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# Education digital libraries management

Education digital  
libraries  
management

## Sharing the experience of UNICAMP education faculty

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### Abstract

**Purpose** – This work aims to report the experience of implementing a university digital library by introducing all the technical/administrative and scientific production in the education field.

**Design/methodology/approach** – The paper describes the process of conception, information architecture, the steps and methodology for structuring and establishing of the Digital Library of the Faculty of Education of the State University of Campinas (BDE – FE/UNICAMP), with the partnership of the UNICAMP Libraries System (SBU/UNICAMP), which manages the Nou-Rau software and stores the Digital Library of UNICAMP (BDU). It also identifies the skills and abilities the information professional must have, concerning the definition of criteria for the evaluation and selection of documents to be scanned, and establishes management procedures for the implementation of services derived from this new tool for retrieving information in the educational area.

**Findings** – The paper finds that the constitution of a multidisciplinary staff and the skills and abilities required of an information professional involved in designing digital libraries is the object of discussion in several forums. The technical-scientific skills are the most important ones, since this professional must be able to act in a changing environment, from an analogical to a digital culture. The attitude of the information professional, always related to a strictly technical situation, observed along this career's development, also goes through changes, and demands a professional who is a manager, a leader, visionary and strategist or, in other words, a real agent of changes.

**Originality/value** – The purpose of the BDE – FE/UNICAMP is to store and make electronically available to users the production of professors, students, employees (technicians) and the administration staff, generated within the Faculty. The implementation of this source of research, therefore, meets the expectation of the users and helps to spread the information.

**Keywords** Digital libraries, Information management, Information literacy, Brazil

**Paper type** Case study

### 1. Introduction

It is clear today that digital libraries are well established in institutions of higher education in Brazil. The scientific production and researches developed by the academic community demand real time procedures of validation, confirmation and dissemination of the information produced, due to the importance of speed in knowledge communication.

The arrival of the electronic information society has drastically changed the time and space delimitation of information. The emergence of information technology tools



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provided the necessary infra-structure for changes with no return, in the relationship between information and its users (Barreto, 2006).

This perspective refers to the role played by this information storing and spreading tool – the digital libraries – that have become fundamental to allow simultaneous interactivity. At the same time, digital libraries are responsible for the real time access to information, “[...] and give access in multiple ways of interaction between the receiver and the information structure contained in this space” (Barreto, 2006). The context described gives start to the discussion proposed in this article, reveals the concern with the building of digital libraries models, information stocks reservoirs, as well as the way users will have access to this documentation, as stated by Barreto (2006).

The information flow between the digital stocks and the receivers comprises two criteria: that of information technology, which aims to make possible the widest and best access available; and the information science criterion, which intervenes to qualify this access in terms of users’ individual competencies to assimilate the information.

The responsibility for the information science criterion is up to the information professional, who will navigate the “non-presential spaces,” adding new abilities and competencies to the “traditional tasks of the occupation.” These are necessary to manage a digital library architecture, as well as to select the informational contents that will be available to users.

## 2. Digital libraries – a brief concept

According to da Silva *et al.* (2006), the subject digital library is a frequent theme on information science and librarianship journal articles and communications on events. To emphasize this, the authors mention the publication of a special issue of *Information Science* in 2001 and the International Workshop “Information Policies on Digital Libraries” which took place at UNICAMP in 2003, as an example of facts that reveal the importance of this discussion nowadays.

For this reason, some authors made the most of the concept of the digital library, sometimes comparing it to an electronic library. The difference between these sources of information is that the digital library puts the full contents of documents at users’ disposal as they are already digitized; in its turn the electronic library, because it is completely automated, offers services online for users (Machado *et al.*, 1999).

The scanned collections are analyzed by some authors.

Zang *et al.* (2001), consider the digital library as a way of presenting collections that can be scanned and stored in several types of media, such as floppy and hard disks or tape and compact disc. Pereira and Rutina (1999) quoted by Santos (2005, p. 281), state that the digital library is the one that, besides the catalog, has “[...] texts of documents of the collection stored in digital format, so they can be read from the screen of a computer or imported (downloaded) to the hard disk [...]”. The permission to read documents and the possibility of downloading are the main characteristics of digital libraries at the moment, when the focus on digital inclusion and the virtual world access expansion prevails.

To Rosetto (2003), the digital library is the one that considers documents generated or transposed to the digital (electronic) environment, an information service (in all sorts

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of formats), where all the resources are available in the form of electronic processing (acquisition, storing, preservation, retrieving and access through digital technologies).

The scientific and technological development in Brazil happens at the same time as the establishment of digital libraries in different fields of activity. They become a tool for knowledge access, sharing and cooperation, which allows all the scattered and disorganized information available from the internet to be selected and stored, creating a channel of relevant information distribution with good quality.

### 3. Digital library of education

The Education Digital Library of UNICAMP (BDE/UNICAMP) was conceived in July 2006, aiming to store and make the scientific and technical production of UNICAMP Education Faculty researchers electronically available in its architecture, according to technical norms.

In the scope of a university where the principles of action are to stimulate teaching, research and specialization, the digital library becomes a proactive deed to offer the academic community the opportunity to regularly publish their work through web systems, spreading knowledge, optimizing the scientific communication flow and reducing the cycle of new knowledge generation (Vicentini, 2006).

It is a small-sized digital library with an access link on the homepage of the Digital Library of UNICAMP (BDU/UNICAMP), a service offered by UNICAMP through its library system. The management of this system is available through an open software conceived at the University, called "Nou-Rau." It is based on the Linux operational system, Apache WWW server, PHP language and PostGress data.

BDE has four distinct parts to arrange bibliographic supports distribution. They comprise a repository of digital contents of all the UNICAMP Education Faculty production.

#### 3.1. Architecture of the Education Digital Library (BDE) – methodology

The architecture of BDE was developed according to the BDU's architecture, which hosts the access link to the Education Digital Library. Its structure is composed by four large groups as in the Digital Library of UNICAMP's architecture, namely professors' production, students' production, technical production and administrative production:

- (1) Professors' production – works of professors of the Education Faculty.
- (2) Students' production – works of students of the Education Faculty.
- (3) Technical production – works of technical support of the Education Faculty.
- (4) Administrative production – works of administrative collaborators of the Education Faculty.

Besides this division by authors of works, the BDE's architecture is divided in four levels:

- (1) *Main topic*. This shows the BDU's homepage, where the Library's content is listed. At this level is the access link to BDE.
- (2) *Subtopic*. This describes BDE's content, where four large groups, including the Faculty of Education's intellectual production (professors, students, technical and administrative) can be found.

- (3) *Subtopic*. This describes the organization from A to Z, of producers of the works introduced in the Library's database.
- (4) *Subtopic*. This describes the distribution of material types (article, book scrap, chapter, etc.) as they are registered in BDE's catalog structure.

Figures 1-3 show the steps to access the intellectual production of FE/UNICAMP in digital format, in the same environment as BDU.

#### 4. Management of the education digital library – procedures

It is possible to build digital libraries, provided that there is a proper plan, knowledge of informatics language, and the suitable software environment to manage the processes.

Regarding the requirements for digital libraries management, Vicentini (2006), emphasizes the following items, considered ideal for planning:

- (1) *Collections/contents*.
- (2) *Human resources*:
  - multidisciplinary staff; and
  - training.
- (3) *Standardization*:
  - metadata;
  - MARC;
  - format of digital archive; and
  - digitization patterns.

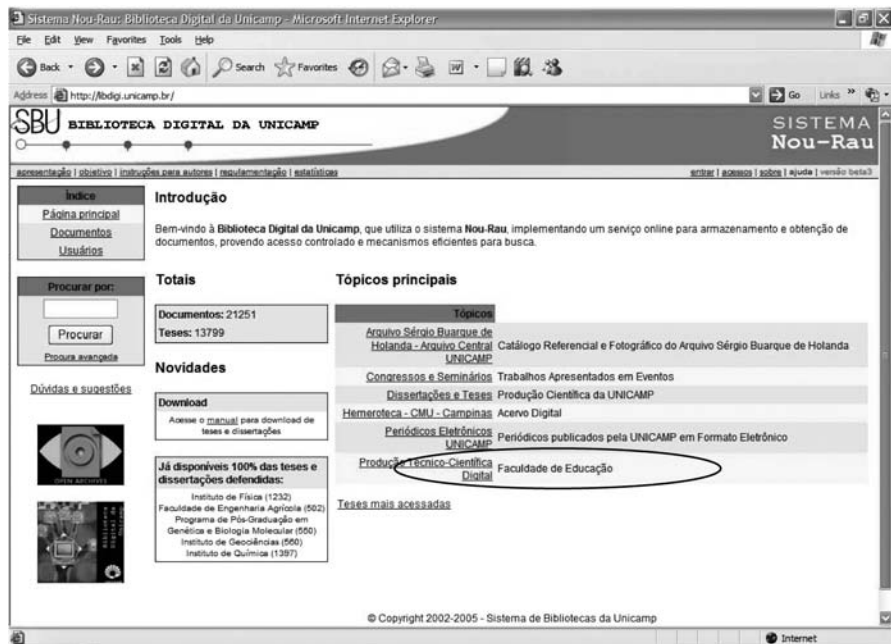


Figure 1.  
BDE main entrance from  
BDU web site

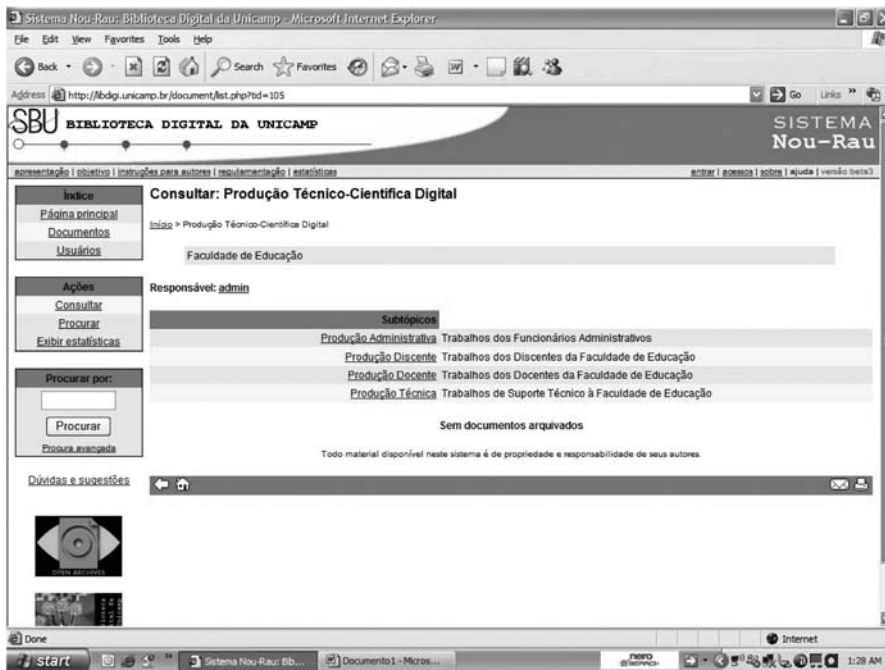


Figure 2.  
Main screen with BDE's  
production levels

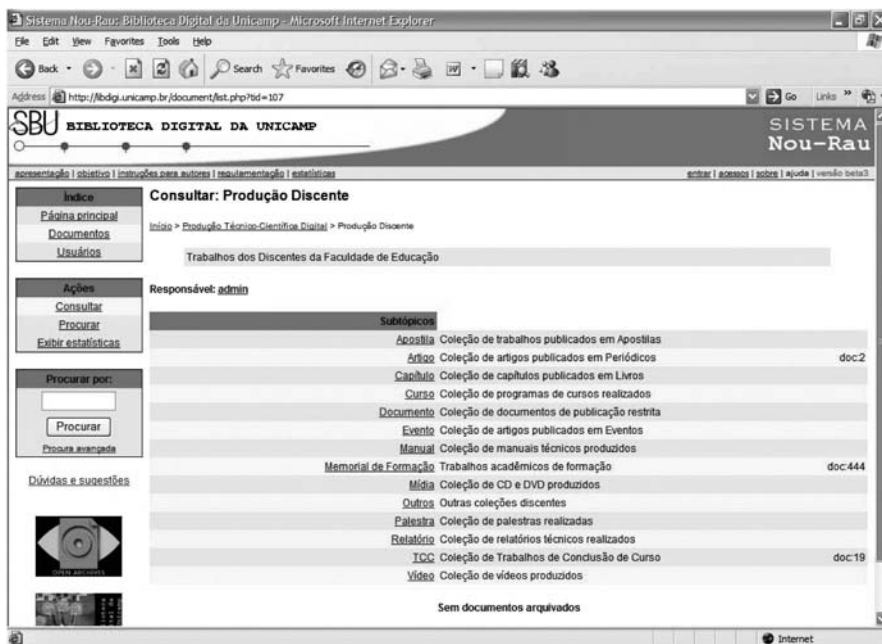


Figure 3.  
Access screen with the  
types of materials  
included at BDE

- (4) *Technology:*
  - Hardware.
  - Software:
    - open; and
    - proprietary.
  - Flexibility of development.
  - Programming language.
  - Use of protocols of communication to import and export data.
- (5) *Digitization.*
- (6) *Authorship warranty right.*
- (7) *Digital document preservation.*

Observing these basic requirements, the management of a digital library will be suitable to its principles of an information professional, with the necessary competencies and abilities to run an academic or public cyberspace, in an education institution or not.

In this context, BDE followed every step suggested in the Faculty of Education Digital Library planning and management, becoming the first academic library to own a logical content organization, distributed by the type of technical-scientific production.

To add value to the BDE's indexed information, therefore, all the materials were classified according to the Dewey Decimal Classification (DDC), aiming to make it easier for users to memorize subjects linked to the traditional collections in the sense of technical organization.

## 5. Final considerations

Considering the new time of traditional libraries, when new services and tools are introduced in daily routines, concerning digital library management, the role of librarians acquires a magnitude that demands additional qualified knowledge about appropriate technologies, learning and interaction with several kind of organizations, people and institutions dedicated to the production, communication and diffusion of information in a larger geographic space. (Santos and Passos, 2004).

The digital library was the chosen means to disseminate and preserve a collection in continuous growth, mainly because of the possibility of expanding the limits of access and use of information beyond time and physical space of traditional libraries (Pavão *et al.*, 2005).

To Vicentini (2006), one of the agents that benefits the development of a digital library is the composition of a multidisciplinary staff involved in the project, taking into consideration the following aspects: human resources (people specialized in the use of equipments and specific knowledge to develop the tasks); technological resources (acquisition of the right equipments and outlining economic resources); and motivational resources (incentive to the staff and collaborators for the development of the digital library product).



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The competencies and abilities of the informational professional have been the subject of discussions in several forums. Competencies were classified in 2002 in four main categories:

- (1) communication and expression competencies;
- (2) technical-scientific competencies;
- (3) managerial competencies; and
- (4) political competencies.

Regarding the abilities demanded from this professional to develop digital libraries, the technical-scientific competencies are emphasized, since this professional must be able to select, register, store, retrieve and diffuse the recorded information to any electronic media; he or she must also use and disseminate information sources, products and resources in different supporting systems, and establish plans and execution of studies, as well as the training for the information users.

The competencies of the information professional in the digital libraries' planning and operation, therefore, are necessarily associated to the discussions about the deep changes from the analogical culture to the digital culture, as well as about the change of attitude of the information professional related to the technical conditions, observed along this career's development. The present circumstances in information units, however, demands someone who is a manager, a leader, a visionary and strategist professional, in other words, a real agent of changes.

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