

INFORM

USE OF THE DELPHI METHOD IN LIBRARY AND INFORMATION SCIENCE
CURRICULUM DEVELOPMENT AND REVISION IN DEVELOPING COUNTRIES

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Introduction

The results of a Delphi study carried out by a group of workers of the library school of the University of Brasilia were used as a support to detect some trends in the manpower market of the library and information professionals in the Federal District, and in the West-Central Region (i.e., the geographical area of influence of the University of Brasilia).

The results were also used as a basis to identify lacks and failures in the present professional background and to orientate the work of the group responsible for the development of the new curricula in librarianship, documentation, and information science at the undergraduate and graduate levels in the school.

Education and Training in Librarianship in Brazil

The history of the professional education in librarianship, in Brazil, can be divided into three phases (1-3).

The first one covered the period 1879-1929, under the leadership of the National Library, in Rio de Janeiro, when French influence was predominant. The courses offered by the National Library suffered several interruptions and successive modifications. They were initially oriented to the training of professionals for the library. After an interruption from 1922 to 1931, the courses were re-initiated, maintaining their european orientation until 1944.

The second phase, from 1929 to 1962, was characterized by the innovating influence of a course created in the Mackenzie Institute (now Mackenzie University), in Sao Paulo, under American orientation. Also worth mentioning is the creation in the forties of a course of librarianship under the auspices of the Department of Administration for the Public Service (Departamento Administrativo do Servico Publico-DASP), which followed the American model introduced by the Sao Paulo course. Its success and favorable reception determined, in 1944, a new reformulation of the course offered by the National Library. At the same time, the National Book Institute (Instituto Nacional do Livro-INL), created in 1937, promoted, for some years, the organization of occasional courses in several regions of the country, some of which would later become regular courses (such as those of Belo Horizonte and Curitiba).

In the fifties, a progressive decentralization of the library courses took place. The number of courses in the early sixties increased to ten, and were dispersed throughout the region.

X The third phase was characterized by the uniformity of the courses, all of them based on the guidelines for a core curriculum established by the Decree n. 550 in February, 1962. For the first time, a topic on documentation was included in the curriculum, through the influence of UNESCO and the Brazilian Institute for Bibliography and Documentation ([Instituto Brasileiro de Bibliografia e Documentação-IBED] founded in 1954). Library professionals gained the status of university professionals, with a bachelor degree at the end of their studies in the different courses. The number of courses had grown from ten to eighteen; the number of students grew from 400 to about 1500.

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In the seventies, eleven new courses were created. During the same period, the first post-graduate courses to train teachers of the new courses were also created. These courses stressed the importance of the new concepts related to documentation and information science. Also during this period, the first Brazilian serial on librarianship initiated publication. At present, four titles of fair professional level are regularly published.

Thirty-one (31) library schools now exist, from which about 800 new professionals graduate a year. Five post-graduate courses in information science, librarianship, and documentation are provided at the master's level, and about 15 new masters graduate from these programs yearly. A master's and doctoral level program in communication science with an optional subject area in librarianship, graduates some new masters or doctors every year.

It is interesting to observe the rapid growth of the library professions in Brazil. More than 16,000 graduates, not counting about 2000 information graduates of other schools, work in documentation centers and information services, or teach in several universities. This growth is not only the result of the dynamism of Brazilian librarians, but also of the high demand for information professionals since the early sixties. The demand, even now, during an economic crisis, does not seem to have collapsed as strongly in the information sphere as it has in other professional areas. A rough estimate indicates that the unemployment rate for librarians is one of the lowest observed among other university-level professionals (1% to 5% for the different states of the country).

The New Curriculum Development

Since the mid-sixties, consequent to the rapid growth of the profession and of the proliferation of courses still following models imported some years before, some have called attention to the need to improve installations and equipment in schools. Without these improvements, proper implementation of newly defined programs is difficult. Russo³ (previously cited), underlines, "the improvisation of the teachers, the lack of specialization, ... and the hiatus between the schools and the community."

X According to Mueller¹, generalized dissatisfaction with the librarianship curricula was expressed, during the next 10 years, through recently created ~~curricula~~. In the sixties, the pressure on schools to develop new courses increased. Papers, meetings, working groups, and reports multiplied as a result of a general awareness that the program orientation needed to change. Traditionally, library programs had overemphasized the humanities, while practically ignoring new technological advances being introduced, in other countries, into library and information science school curricula.

Replace
"serials"
with
"journal"

X The Brazilian Association of Library and Documentation (Associação Brasileira de Escolas de Biblioteconomia e Documentação--ABEBD) played a significant role in curriculum revision. In 1971, ABEBD promoted an in-depth study on updating the curriculum. In 1980, a special seminar on curriculum development was held in Brasilia under the auspices of the Organization of the American States, through a project funded to train teachers and professionals in librarianship and documentation. A working group, coordinated by the Library School of the University of Brasilia, was created to elaborate a proposal for a core curriculum.

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X Supported by the Secretary of University Studies (Secretaria de Ensino Superior -- SESU) of the Ministry of Education, the working group, that same year elaborated a final proposal and submitted it to the Federal Council of Education (Conselho Federal de Educação -- CFE). After more studies and consultations, and after modifications were made (not always happily) to the original proposal, a new core curriculum at the undergraduate level was approved for Brazilian library schools in September, 1982⁶. The new core curriculum (see Figure 1), was to be used as a frame of reference by each school engaged in curriculum revision.

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The New Curricula of the Library School of the University of Brasilia at the Undergraduate and Graduate Levels

Within the context described the previous discussion, the Library School of the University of Brasilia created a special study group to prepare a proposal to develop its curriculum, at the undergraduate level. Aiming for contributions from authorities on the information manpower market over the next several years, a Delphi study, coordinated by one of the authors, was carried out by a group of teachers of the school⁷. This study covered the Federal District area and limited itself to special libraries and information centers, predominating in the area.

Figure 1. The new core curriculum accredited by the Federal Council of Education in 1982 for undergraduate library courses.

General Background Subjects

Major Topics and Subtopics

Communication
Social, political, and economic aspects in
contemporary Brazil
History of the Culture

Instrumental Subjects

Major Topics and Subtopics

Logic
Portuguese language and literature
Modern foreign language
Research methods and techniques

Professional Training Subjects

Major Topics and Subtopics

Information applied to librarianship
Production of knowledge records
Bibliographic control of knowledge records
Dissemination of information
Library management

The work was extended some months later, by two of the authors, to all the West-Central Region (Federal District and the states of Goias, Mato Grosso, Mato Grosso do Sul, and Rondonia) and included all kinds of libraries (school, public, academic, and special)*. The results of this study confirmed and complimented those of the previous work, and were used to support the elaboration of a proposal for a new master's program in librarianship and documentation. This program had been created in 1978, and its curriculum had remained the same since its 1982 accreditation by the Federal Council of Education. Under the supervision of the coordinator of the post-graduate program, a representative group of students and alumni graduated as master's by the school, cooperated in the elaboration of the final proposal submitted to the faculty for approval and transmitted to the University council by the end of 1987.

Results of the Delphi Study

The literature, in developed countries, abounds with papers on Delphi studies. This literature discusses their application in the identification and forecasting of information needs which are used in

planning national manpower development programs. In developing countries, in contrast, very little literature exists which covers the use of the Delphi method to identify the qualifications demanded of librarians and information specialists in the job marketplace. Other than the two previous works completed by the authors, little information could be found on the use of the Delphi method to inform decisions regarding curriculum revision and development. Reference to some key papers can be found in their respective publications, in which the methodology is described in detail^{7,8}.

The items submitted to (or suggested by) the library and information specialists interviewed (weighted as they each proposed) in the first and second study respectively, are summarized in Table 1.

Table 1: Items Submitted to or Proposed by Information Specialists Interviewed for Inclusion in the Curriculum

To determine weights, respondents rated each item as follows: 1 -- without interest; 2 -- of little interest; 3 -- of some interest; 4 -- of interest; 5 -- of high interest.

Items/Subjects	Weight		Mean Value
	1st--Survey	--2nd	
Management of Libraries/ Information Systems	5.000	4.942	4.971
User Studies	4.875	4.822	4.854
Networks/Cooperative Systems	4.843	4.750	4.797
User Training	...	4.794	4.794
Reference Sources/Services	4.688	4.833	4.761
Social Aspects:			
Librarianship/Information Classification; Indexing;	4.643	4.672	4.660
Documentary Languages	4.938	4.364	4.650
Information with Public Utility	...	4.643	4.643
Public Libraries	...	4.611	4.611
Planning of Library Buildings	...	4.611	4.611
School Libraries	...	4.577	4.577
Integrated Approach to Information Processes; Information Transfer; Telecommunication; New technologies:			
Information industry	4.438	4.672	4.560
Foreign Languages	4.375	4.700	4.540
Organization	...	4.540	4.540
Marketing	...	4.540	4.540
Library Planning	...	4.540	4.540
Decision Support Systems; Statistical/Numerical			

Numerical

X

Table 1: Items Submitted to or Proposed by Information Specialists Interviewed for Inclusion in the Curriculum (con't.)

To determine weights, respondents rated each item as follows: 1 -- without interest; 2 -- of little interest; 3 -- of some interest; 4 -- of interest; 5 -- of high interest.

Items/Subjects	Weight		Mean Value
	1st--Survey	--2nd	
Data	4.250	4.726	4.490
Special Information			
Systems	4.508	4.396	4.451
Research Methodology	...	4.441	4.441
Government Publications	...	4.417	4.417
Information Theory	4.600	4.152	4.376
Informatics:			
Automation of			
X Documentary Processes and Services	4.125	4.611	4.375
Project Management	...	4.342	4.342
Statistics; Statistical			
Applications in			
Libraries	4.178	4.395	4.287
Academic Libraries	...	4.283	4.283
Professional Associations	4.143	4.409	4.276
General Culture	3.873	4.643	4.260
Technical Processes;			
Bibliographic Description	3.875	4.577	4.230
Public Relations;			
Psychology	3.929	4.433	4.186
Editing; Publishing;			
X standardization	3.563	4.577	4.070
Theory of Knowledge	...	4.060	4.060
Programming Languages	...	4.056	4.056
Software for Libraries	...	4.036	4.036
Advanced Education and			
Training Techniques	4.000	4.036	4.018
Communication Theory	...	3.950	3.950
Technological Information	...	3.875	3.875
Processing: Historical			
Documents	...	3.778	3.778
Microforms	3.929	3.548	3.739
Archives	...	3.717	3.717
Legislative Information	...	3.553	3.553
Book History	3.000	3.548	3.274

X Processes

X Standardization

The New Curriculum at the Undergraduate Level

A first draft of the curriculum of the library course of the University of Brasilia, following the core curriculum approved by the Federal Council of Education in 1982 (see Figure 1), was elaborated in 1983°. After an in-depth study by the Faculty, and accreditation by a competent body, it is now being implemented in the school. Figures 2 and 3 show the structure and the credit allocation by subjects and topics of the new curriculum.

Figure 2. The New Librarianship Undergraduate Curriculum of the University of Brasilia

ADM: Administration Department
BIB: Library School
COM: Communication Department
GEH: Institute of Geography and History
LEL: Department of Letters and Linguistics

Typically, courses will earn 4 credits and class contact will total 60 hours. Exceptions are noted in round and square brackets.

1. Courses Corresponding to General Background Subjects and Topics (mandatory)

Evolution of philosophical and scientific thought (GEH)
x Communication Theory (COM) theory
Mass culture and aesthetics
Principles of library history (LEL)
Librarianship and Brazilian society (BIB)

2. Courses Corresponding to Instrumental Subjects and Topics (mandatory)

Logic applied to documentation (BIB)
Statistics applied to librarianship and documentation (BIB)
Introduction to data processing (EST)
Portuguese language (LEL)
Foreign language (LEL)

3. Courses Corresponding to Professional Training Subjects and Topics

Mandatory

Introduction to librarianship
and information science (BIB)
Editing techniques (BIB)
Book and library history (BIB)
Introduction to administration (ADM)

Figure 2. The New Librarianship Undergraduate Curriculum of the University of Brasilia (con't.)

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Typically, courses will earn 4 credits and class contact will total 60 hours. Exceptions are noted in round and square brackets.

3. Courses Corresponding to Professional Training Subjects and Topics

Mandatory

Organization (ADM)
Managerial processes and techniques (ADM)
Library organization and management (BIB)
Library planning (BIB)
User studies (BIB)
Collection development
Informatics applied to library processes (BIB)
Documentary informatics (BIB)
Introduction to bibliographic control (BIB)
Cataloging 1 (BIB)
Classification (BIB)
Information analysis (BIB)
General bibliography (BIB)
Special bibliography (BIB)
Brazilian bibliography (BIB)
Documentation (BIB)
Information Services 1 (BIB)
Seminar (90 class contact hours)
Supervised in-house training 1, 2
(18 credits: [270 class contact hours])

Figure 2. The New Librarianship Undergraduate Curriculum of the University of Brasilia (con't.)

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Typically, courses will earn 4 credits and class contact will total 60 hours. Exceptions are noted in round and square brackets.

3. Courses Corresponding to Professional Training Subjects and Topics (continued)

Electives

Reprography (BIB) (3 credits; 45 class contact hours)
Paleography (BIB)
Organization and processing of special materials (BIB)
(2 credits; 30 contact hours)
Archive techniques (BIB)
Bibliographic classification systems (BIB)
Cataloging 2 (BIB)
Research organization
Documentary languages (BIB)
Indexing and abstracting workshop (BIB)
Thesaurus workshop (BIB)
Information services 2 (BIB)
Brazilian libraries (BIB)

Elective courses in other departments

Figure 3. Credit Allocation and Class Contact Hours in the Librarianship Undergraduate Curriculum

Mandatory Courses

General background subjects.

5 courses	20 credits 300 hours
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Instrumental subjects.

5 courses	20 credits 300 hours
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Professional training subjects.

24 courses	106 credits 1590 hours (includes supervised in-house training 1,2)
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Elective Courses

9 Courses (minimum)	about 36 credits 540 hours
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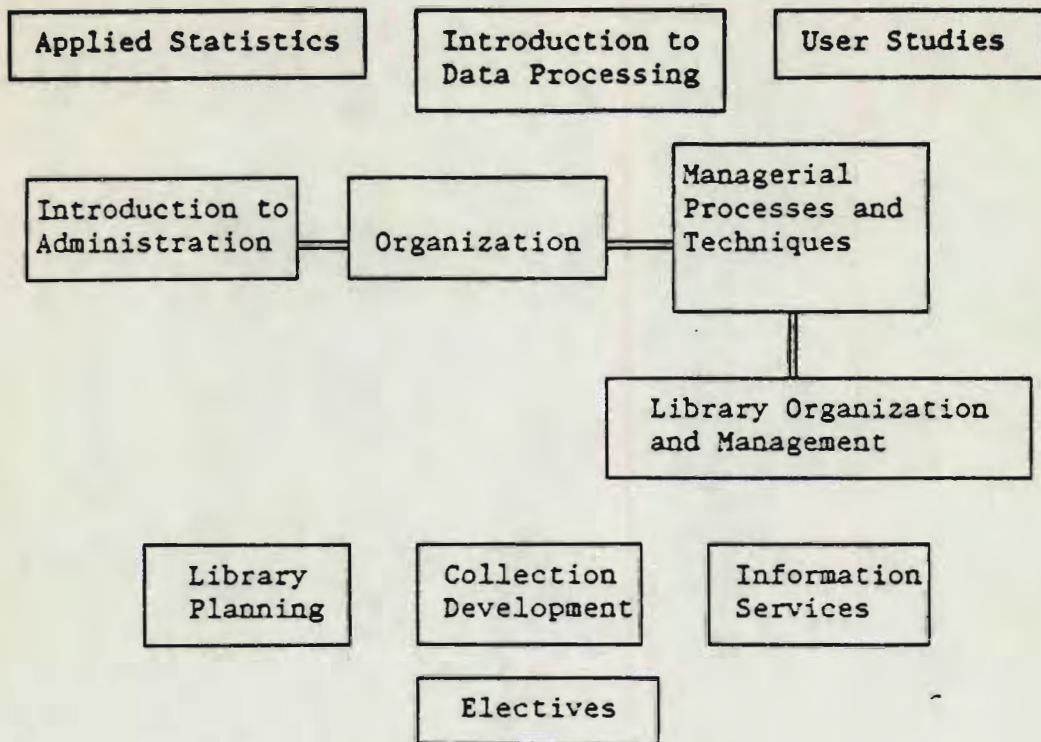
<u>Total</u>	182 credits 2730 hours
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Although the existence of pre-requisites for a few specific courses imposes a sequence of study in some subject groups or modules, the curriculum as a whole seems to be reasonably flexible. Topics in several courses can be assembled into modules suitable for different target groups. Figure 4 gives three examples of core module organization.

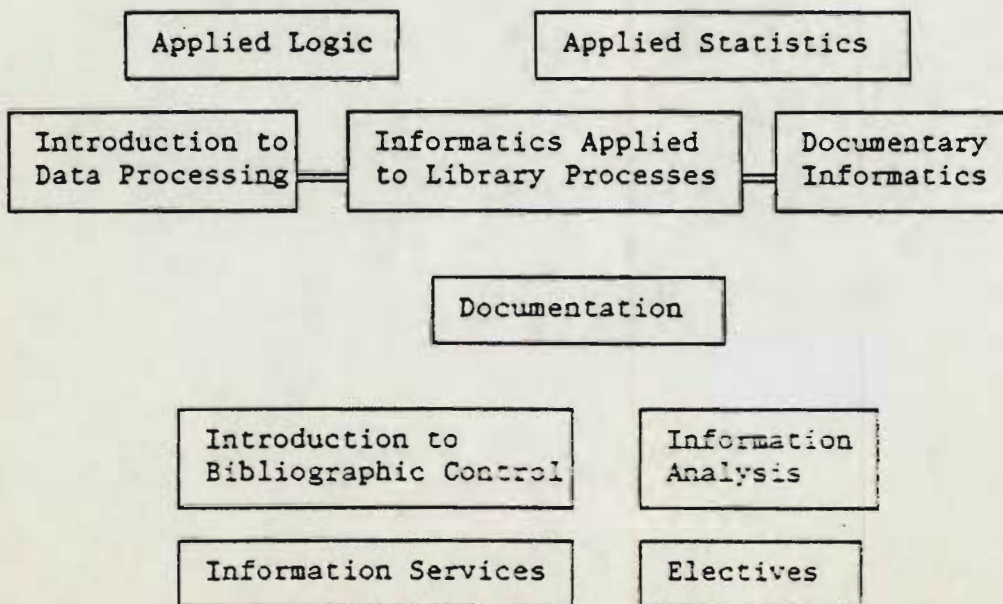
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Figure 4. Examples of Modula *Modules*
(= indicates pre-requisite)

Management Modules

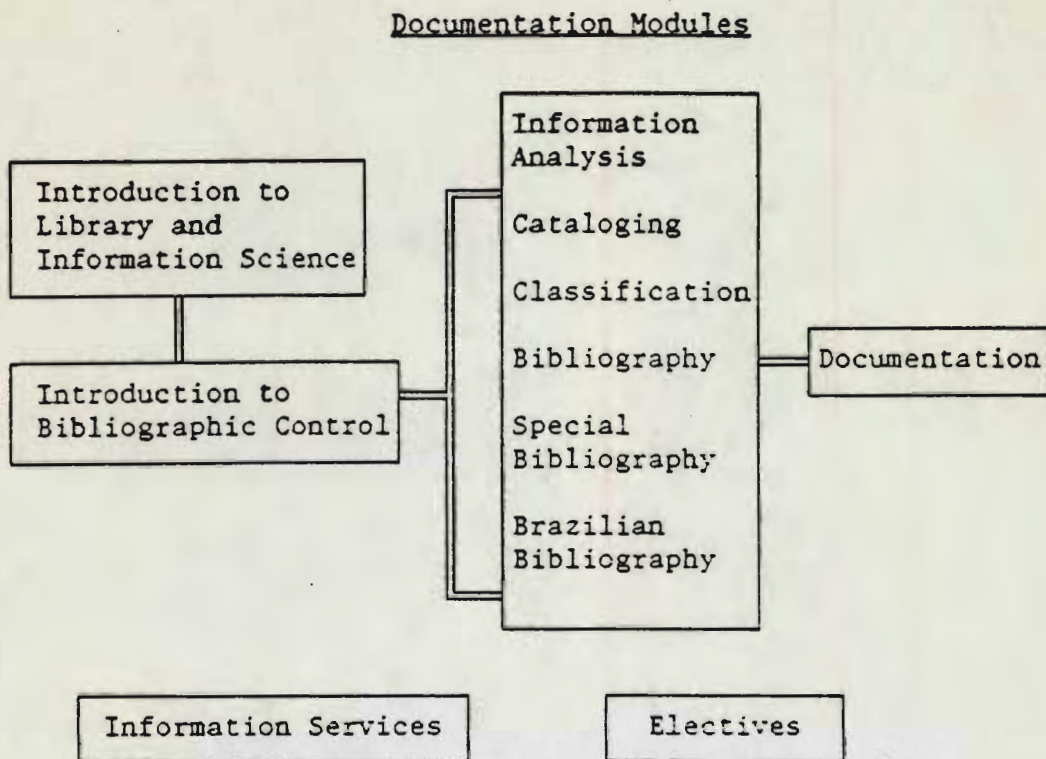


Informatics Modules



X Figure 4. Examples of Modula (continued)
 (== indicates pre-requisite)

Modules



The inclusion in the curriculum of elective courses (about 20% electives) makes it possible to give the whole course a predominant orientation, covering, for instance, the traditional topics of library science, or the newest aspects of the information technology. Figure 5 shows two examples of the curriculum with different orientations.

Figure 5. Examples of Curricula (partial) Oriented to Specific Target Groups

A. Curriculum (partial) Emphasizing Traditional Subjects/Topics.

Evolution of philosophical and scientific thought
 Communication theory
 Mass culture and aesthetics
 Principles of literary history
 Librarianship and Brazilian society

Introduction to librarianship and information science
 Book and literary history
 Editing techniques
 Paleography
 Archive techniques
 Organization and processing of special materials

Figure 5. Examples of Curricula (partial) Oriented to Specific Target Groups (con't.)

B. Curriculum (partial) Emphasizing Technological Subjects/Topics

Communication theory
Librarianship and Brazilian society

Applied logic
Applied statistics
User studies
Introduction to data processing
Informatics applied to library processes
Documentary informatics
Introduction to bibliographic control
Information analysis
Documentary languages
Indexing and abstracting workshop
Thesaurus workshop
Documentation
Information services 1.2

The New Curriculum at the Graduate Level

The new curriculum at the post-graduation course (master degree in librarianship and documentation), which is now being implemented, offers two subject options: planning and management, and information resources. The curriculum structure and credit allocation are shown in Figures 6 and 7.

Figure 6. The New Librarianship and Documentation Graduate Curriculum of the University of Brasilia

Each course earns 6 credits and entails 60 class contact hours.

ADM: Administration Department BIB: Library School

Common Courses

Information and society (BIB)
Research in librarianship and information science (BIB)
Education methodology (EDU)

Figure 6. The New Librarianship and Documentation Graduate Curriculum of the University of Brasilia (con't.)

Each course earns 6 credits and entails 60 class contact hours.

ADM: Administration Department BIB: Library School

X Optional Modula Modules

Option 1: Planning and management
Macro-planning for libraries/information systems (BIB)
Planning and management of information systems (BIB)
Systems theory applied to management (ADM)

Option 2: Information resources
Bibliographic description (BIB)
Information contents analysis (BIB)
Information sources and information retrieval (BIB)

Elective Courses

Advanced documentary informatics (BIB)
Quantitative methods in librarianship
and information science (BIB)
Seminar in information science (BIB)
Librarianship education and training (BIB)
Compared librarianship (BIB)
Research practice in librarianship
and information science (BIB)
Technical processes and services in libraries
and documentation centers (BIB)
Special topics in librarianship (BIB)
Special topics in documentation
and information science (BIB)
Information users (BIB)
Advanced studies in documentary languages (BIB)
Documentary information systems and networks (BIB)

Elective courses in other departments

Dissertation
(10 credits)

Figure 7. Credit allocation and Class Contact Hours in the Librarianship and Documentation Graduate Curriculum

Mandatory Courses

Common Courses

3 courses	12 credits
	180 hours

Optional Modules 1 or 2

3 courses	12 credits
	180 hours

Electives

4 courses	14 credits
	210 hours

Dissertation	10 credits
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<u>Total</u>	48 credits
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As in the case of the post-graduate course in librarianship, the existence of pre-requisites for registration in some specific courses, and the existence of some electives (about 35% of the credits required) offered by the school or by other departments of the university, give a structured sequence of study while allowing a great deal of flexibility.

Final Considerations

The present curriculum orientation of the bachelor's and master's courses of the Library School of the University of Brasilia satisfactorily fits all subjects considered 'of interest' and 'of great interest' by the professionals interviewed. These complete a profile of library and information specialists that is consistent with requirements set by the manpower marketplace over the next several years.

A comparison of the new curriculum's orientation with guidelines and recommendations formulated in other documents¹⁰⁻¹⁴ shows the common preoccupation with reinforcing knowledge and professional skills with some major subjects as: information and society; planning and management; data sources and information resources; networks and cooperative systems;

quantitative methods; user studies; and information technology.

It may in fact be said, that a general consensus exists regarding the principles guiding curriculum development and revision in library and information science, in developing countries. Nevertheless, no general receipt has been met until now, to successfully implement the changes demanded by new trends in terms of habits, skills, and mentalities of teachers. The awareness of a problem, although essential, does not mean the ability to solve it.

Between the consciousness of the need for teaching the applications of informatics to library processes and services and the ability of so doing (which requires both knowledge and practice), a significant difference exists. It is in this difference that one must seek the root of the problem to accelerate development. To move from "knowing that it has to be made" to the "will of doing it" to "making it", a critical mass of adequately trained human resources is indispensable.

If we remember Russo's alert⁵, when she pointed out that "the improvisation of the teachers" and "the lack of specialization" as causes for the difficulties encountered during implementation of the core curriculum in 1962, we may fear that the next few years will be a brutal reminder of history.

The harmonious conciliation of essential aspects of education, tradition, and innovation with the requirements of the manpower market is a compromise effected by the university. Social values are both starting point and destination for educative action. Values express the proper aim for perfection of a society.

A UNESCO report, prepared under the coordination of Edgar Faure, published in 1972 and referred to by Botelho and Corte⁶, states that education has less the finality of training youngsters and adults for a given activity, than to enhance their professional mobility and to awake the permanent desire for learning and for shaping the personality. Among the recommendations formulated in the document, we can mention the following:

- valorization of continuing education.
- the adoption of technological resources in education.
- the prioritization of teacher training.
- the orientation of education and training to individual and societal development needs.

Till now, international cooperation with developing countries has been generally concerned with assisting countries to formulate "what must be made" -- which, in many cases, they can do alone -- without providing the necessary support to accomplish actions promoting change, innovation, and development. Such support would lead to a massive effort to train human resources in well identified socio-economic environments.

The development of Brazil, as for many other countries, is strongly dependent on the availability of human resources.

Some hope would be permitted, if, for the next several years, international organizations and library and science schools of the developing countries worked together to design an accelerated training and refreshment program for teachers. For that, keep in mind that the technological gap between northern and southern countries is even wider than it was in the sixties.

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