenario, this study contributed to the adoption of new educational practices based on the use of information technologies, allowing for reflection on the alignment of educational objectives, training for professional skills, student profiles, and nursing education.

This type of experience contributes to the field of education and growth of information technology in Nursing that acts as a facilitating instrument in teaching, practice, assistance, and management of care, therefore, bringing new challenges and perspective of performance and growth for Nursing professionals, whether in direct patient care, in research, or in teaching to encourage students in the pursuit of knowledge with quality.¹

Several authors show that computer technologies are applied in DE with attention and recognition in the academic and professional settings. Learning and teaching assume new dimensions, more dynamic, assisted by visual resources whose demonstrative and elaborate images implement specific topics in the thematic approach with richness for the assimilation of information.¹⁶⁻¹⁸

Learning objects have been increasingly developed to incorporate digital resources in teaching, supporting one or more types of files that may contain graphics, text, audio, animation, and interaction and can be also used in individual learning experiences.¹⁹ The OVAs are an active and constructive strategy for teaching and learning because they can be reused several times in different learning contexts.⁷

The teaching of History of Nursing in *blended learning* modality is of great importance in the formation of nurs-

es because it favors the development of capacity for reconstruction of common sense visions and of new computerized pedagogical practices through the creation of virtual learning objects. It facilitates the problematization and better understanding of the profession and the professional identity of those who will work in it. Thus, the incentive to students in learning the History of Nursing through new methods of teaching elucidates the context, understanding of the current reality, professional culture, and contributes in the formation of a critical and reflective conscience in the role of the nurse for the transformation of reality.¹³

CONCLUSION

Informatics in Nursing contributes to the field of education and as a facilitating tool in teaching and research, in practice, assistance, and care management.¹

The present study aimed at the development of virtual learning objects to support the discipline History of Nursing in times of distant study using technological resources available of free access to the developer and student.

In the analysis of memory and history, we sought to reconstruct the temporal continuity of the most relevant facts and certainly the perception and experience of the historian who influences this structuring. Therefore, it is necessary to clarify the student about the different optics of facts and how much the future professional needs to take ownership of this knowledge to build their interpretations, their own professional identity, and be the subject in their own worldview not running the risk of knowing reality through the perception of other.²⁰ This study is the expression of an educational project that acted as a facilitator in live classrooms and propellant to motivate the Nursing student to continue learning in a virtual environment.

As needed, the produced objects can be re-used in different proposals and in other disciplines favoring the inter-disciplinary aspect in the training of nurses.

As recommendations, this study allows developments to determine other applications in the built work, get results and measures of student performance, and know the perception of students and teachers as educational indicators in learning to be investigated in future researches.

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