Cooperation in the area of technology among Mexican digital academic libraries

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Abstract

In this paper researchers examine the current status of cooperation between Mexican digital academic libraries in the area of developing technological applications to improve operational performance. The study is based on a previously developed theoretical digital library model, in which the technological variable serves as a starting point to learn how to enhance cooperation between academic digital libraries in Mexico. The results help shed light on the degree and nature of cooperation between academic digital libraries in Mexico.

Keywords: Academic Digital Library; Mexican digital libraries.

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Resumen

La cooperación tecnológica entre bibliotecas digitales académicas de México
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Se analiza si existe cooperación entre las bibliotecas digitales académicas mexicanas para desarrollar aplicaciones tecnológicas que ayuden en el mejoramiento de sus actividades. El estudio se basa en un modelo teórico de la biblioteca digital previamente armado, en donde la variable tecnológica sirve como punto de partida para conocer cómo se establece la cooperación entre las bibliotecas digitales académicas de México. Los resultados que se arrojan ayudan a conocer cómo se da la cooperación entre bibliotecas digitales académicas en el contexto mexicano.

Palabras clave: Biblioteca Digital Académica; Bibliotecas digitales mexicanas.

Introduction

This research provides information on cooperation in the area of development of technological applications.

Two methodological aspects, the theoretical and the empirical, are examined in this paper. The theoretical facet is based upon a digital library model (DL) resulting from immediately preceding research, in which the elements comprising the digital library were established. The empirical facet employed a social network methodology in order to obtain a map of the cooperation relationships among Mexican digital library academic personnel aimed at developing applications useful to libraries.

The development of technologies for digital libraries

It is important to begin with the definition I have proposed for a digital library (DL):

The digital library is a library that sustains an online document information system providing users both content and digital services.[1]

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1   This definition has already appeared in previous papers. See Georgina Araceli Torres Vargas, *Un modelo integral de biblioteca digital*.

The digital library consists of the following variables:

1. Communication and information technologies needed for accessing to DL collections.
2. Organized digital contents, distributed across diverse network levels, with distinct levels of accessibility. They can be simultaneously local and shared.
3. Digital services provided and managed in cooperation with other libraries.

In this case we are concentrating on the technological element. Though the technology is not at the center of the development of a digital library, it is undeniable that is holds considerable importance. The construction of a digital library depends in large measure on the advances in communication and information technology.

It is not; however, desirable to implement technologies simply because they are novel. It is important to analyze the purposes these technologies pursue in the development of collections and services, which as mentioned before are the other variables which provide structure to a digital library.

Moreover, it is well known that the TIC implemented appear in diverse contexts and that most of the time they are not devoted to the library. This is why it is increasingly important to develop technologies focused on the digital library, where new, better and streamlined library services and uses of digital information can thrive.

The development of technologies for digital libraries would help achieve harmony with the other variables or components of the library, but these would be directed expressly at supporting the specific needs of the user population.

With regard to academic digital libraries, it is important to learn about the use of the information required by the professor, researcher or student, in order to direct efforts toward the design and implementation of appropriate technologies. But in this case, it is necessary not to lose sight of the social focus, in which not only the tools are considered, but also contents and services. To achieve this is one of the most important objectives of all libraries, whether digital or traditional. The service rests on the collections, which in turn are determined by the information needs of the community.

The development of technologies for digital libraries is a topic that has not been duly analyzed. Most of the literature examines technologies that have been adopted in the heart of libraries; and, if on occasion innovation is discussed; it is understood erroneously, construing it merely as a matter of using the latest technology in the library

But innovation must be understood as a process comprised of stages (scientific, technical, commercial and financial, as warranted, aimed at the development and commercialization of new products or improved processes); and it implies the use of new or improved practices and equipment, or the introduction of a new service.[2] The process of innovation concludes when the product is introduced to the market or when it is used.[3]

In the case of libraries, innovation can be much more visible in the services than in any other area, but it is also necessary for internal processes and other aspects of library work. In this sense, Merlo's categorization[4] is useful for identifying possible technological applications for digital libraries. Observing the areas in which technological innovation can be developed is also key:

- Collections development (in the DL this can mean the creation of digital contents).
- Organization of collections
- Dissemination of collection
- Professional activity

Digital services would be added to this list. In each of the aspects it is necessary to examine everything from identification of needs to development and implementation of library innovations. This task can be carried out cooperatively, especially in the understanding that in the context of the digital library the task entails working in digital library networks.

A large part of the cooperation between digital libraries[5] is done through consortiums[6] which prioritize the acquisition of digital content and access to software packages.[7]

These consortiums exhibit the following features:

- They are created by means of a formal agreement between participating institutions, with signed commitments.

2   Manuel Ruiz González, *La innovación tecnológica y su gestión*, 14.
3   *Ibid*., 20.
4   José Antonio Merlo Vega, "50 aplicaciones bibliotecarias en Internet".
5   Anglada states that cooperation is the establishment of strong ties between libraries that have common features (proximity, typology or specialization). Cooperation entails not only sharing ideas but also resources. *Cfr.* Lluís M. Anglada i de Ferrer, "Colaboraciones y alianzas: la inteligencia social aplicada a las bibliotecas universitarias".
6   The consortium is a partnership established by a group of libraries for the purpose of developing and sharing the resources among all of the members in order to improve library services and the breadth of resources available. *Cfr.* Heartsill Young, *Glosario ALA de bibliotecología y ciencias de la información*.
7   Miquel Térmens Graells, "Los consorcios, una nueva etapa de la cooperación bibliotecaria".

- They design a joint plan.
- They have organization and control systems to ensure attainment of objectives.
- It has been observed that consortiums do not carry out the work jointly when seeking to development technological applications.

In this regard in Spain, Anglada said that the weakest point of the library consortiums is perhaps the lack of innovative informational support for developing projects. This researcher emphasizes[8] the need to establish effective collaborations within universities allowing progress keeping pace with technological advances and innovations in service.

In regard to these, one might mention a study[9] detailing how the digital library does not have its own services, but rather has developed services aimed at bolstering those offered in conventional libraries. That is, even now more than a decade after the appearance of the digital library, the leap to establish a digital universe of services distinct from the print universe has yet to be made. In addition to this area, support technology must be developed for those facets of the library cited by Merlo.

In Mexico the consortium of academic libraries has not attained the promised benefits, especially because of the lack of commitment to strengthen the consortium itself, which is manifested in unequal contributions.[10] This imbalance comes about no doubt because member libraries view their contributions in terms of budget allocation, when it is clear equity of participation can only happen through the contribution of many other components not associated with money.

Uriarte points out that: "[…] the goal of library consortiums […] goes beyond joint acquisition, donations, inter-library lending or the retrieval of documents […]"[11] and exhorts consortium members to face the new changes and innovations arriving from the realm of digitized information. In line with this asseveration, one observes that academic library consortiums are determining factors in the creation and use of technological applications permeating diverse areas of the library; but in the first instance they must enrich the area of services, offering new advantages to users who belong to the network.

Collaboration between digital libraries for similar ends would naturally occur in a consortium, but it is not something that should be required. Generally, digital libraries work cooperatively in networks and not in consortiums.

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8   Anglada, *op. cit.*, 14.
9   Torres Vargas, "Hacia un modelo de servicios en la biblioteca digital".
10   Lucía Uriarte Franco, *Consorcios en bibliotecas académicas*, 135.
11   *Ibid.*, 136.

It was said earlier that the DL is a system of online documentary information and that it is, as such, structured in nodes. Networks are structured in nodes capable of unlimited expansion. They do not have a center and they can grow by means of adding nodes.[12] In this light, the following two Mexican academic library networks are examined in terms of the cooperation their cooperative engagement in the area of technological development.

COOPERATION IN THE FIELD OF TECHNOLOGY AMONG MEXICAN ACADEMIC DIGITAL LIBRARIES THROUGH AN EXAMINATION OF SOCIAL NETWORKS

This study is focused on the academic digital library, because this kind of library is currently the most active worldwide thanks to the advantages it provides the community. The Mexican academic digital libraries that most closely fit the theoretic digital library posited are the following:

1. La Red Abierta de Bibliotecas Digitales (RABID) [Open Digital Library Network]

   > […] to contribute to the development of digital libraries in Mexico by means of an open network through which collections can be shared and services made available to diverse institutions while facilitating the integration of new institutions, services and users.[13]

   This network enjoys the participation of fifteen universities. Among these are the Benemérita Universidad Autónoma de Puebla (BUAP), el Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM Campus Monterrey) and the University of Guadalajara (UDG).[14] The network has addressed technological matters as follows:

   a. Development and creation of digital contents. The network provides digital content such as several thesis collections, digitized antique document archives, online journals of one of the member institutions and access to a network of online journals.

   b. Dissemination of the collection. This is a network documentary information system whose aim is to provide access to institutional repositories.

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12 Anglada, *op. cit.*, 10-11.
13 Red Abierta de Bibliotecas Digitales RABID, available at: http://ict.udlap.mx/rabid/index_es.html#documents.
14 For further details on the two networks, see Torres Vargas, "La biblioteca digital académica en México a través de dos casos".

2. La Red de Bibliotecas Digitales y Consorcio Bibliotecario ECOES [ECOES Digital Library Network and Librarianship Consortium]

 The mission of the Higher Education Commons (ECOES) is to strengthen the national, Latin American and Caribbean educational spaces by promoting joint institutional efforts aimed at transforming higher education and implementing innovative academic models in the context of the knowledge society. ECOES is currently comprised of thirty Institutions of Higher Education which account for about half of the higher education student population in Mexico.[15] The objective of the ECOES Digital Library Network and Librarianship Consortium is to consolidate a network of digital libraries by means of cooperation and integration of the member institutions support-ing ECOES programs.[16] Technologically, this network has made strides in developing and creating digital contents, which it promotes in each of the member institutions. In general, this network aims to facilitate the exchange of ICT knowledge.

 As already stated, one of the basic features of the digital library net-work is cooperation, which should occur at diverse levels:

 • Sharing of digital contents among communities (distributed con-tents).
 • Offering share information services.
 • Producing and using technological applications as a group for the purpose organizing and retrieving collections, providing services or for following up processes and communication between the member libraries.

After analyzing the diverse work documents of these two networks, social networks were elaborated allowing the technological cooperation relationships to be mapped.[17] It is important to note that the results were graphed with the help pf Pajek, a software application that allows analysis of social networks in order to identify the relationships established among member libraries of each network, and in this way learn more about the di-rection of their development.

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15 http://www.ecoes.unam.mx/
16 http://www.ecoes.unam.mx/red_biblio_pvp.html
17 Social network maps help show any factor involving collective intentionality. These factors cannot be seen at a glance. One must approach them with knowledge of the practices existing within the institutions. One way of doing this is through social network maps. For some re-searchers, the social network method means the mapping to make "reality" comprehensible. This mapping is graphed using sociograms.

In this way the following socio-grams were obtained:

1. Cooperation between institutions and consortiums
2. Cooperation networks and technological applications
3. Technological applications and institutions

The member institutions of RABID also collaborate in consortiums (these are graphed on the "others" node on the consortium socio-graph), and nine RABID members (UAEH, UNAM, BUAP, UASLP, UAA, IPN, UDEG, UAEM, UV) are also members of ECOES. The remainder of institutions works exclusively with ECOES.

The socio graph provided in *Figure 3* shows that ECOES is currently working on three library development or implementation projects; while RABID has nearly twenty-four development or implementation projects for its participants.

Here the disparity in the contribution of the members of the two networks is revealed, since only a very few institutions offer developments projects. One can also see that a very few institutions in both networks act in leadership roles.

Many cases reflect their adherence to networks that benefit individuals, since diverse institutions appear as members of these groups but in reality do not contribute beyond offering courses associated with the subjects they offer online.

With regard to implementations, it is important to note that the design of meta-searchers is a frequent project, though the current status of these does not make up part of the digital library, even though these systems help find the location of documents within the collections of all the participating libraries, this does not mean said documents are necessarily in digital format.

The same thing occurs when online catalogues of several libraries are associated on a webpage. This association does not entail a development of the digital library, but rather an iteration of conventional or traditional library services albeit through an electronic medium.

For these reasons, it is necessary to stress that a high percentage of implementations are not really connected to a digital library, but rather serve to support the processes and services of the conventional library.

Moreover, the membership in consortiums (such as Grupo Amigos and, Consejo Nacional para Asuntos Bibliotecarios de Instituciones de Educación Superior, A. C. [The National Commission of Library Affairs in Institutions of Higher Education] (CONPAB-IES by its Spanish-language acronym) maintained by some universities reflects the urgent need to buy licenses through the auspices of these groups and, consequently, the lack of in-house digital

Figure 1. Cooperation of institutions through consortiums

Figure 2. Cooperation networks and technological applications

Figure 3. Technological applications and institutions

content development, which impedes cooperation in this area and also results in over-dependence on content providers to constitute the collections of the respective digital library. Outside of digitized theses, dissertations and old material, the digital content available in institutions of higher education in Mexico is very limited.

CONCLUSIONS

In line with what has been stated up to now herein:

a. Diverse applications have been designed by some institutions and these have been adjusted for implementation by the members of the network.

b. The relationship of some universities with library consortiums, such as Grupo Amigos and CONPAB-IES, has also been noted. These relationships are shown on the socio-graph as "other" node.

c. The adherence to digital library networks does not in itself imply that all the member institutions are effectively contributing benefits to the group. Many institutions that join become mere receptors of the developments made by other universities. The adoption of technological improvements developed by others undermines autonomy, as these developments tend to respond to the needs of the developing institution. All institutions must allocate budget resources and integrate their needs to those of the collective.

d. Universities have been prone to joining more than one library network, since each network brings certain benefits, which can in some cases be complementary. This trend reflects the individualism with which the construction of academic digital libraries is approached.

e. The implementation of developments from diverse origins and for diverse purposes prevents the existence of a cohesive, long-term digital library project.

f. What is needed is a formal regrouping of institutions in a great network, which explicitly establishes membership rights and duties with regard to balanced cooperation for the purpose of establishing a development plan based on an idea that is closer to what a digital library should be, while ensuring the existence of leadership groups in each of the diverse work areas.

If no revision and correction of the manner in which work is being done, the future of the academic digital library in Mexico shall hold little hope.

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