

PONTIFICIA UNIVERSIDAD CATOLICA DE CHILE
DIRECCION DEL SISTEMA DE BIBLIOTECAS
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Dear Ching-chih:

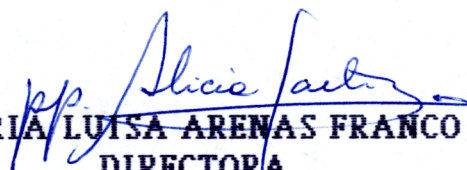
I am sending the english version of our paper as you asked. The biographical information you requested is enclosed.

Concerning the presentation, an overhead transparencing projector and the equipment to demonstrate the system, are needed (Macintosh Plus 1 Mb Ram, external drive and a data show).

Unfortunately I won't be able to attend the meeting but I am quite sure Alicia is going to do a good job.

I am really glad that you have so many important papers included in the program, and I wish you the best success Hoping to meet you in another opportunity.

Receive my best regards.


MARIA LUISA ARENAS FRANCO
DIRECTORA

3rd International Conference on New Information Technology
November 26-28, 1990, Guadalajara, Mexico

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GNOSIS

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GNOSIS

Development of a selflearning system for information searching with Hypercard.

FRAME OF REFERENCE

LIBRARY SYSTEMS, CATHOLIC UNIVERSITY OF CHILE

The mission of the Library Systems of the Catholic University of Chile (SIBUC), is to support the University's teaching, research and extension activities through the services of dissemination of information, user instruction and circulation of bibliographic material.

It has a central management unit and 10 library branches located on the University's four campuses in Santiago. It attends to a population of 11,000 students and 1,750 academics. It has a staff of 149 employees of which 37% are librarians and other professionals and 63% support personnel. The collection amounts to 1,242,453 items.

USER INSTRUCTION SERVICE

SIBUC's user instruction service is a part of the formative value given to undergraduate as well as post-graduate studies.

The student's behavior in looking for information differs depending on the level of studies and on previous experience in the use of libraries. The latter is directly related to the level of development reached in the country's school and public libraries, which is quite unequal; depending on the geographic area in the case of public libraries and on the type of educational establishment in which he/she has studied, in the case of school libraries. In general terms, the students from private schools are better trained in the use of libraries.

Due to this background, even when SIBUC offers an adequate user instruction service, a lack of habits and training among the students can be seen. They face frequent obstacles in the search for information and they do not use completely the existing collection of specialized and general works. They do not perceive that the information can be recovered systematically through the library's services.

In order to meet this situation, a User Education Program was structured in 1983 whose objective is to develop habits and abilities which lead the users to an efficient and autonomous use of the available accessible information in the SIBUC. (*)

In 1988 as part of this program, a selflearning manual to teach the

* GAETE Z., Alicia and Eugenia Olguín S. Educación de usuarios en un sistema de bibliotecas universitarias: Una experiencia transferible. Trilogía, December 1986, pp.26-36.

bibliographic research process in the area of psychology was developed together with PIIE (Interdisciplinary Program for Research in Education, Catholic University of Chile).

Its purpose was, on the one hand, to answer the questions set forth by the students in their search for the information to develop the bibliographic aspect of their research work, and on the other, to provide a systematic formation in this area, which would contribute in a positive way to their future academic and professional duties.

The manual was developed by an interdisciplinary team made up of librarians, academics from the Faculty of Education specialized in the design and formative evaluation of teaching materials, and graduate students in this area.

The contents were structured in three modules:

- transfer of information, whose purpose is to describe the process by which information is generated, registered, organized, disseminated and used,
- bibliographic search, to teach the use of information sources in the area of psychology, including indications on how to adequately cite works consulted,
- obtaining documents, a module which indicates the procedures for obtaining documents within and outside of the country.

The final product consisted of a selflearning manual which included exercises for each one of the modules. The manual was evaluated with undergraduate psychology students who showed, in general terms, an acceptance of the content and methodology and who at the same time expressed the wish to have known about this tool previously. Nevertheless, it turned out to be somewhat difficult to handle, voluminous, and the Library Systems Management suggested its transfer to a more compact medium which would make it more attractive and interactive for the student.

The University had at this time an already well developed computerized system for all academic and administrative activities. Numerous academic software applications for teaching were incorporated during this period. As examples, the following may be cited: "HyperEstática" and "Terremoto" in architecture, "BasBio" in biological sciences, "Alfarería" in esthetics, "Revolucion" and "Tierra" in history, "Pensar" in psychology, "Explab" in chemistry, "Datalab" in computer sciences, "Sipca" in electrical engineering and "Anatex" in journalism.

In this environment, the Library Systems presented a project to the University's Board of Directors, which based on the experience gained with the selflearning manual, would create an interactive module for teaching the information searching process belonging to all research.

GNOSIS PRODUCT

"GNOSIS" is a system developed with HyperCard. It requires Apple Macintosh Plus hardware (1 MB of RAM memory) and the software HyperCard in order to function.

It is for students who need to look for information as a part of the methodological process of all research in an autonomous and friendly way, by entering SIBUC's valuable collection and available databases.

GNOSIS lets the user systematize the search for information and become familiar with the literature in the area of his/her speciality, in order to later set his/her own thinking on solid foundations.

The use of HyperCard permitted the integration of graphics, text, animations and images, while facilitating the interrelation of information.

It is outstanding for its graphic and movement potential which when animating subject matter gives it a level of expression which stimulates the user to stay interested in the search for information. Due to the different access points and to the screen which relates the contents, the user can advance and pause during the system's use according to his/her rhythm and level of knowledge of the information sources. This capacity which increases access to the content, adds value to the information because it leads to the discovery of new subject matter which was not contemplated in the initial search.

The basic alternatives to begin the search are described below (Fig. 1):

- Bibliographic Review: (Fig. 2)

It shows the user which steps must be followed in order to carry out a bibliographic review whatever the discipline. These steps are:

- Defining the research subject
- Selection of the information sources
- Getting the documents
- Recording the information and making the bibliography

- Support Services for the Bibliographic Review (Fig. 3)

Presents the services offered by the library to help the user in his/her review.

- Bibliography Building Service
- Reference Service
- Lending Service
- Photocopy Service

- Questions and Answers (Fig. 4)

It contains a series of frequent questions and their answers, grouped under the following subjects:

- The library in the bibliographic review
- Recovery of relevant information on a subject
- Information about people, events, etc.
- Editing bibliographic citations and the final bibliography

- Glossary (Fig. 5)

List of terms included in the system.

DEVELOPMENT OF THE "GNOSIS" PROJECT

Considering that the contents are in large measure developed in the manual, the first step in the project was to select the software which would allow the student:

- to make a systematic search for access to the information,
- to start the bibliographic search process from different paths, at the moment when he/she requires it.
- to search freely through the set of information included, to be able to stop when the required source of information is found.
- to focus the search by using the collection of existing works.

The experience undergone at the Catholic University of Chile (P.U.C.) in academic applications with HyperCard and this software's potential with respect to information handling, presentation and organization which helps to create paths similar to how the user thinks when looking for information by association and in context, contributed to a rapid decision for its selection.

An interdisciplinary work group was formed which was made up by two coordinators, one belonging to SIBUC and the other to the Computer Sciences Services (SECICO), two librarians, two programmers and a graphic designer.

On approaching this new way of presenting information, it was determined that the group's main concern was how to be in the user's place. Two actions were taken in order to reach this proximity:

- To analyze the way in which the students consult the reference service.
- To interview professors in the psychology area who conduct courses in methodology, thesis and seminars.

In relation to the questions received in reference, the following was recorded:

- The student's question and the way in which it was stated.
- What were their real requirements, after interaction with the librarian.
- Sources of information already reviewed by the student.
- What sources would he/she continue reviewing and the actions which he/she would carry out.

After analyzing this information we concluded that the student requests information in a general way. In the sample it was determined that 59% approached the reference service without having carried out any prior action, and 17% approached when only books had been reviewed. At this stage he/she normally defines the subject by considering parameters of time and geographic place.

The interviews with the psychology professors led us to conclude that great importance was given to the bibliographic review but at the teaching level there was no precise orientation on how to do it. Also taken into consideration was that within the University there are numerous courses in research methodology which include the bibliographic research process in their study program.

These observations confirmed that the scope of activity should be the search for information in any of the research stages, from becoming familiar initially with the literature and defining the subject to proposing a theoretical framework or validating a hypothesis.

The bibliographic revision was conceived as a cyclical process which must be returned to during the different research steps.

An important question came up within the work group, related to the coverage which the system should have. It was necessary to determine if a basic module should be structured for all the areas which are taught in the University or if a different module should be made for each area. The first focus was chosen which consists in having a common structure with different examples and information sources.

Heavy interaction was begun with the computer science group to whom the problem of access to the information and the types of information sources had to be communicated and taught. It was very important that they should understand the content in order to be creative in its representation and in the design of the interface. 9

The first focus for dealing with subject matter was to answer the questions most frequently asked by the student who is developing a research project. This method led to the definition of a large number of entrance points, characterized by their diverse nature and by their different levels of specificity: how to look for information on a subject, how to locate a document not available in the library, how to do the final bibliography for a research work, how to undertake a thesis, etc. The library answers these questions with information sources, with services and with already finished products.

Meetings with experts on the subject and reading selected articles gradually revealed that this road was not the adequate one for the dispersion of questions and answers. It was necessary to systematize the information, to group the contents into organized modules, and at the same time to determine the links needed to let the user "navigate" along these roads.

The modules which finally were defined are those described above.

A schematic and summarized representation of the bibliographic revision, question-answer and glossary modules are shown in the figure in Annex 1. The structure of the bibliographic revision module is explained in more detail. As an example the Thesis element stands out because of the relationships which lead to it by three different paths.

FINAL COMMENTS

Some points based on the experience described should be highlighted:

- It is not easy to put oneself in the user's place. Libraries generally assume needs which have not been expressed. To rigorously define information needs is fundamental in a program of this type.
- The support of the Catholic University's Vice-Dean, who through the Teaching Development Fund financed the project, valued the problem as important to the student's academic performance.
- To personally live the experience of transforming a traditional lineal text to a computer medium led the work group to discover new, more flexible ways to interact with the user and to have the chance to develop subject matters in more depth. Until the start of our project there had been no similar experience in the national library environment, which meant a significant cost in terms of time and effort. Six months of library time, four months of programming time, one month for the logical design and two months for the graphic design were invested.
- The library applications of methods such as Gnosis opens a different path to the librarian-student relationship. It releases the time spent on answering repetitious and similar questions so that it can be used in making creative tools which encourage the student's active participation in the learning process and which help to form an attitude for an autonomous and permanent education.

As far as the outlook for GNOSIS is concerned, the first task will be to evaluate its use with students from different specialities and to analyze the feasibility of incorporating other mediums already developed in the users instruction program, such as videos and information source guides, in order to use HyperCard's hypermedia capacity to the fullest.

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