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UNESCO Chair on New Information Technologies: Empowering Library Resources

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1. - The Coordination for Information Technologies

Since 1983 the Coordination for Information Technologies (CIT) has promoted successfully the technological development of the University of Colima. After 20 years of evolution, it has empowered the university net of teleinformatics, digital edition, educational multimedia and library services.

University Net. It supports at this time a net with five nodes in the different campuses of the University of Colima. Hereby, there are 3500 computers connected to the net. The server has 90 digital lines that allow the access via modem to many university users.

All the work of design, installation and maintenance of the connections, the administrations of equipments and services of communications (remote and local access to Internet, via modem and wireless), and services as development of Web pages, the administration of WEB servers and the university web site, is done by ex alumni and students of technological areas from our University. These pupils have learned not only in their classrooms, but also with cables in hands.

Digital Edition. One of most important projects of the CIT is its University Digital Editorial, which has consolidated the quality of its products and has gain national and international prestige. But its more than 200 titles of compact discs don't really show the millions of bytes of information that have been digitalized, processed and catalogued.

All these acknowledgements, experiences and human sources will soon face a certification process, ISO. This will offer additional guarantees of quality to the more of a hundred customers of the Center, among government departments, international organizations, universities, national libraries and private enterprises of many countries in Latin America.

The certification responds to the necessity and vocation of forming young students and professionals, according to modern tendencies of the labor world. To pass from personal abilities to general knowledge and transmit it, to face quality evaluations, and to keep up a high level of personal and groups work, are important added values.

Education Multimedia. Another program is the Development of Multimedia Resources for Education purposes, along with the coordination of the Technological Integration Program, whose objective is to incorporate technology to academic activities, by means of the following lines:

- a) Training the academic staff, in order to incorporate the technology to the process of teaching-learning, through courses and diploma courses.
- b) Create educative scenarios that incorporate technology, and create a methodological proposal, in order to apply it.
- c) Design and develop educational web sites.
- d) Development and administration of the EDUC (Distant-Education Platform of the University of Colima), which allows the interaction teacher-student with different services, like the assignment of tasks and homework, message inbox, help on-line and other academic resources.
- e) Creation of the Virtual Reality Center.

University libraries. The university libraries system is fully automated. In this department the students learn something that no technology topic can do: to love the books, and then, to know them properly and to penetrate their content, either in traditional format, as compact discs or as immaterial bytes on the web.

In addition to collaborate directly and indirectly, in the forming of people from the university, there is a program named Pasantías, addressed to librarians and information professionals of any nationality, who want to “learn and do” technological solutions, by keeping, retrieving and cataloguing the information. The training programs include topics of teleinformatics and electronic library.

On the other hand, there is very popular informatics program for administration of libraries, used in many countries of Latin America, created and constantly updated by the University of Colima: Software SIABUC, designed for Windows platforms, in Spanish, used by almost one thousand libraries in the region. Special attention is due to a Mega project of Library Automation, CONACULTA, whose objective is to automate more than seven thousand libraries from the library-net of this federal department.

The CIT has a dynamic role in the creation of new academic projects, closed to technology. One of those projects is the UNESCO Chair on New Information Technologies, which international impact is focused on the Digital Library Diploma Course. This coordination is also working on the creation of the Digital Library of Iberoamerica and the Caribbean that will join more than 5 thousand titles of 36 National Libraries of America. On the other hand, the Interfaces Forum on Digital Library takes place every year in Colima.

2. - UNESCO Chair on New Information Technologies

In 1995 the University of Colima was named as a Regional Center on New Information Technologies by the UNESCO, for Latin America and the Caribbean. Then it was designated to take charge of the Chair on Information Technology, in order to participate in the forming of professionals from the Society of information, and also to be an academic space of reflection and acknowledge.

The UNESCO Chairs are an option created by this organization in order to give support to other institutions that have succeeded in their academic development, that have followed a particular standard, and that have consolidated its goals for future projects. The project of the University of Colima was approved as the UNESCO Chair on New Information Technologies by the General Director of the UNESCO, Sr. Koichiro Matsuura, in May 2001. It was set in motion through the Diploma Course on Digital Library, that also takes part of the project Great Digital Library of Iberoamerica and the Caribbean.

The official name of the program is UNESCO Chair on New Information Technologies (NIT), and its activities are mainly related to contents and development of services and technologies of information in the region.

In respect to that, the Chair will promote the creation of courses, workshops, seminars, expert meetings, forums, congresses and diploma courses that offer spaces of exchange of knowledge, exercises of analysis, critique and debate, as well as the search of solutions. This Chair also aspires in a long-term period the creation of a Master's Degree on NIT, addressed to the professionals of the information, that can provide them the tools and specialization of high quality. Another important topic of the Chair is the future publication of materials on the area.

Specific Objectives of the UNESCO Chair on New Information Technologies

- Create a space for the consolidation of a technological culture that takes in account different aspects as production, distribution and consumption of information, based on the use of the most recent innovations.
- Support the UNESCO programs related to the use of new information technologies and communication in Latin America and the Caribbean, particularly those that contribute to the creation of the Society of Information in the region.
- Promote the exchange of knowledge though the creation of national and international meetings and workshops, as well as the exchange programs of students, professors and researchers that want to study the area on new information technologies and communication.
- Motivate the use of new information technologies and communication for the development of the Latin American and Caribbean society.

3. – An initiative of the UNESCO: the great Digital Library of Iberoamerica and the Caribbean

In Latin American and the Caribbean, although many countries have restricted possibilities of access to the net, it is possible to participate in an “editorial industry of the XXI century”, developed in Spanish, according to the Latin American characteristics, and addressed to audiences in Mexico, Colombia or Argentina.

It is with that objective that the Digital Library of Iberoamerica and the Caribbean is formed, by the coordination of the Regional Council of the UNESCO for Latin America, and it started its activities in 1999. This international organization convoked a group of Brazilian, Cuban and Mexican experts (designers, librarians, programmers and experts in telecommunications) to 4 meetings, in order to decide some technological aspects of the project, structure the data, the site and the methodology for cataloguing, digitization and communication among servers.

As a result of these sessions, a draft was designed to generate digital libraries in which it is explained how to translate documents into electronic materials, how to catalogue that information and make it available to the public. This methodology searches for the translation of the free copyright collections into digitalized documents, properly catalogued and classified according to the most modern standards for electronic information managing (metadata). It looks for the creation of a client-server structure that allows the accessibility of the documents via Internet, as well as the publication and maintenance of the corresponding site.

Simultaneously to the preparation of the methodology, we invited many Latin American libraries, in order to join its collections and create a single holding of 300 documents, among books, music, magazines and maps in digital format; after these documents were classified, we developed the search engine. Here are some of the “treasures” of the digital library, which serve as a model:

- *Novum Regesterum*. Collective Catalogue from the Antique Found, centuries XV-XIX.
- *Tabula Terre Nove*. Abundant toponymy of the coast in the New World, specially of what now we know as Venezuela and Brazil.
- *Die neuwe insein so hinder hispanien gegem orient ben dem land Indie Ligen*. Abundant toponymy of the description of the New World, using pictorial elements to detect geographic conditions.
- *José Martí: Obras completas*. It looks for the digitization and spreading of many print documents, generally before the year 1900, so important that they have to be considered as essential for the study of any kind of area.
- *Un ami c'est bien douce chose*, ¾, Sol, 52. Musical Scores of Brazilian music from the XIX century, in pentagram format.

There is a second stage in the development of the great library: the official act of the convocation to the national libraries of Latin America and the Caribbean, in order to join all the collections, to capacitate the people from the libraries and to check the methodology. Therefore in October 2001 in the city of Lisbon, the Executive Office of ABINIA (Iberoamerican National Libraries Association) signed an agreement with the UNESCO in the project.

In synthesis, we mention the following results from this project:

- Conform a basic collection on the Internet of approximately 5000 to 6000 documents of all kinds (books, magazines, maps, music, videos, etc.) free of copyright from authors or editorials, representative from the Iberoamerican and the Caribbean culture. Each country will donate 100 to 200 documents.
- Make the analytic description and index 1000 representative web sites of the regional cultures (20 to 40 sites per country).
- Create a technological and methodological capacity in the National Libraries of Iberoamerica and the Caribbean, in order to make its own National Digital Library. We have already trained the personnel in those libraries, to become specialists in this area.
- The National Libraries have to share their knowledge to other libraries about the “General Methodology of the Digital Library” .
- To have a CD ROM collection of the 5000 digitalized documents, which will conform to the “Basic Digital Collection of the Iberoamerican and the Caribbean Culture”.
- Preparation of the 2.0 Version of the “General Methodology of the Digital Library”, which is now concluded, and that is tightly linked to the following information:

How the Digital Library is structured

Characteristics of the site

<http://bdigital.ucol.mx>

Bilingual

Methodology 2.0 taken in three manuals:

Recording of the information resources

Digitization

Protocol Z39.50

- Search engine in Windows and Linux Platforms
- Links to similar projects
- Input format and Input software
- “Didactic model” Library

Metadata, which are data that describe the attributes of other resources, deserve a special mentioning. They perform a series of functions such as data discovery, location, documentation, evaluation and selection. This subject is new but necessary to avoid the chaos in the information that is uploaded each day on the Internet.

In this sense, the Guide for the Registration of Information Resources was defined to simplify the uniformity in the registration of metadata for UNESCO's project. Version 1.0 was created from the User's Guide for the Registration of the Resources of the Health Information Locator (LIS), made by BIREME (OPS/Brazil) with the participation of its experts and specialists from INFOMED (Cuban Sciences Academy).

In the initial stage of the project, metadata were based on an adaptation from the Government Information Locator Services (GILS); whereas for version 2.0, the set of GILS was fully taken, and the possibility of making a cross reference with MARC21 and the Dublin Core was considered.

As for the management of the digital collections, the experts group analyzed the available technological options and the advantages of working with universal text and image formats. From this, a manual was made where suggestions such as how to conserve the typography and style when converting documents between different formats were made.

Lastly, the use of a normalized network protocol represents the possibility of having access to all the libraries involved through a single system –albeit invisible to the final user - which will enable, at the same time, the review of the information from 36 libraries, a set of them, or from a single one, through the use of keywords such as authors, titles and other data.

What has been achieved?

Among the things achieved in the project, the General Methodology of the Digital Library, which has been described in previous sections, is worth noting. Other points are the development of an instrument for the making of an inventory of the informatics infrastructure in the region and the signing, in the year of 2001, of a letter of commitment with the Cervantes Virtual Library for the linking of efforts.

In 2002, a treaty was also signed with the Andine Community for the creation of a special collection where the cultural data from Peru, Bolivia, Colombia, Venezuela and Ecuador will be gathered. Currently, joint work is being undertaken with the Latin American Council of Social Sciences (CLACSO) so that their data bases may likewise be shared with the UNESCO Library.

What's next?

The UNESCO, besides continuing the project management and the coordination of the experts group, will take the proper action in order to edit the library's collection in a set of CD-ROMs; will jointly work with ABINA and the national libraries of the Latin American and Caribbean countries; will suggest the criteria for the selection of documents and will evaluate the ongoing development of the project.

4. – Diploma Course in Digital Library

The Graduate Course in Digital Library deserves special mentioning as it is tightly linked to the Digital Iberoamerican and Caribbean Library and to the Lecture in NTI. Digital libraries are so innovative that we are still in the stage of learning how to create, organize and make them accessible. That is why it is so necessary to open places for the education of human resources in this area.

Our experience in the making of the Graduate Course has been quite enriching. The preparation of the programs, web site and materials for each subject, as well as its organization, was conducted by the University of Colima. Once the official approval was secured, the proper action was taken. A group of programmers was formed from the CTI to develop a bilingual technological platform oriented to distant-education.

The main objective of the Graduate Course was to provide solid bases for the joint integration of the Digital Library, based on a normalized methodology for both the library and informatics personnel. Due attention was given to the identification of the bilingual specialists that would conform the professor team. Subsequently, the contents in English and Spanish were integrated, so that by March 2002, the continental convocation was ready and thus the courses could begin by April the 18th of that same year.

For its implementation, two stages were considered: an initial distant-education phase and a subsequent phase where the students attended classes. Hence, the course began with a 36 hour load for each module in the distant-education phase and 16 hours in the attended classes, through a process of 8 months in total. The Course was structured in the following way:

Diploma Course – Stages

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- Official approval of the Lecture in NIT by the General Director of the UNESCO.
- Preparation of the Graduate Course project
 - Bilingual platform for distant education
 - Bilingual specialists identification
 - Content integration
 - Content translation.
- Continental convocation, March 2002
- Registration and managing.
- Course start: April the 18th, 2002

With this course, 144 instructors were trained from the 36 National Libraries from the states of Latin America and the Caribbean. Each national institution designated four instructors to be qualified in specific basic operations: Digitization, Digital Information Description, Automation and Managing of Networks in Digital Libraries.

In this moment, we are in the final stage of the first cycle: the integration of the collections to the network. After each country has identified the 200 documental pieces to be catalogued, as well as the 100 web sites classified by the metadata methodology, they will be digitalized and uploaded to the server.

While these actions are accomplished, it is worth noting that the Carta Colima (Colima Accord) is one significant result of the first attended session of the Graduate Course. “Towards the Digital Iberoamerican and Caribbean Library” is an agreement that consists of a series of proposals that were put forth in the meeting of September the 20th, 2002, by the 25 attendants from 12 countries involved. In this agreement the strong and weak points were identified so that concrete actions were proposed in order to secure the excellence of the project.

The strong points range from the formal aspects and institutional backup, to the purely technological, like the standardization of tools, the methodology and interfaces. Other key points that were identified were the multiplying effect of the project, the interdisciplinary cooperation, the possibility of having access to documents from any place, the training, the diffusion of cultural collections and the option of increasing the regional contents in Spanish/English/Portuguese.

Among the weaknesses, technical elements were identified like the heterogeneous informatics structure, the lack of a common vocabulary and a good support to transmit the knowledge locally, as well as the urgent need of perfecting a work methodology. On the other hand, some attendants pointed to the political, economical and technological uncertainty in their countries, plus the economic restriction in human and material resources that might impair the continuity of this process; whereas the representatives of the Anglophonic Caribbean found the preponderance of Spanish a weak point.

Among the commitments, it was agreed that each national library would work in the management of human resources, hardware, software and financial support. Both the UNESCO and the University of Colima would collaborate with the institutions that were in greater need, give on-line support, expand the project to private institutions, create discussion lists and specialized forums, as well as establish a concrete structure for the administration of the project.

The participation and reflection at an individual level about the question “what can I do?” resulted interesting and enriching. The answers agreed in commitments like: making good use and diffusing the knowledge gathered, being a link between the institutions and the project coordination, participating in the design and upgrading of the tools, continuing the training and coordinating the fulfillment of the training of the personnel, and working towards the reduction of the weaknesses and increasing the strong points of the components of the project.

5. – Conclusions

Beyond the wires, computers and multimedia, there is the information and the ideas that are interchanged through it. In our continuous work, we have been linked in a very intimate way to the new technologies and the reality of the academic environment. This has enabled us to observe an increase in the traffic of data and information that modifies in a deep fashion the way this information is managed in science and education. Therefore the integration of computer and information networks has become an essential element to increase the quality of the education of an institution.

It was in the Coordination for Information Technologies where all these experiences were conceived, managed and supported. These experiences comprise hundreds of personal, institutional and local stories that are weaved each day in its installations. And as good colimotes, these future engineers, teachers and designers like to tell the stories with the same passion in which they live them each day.

That is another aspect that the quantitative measures of the technology-learning relation disregard: the capacity to make a story that speaks of a knowledge that has been assimilated as a life experience. In the CTI, measurable results are obtained, there is a clear and realistic mission and viewpoint, but more than anything else, there are stories.

The CTI works for the future too and sets itself long-term goals; however, the making of products will continue to develop in many directions, like CD-ROMs, Multimedia in the Web, Software and web sites development, as well as a range of information services.

Due attention will be given to the development of a technological culture in the academic environment of the university, to the promotion of the development of lines of research in the application of the technology, to the permanent training of the personnel in new hardware and software, to the telecommunications and information services, and to the continuity of the collaborative projects at both a national and international level.

Based on the commitments assumed, and on the new connections with organisms that are interested in participating in projects of technology applied to learning, use of information and teleinformatics development, participation will be kept in projects with other national and foreign institutions.