



North African research Tendencies in Library and Information Science: the Theoretical and the Empirism

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Abstract

The aim of this work is to study the evolution of research activities in the field of library and information science in North Africa in relation to the information section mutations, and to analyze the basic characteristics of scientific production within the informational area, and to put forward research tendencies and the main researchers' preoccupations.

This work deals with two major parts:

- The production conditions of research works in library and information science.
- The characteristics of the researchers production
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The study of Arabic literature development in the field of information science reveals that the beginning of research has been both recent and difficult. Three factors have, nonetheless, allowed research activity in the informational field to start for the last twenty years: the increase of information and documentation services (IDS), the introduction of information new technologies (INT) and the creation of schools of librarianship (first department was founded at the Cairo University in 1951). These institutions constituted the appropriate framework for young researchers formation and research works publications.

Research laboratories within these schools allowed scientific activities, young researchers follow up and seminars to take place. Some foundations and associations took part within these institutions in the development of research activities (ALECSO, Egyptian association, and so on). Specialized magazines with proper reading committees were regularly born and became the appropriate framework for research works to be edited and for experiences to be shared and exchanged.

A rough reading of Arabic literature in the field of librarianship shows that the volume of this literature remains modest and that its content is mainly characterized by the predominance of empirical studies and the absence, almost totally of theoretical and methodological studies. The effort of theoretical thinking is still put aside despite its being important for the development of the new science of information. The interest is more on how to solve technical problems than on methodological and theoretical questions related to the informational field. It is because of that ambiguity remains over some fundamental concepts, over research topics and over Arabic language terms. It seems that some studies of Arab

researchers are noticeable through the mechanical “transplantation” of concepts without considering the cultural and historical context and roots.

Apart from the axis related to theory and methodology, there are seven others, inequally distributed as follows:

- Theory and methodology
- Preservation and documentation patrimony
- Technical treatment: content analysis, documentary languages
- Information new technologies: digitization and bilingual automated information systems
- Knowledge management: service quality
- Uses and users
- Miscellaneous: e-learning, sociology of information, training and information professions, open access.

Debates should be centered round theoretical problems, evaluation and synthesis questions, in order to make the epistemological side of the discipline prevail and increase the value of the social status of information professions in North Africa.

Introduction :

In order to apprehend the new information-communication scenery, the North African countries have expressed the need for highly qualified researchers in the field of librarianship and information science, able to think about the impact of information and communication technologies on society, and on the informational behaviours of users, to analyse and evaluate multilingual information systems, to study different communication tools and services of digital information. Information science, as a new discipline, has become the object of investigation within North African research units. Arab universities have taken in charge, for half a century, the essentials related to the formation of research and information specialists in information science. Other structures have been involved, to various degrees, in this effort: librarians' associations, national libraries and large archives and documentation departments. The present work aims at analysing the characteristics of research in librarianship and information science and finding the appropriate conclusions about the contribution of Arab specialists in the development of a theoretical thought in the field of information science and in the analysis and the organization of large informational memories. In other words, it aims at answering the following research questions:

- What is the state of research in library and information science in North African countries?
- Which are the teaching and research establishments in library and information science within these countries?
- What are the new Arabic studies dealing with theory and methodology in information science?
- What are the problems related to edition of research works in the field of information and documentation?

1- The organization of research in North Africa:

1.1. At the origins of Arab thought in librarianship the precursors of the Middle Ages:

The first studies related to books and libraries go back to the middle ages, when Arab thinkers developed a reflection on the written work, and the production chain actors of this knowledge medium. Among the works, we find “the art of writing” [l’art de la redaction](1) of its Egyptian author Al-Kalkashandi (1355-1418), a huge encyclopaedia on written manuscripts. The author analyses the writing act, the mental diagram of ideas, the system of inscription, the producer of the written, his social status, his qualities and conduct and his formation. He also suggests a plan of bibliological classification.

The Tunisian Ibn Khaldoun (1331-1405), precursor of sociology, got interested in the different jobs related to manuscript books (from script, paper maker, book binder, book seller, hawker, and so on), and their links with urban industries.

Others are interested in the art of writing, in the Arab hand-writing (calligraphy), in the editor “Katib”, in the behaviours of the producers of written works, in questions related to reading, in readers and in librarianship profession, showing thus, an opening towards the elaboration of the theory of written communication.

At the same time, with this theoretical reflection, a new action has been conducted in order to elaborate and conceive bibliographic work tools. These are bibliographies (Le Fihrist of Ibn Nadim in the tenth-century), and library catalogues, biographic dictionaries (Genealogy, Tabakat, Who was what?, and so on...), dictionaries and encyclopaedias, classification plans with the contribution of philosophers (such as Al Farabi and Al-Khawarizmi) and librarians. These tools were of great help to different libraries established in all North African regions, starting with the well known “House of Wisdom” [Beit-al-Hikma] of Kairouan in Tunisia (9th century), and the Scientific Library [Dar al-Ilm] of Cairo (tenth century) and the different university libraries [Médressa] and public libraries within large Arab towns. This reflection effort on books and on written communication actors and intermediaries was interrupted in modern times which coincide with a period of decline of the Arab world at all levels. We can here evoke the use of printeries which has seen a delay of two and a half centuries after the discovery of Gutenberg, before it was established in the Arab world. We had to wait till the second half of the 20th century, that is after the independence of Maghrebian countries, to see the renewed interest in libraries and documents usage, within a new context stressed by the creation of a new libraries’ infrastructure and a great involvement in information technologies.

1.2. General frame: the information sector within Arab societies:

With the advent of Internet, and the bringing into line of the new liberal strategy of world economy and information, a huge gap is taking place between extremely varied modes of development between countries which are rich in information and countries which are poor in information, leading to:

- A disequilibrium in information flow between different countries.
- A divergence in the command of computer science tools.
- An unequal access to information.

In the Arab North African countries, efforts are being deployed to make the transfer and the use of information easier:

- Reinforcement of information communication infrastructure.
- Creation of techno-poles
- Teaching reforms
- Development of information economy
- Literacy campaigns

Despite all this, the difficulties related to the access to information subsist. They are the expression of the profound social and economic problems in these countries.

1.2.1. Arab libraries as public access points to information :(2)

The public access points to information are numerous. Some of them are related to the teaching system (schools and universities); others to the cultural system (libraries, cultural centres, and cybercafés), and so on.... We limit our analysis to libraries so as to study their implication degree in the diffusion of thought, culture and sciences. The main characteristics of North African libraries network can be dealt with as follows (3):

- Exhaustive statistics and descriptive data related to libraries are missing due to the absence of a complete index of libraries and of sites of Arab librarians' associations.
- The infrastructures of libraries and documentation and information centres of all types are rather well established in all Arab countries. Nonetheless, the human and material resources of these establishments are unequally shared among different countries and even inside the same country.

The majority of libraries and documentation and information centres were founded in the 20th century, except for those which have been created in the 19th century. Some of these establishments were able to provide outstanding documentary services such as the National Library in Algiers, the Big Library in Cairo, the Medical University Libraries in Rabat and Tunis, the CERIST in Algiers and the Médiathèque in Tunis. The documentary infrastructures are under the control of several authorities without any coordination between them. We also indicate the lack of any documentary policy in North African countries and on Arab countries scale. The financing of libraries is achieved through public funds and resources, but the budgets remain insufficient and do not answer the increasing needs of these establishments.

The civil society is getting interested in the sector of libraries, for example the library of the social assistance association in Cairo. As far as the use of communication and information technologies is concerned, large libraries have started to develop data base management systems, websites to put their OPACs on line, and some other products and services such as digital libraries with links to electronic resources. Despite this, a lot of work remains to be done in order to establish an Internet infrastructure, to digitize the written heritage, and to train the staff and the users for a better exploitation of Communication and Information Technologies (CIT).

The radiography related to the state of these libraries, which we have tried to describe, shows that these establishments are not completely able to answer the users' informational needs and do not give fast access to knowledge. The main difficulties that these libraries and information services encounter in North Africa are economic (insufficient budgets unable to face the ever increasing costs of periodicals' subscriptions, and of CIT, and so on...), social (reluctance to reading, a worrying rate of illiteracy), technical (lack of norms and other tools of documentary work, poor documentary funds always on paper with some exceptions though, absence of inter-library cooperation), managerial (insufficient staff,

lack of skills, absence of policy related to information marketing, little continuous training...).

1.2.2.: Online University libraries services:

The development of digital technology within higher education and scientific research has introduced a change of the documentary mediation model, where libraries became oriented towards online services, assistance and training in order to deal with the new contents and transmit them. In the North African context, the question was about the integration degree of university libraries and research libraries within the digital environment and whether these libraries are well equipped to answer the new expectations of researchers. The results of an inquiry (4) which we carried out in 2006 related to online services of Arab Universities libraries, have revealed the presence of 105 websites, most of which are mere “window” sites displaying a brief presentation of the university library. Only 53 sites (that is to say 50.47%) are more or less dynamic. These services are badly referred to on the web by the main research engines because of technical problems related to meta-data and to the coding of the Arabic language characters. University libraries briefly introduce their services and products on the web (funds, newsletter, and so on) and propose some interactive services such as the electronic reference service. OPACs are only present within 31 sites but it remains difficult to consult them. Arab University libraries are not developed enough in the use of CIT to create digital libraries (of these, periodicals or monographies), let alone the creation of open archives.

Users' behaviours towards CIT:

The studies dealing with communication practices and with the expectations of North African researchers from the numerical have revealed a slow integration of the digital technology and of networks within the university environment. Tunisian physicians, for example, regularly use databases and web services (electronic mail and WWW) but encounter difficulties to consult electronic magazines (5). As far as Egyptian academics are concerned, the main services requested are information research on the web, electronic mailing, and File Transfer Protocols (FTP) (6).

The Internet is progressively becoming a tool for scientific communication and knowledge sharing. Informal exchange of information among the Arab researchers' community and French-speaking and English-speaking scientific communities has only just begun to develop on two levels: personal exchanges through electronic mailing, and group exchanges thanks to editing lists and forums (7). The Arab scientific community has shown little interest in the new IST circuits and in the new modal of scientific communication which is the free access. The modest presence on the web of Arab learned magazines illustrates the attachment of researchers to paper support and to former editorial practices (only 79 scientific periodicals were put on line in 2004 by Arab university editors) (8). According to an inquiry led in 2005, Tunisian scientists have shown little concern about open access centred around self archiving of pre-publications and post-publications, and about open access to electronic magazines. They are still attached to the traditional model of the learned edition based on the periodical with a reading committee, they start however to become aware of the stakes of the free access for the Arab research development and knowledge share (9). Information professionals and researchers are not indifferent when dealing with these problems. They got interested in these different questions within different structures of scientific research.

1.3 The publications and research environment within the fields of librarianship and information science:

1.3.1 Arab research and teaching establishments in the fields of librarianship and information science (LIS):

The start of university formation in the field of documentary information was relatively late (10). It dates back to the 20th century and precisely to 1951 when the first archives and library department was born in the University of Cairo. Some continuous training cycles were previously organized under the leadership of associations (Egyptian Libraries Association founded in 1944) and both regional and international organizations (UNESCO and so on). Arab universities took time before they recognized the interest of a particular teaching in this field. Some intellectuals and decision-takers, unaware of the role of librarians and documentalists could play, think that the profession could be fulfilled by non-specialists or amateurs, without having to undergo a special training. In Maghrebian countries, the first documentation school has seen the day in Morocco (Information Sciences School with the help of UNESCO in 1974); comes next Libya (Department of Librarianship at El-Fateh University, Tripoli in 1974); then Algerian (Library and Documentation Institute of Algiers in 1975); then Tunisia (Press and Information Sciences Institute in 1979, becoming later Documentation Superior Institute in 1981) (11). Mauritania has not yet its own formation university institution. Professional training terms for middle executives have preceded the foundation of Arab librarianship departments and schools. They were organised by libraries and documentation centres (National Documentation Centre of Algiers in 1962, National Library of Tunisia in 1965 and so on)(12).

University research map:

Nowadays, there are 13 teaching and research library and information sciences establishments, unequally distributed within north-African countries:

5 departments in Egypt

3 departments in Algeria and Libya

1 school in both Morocco and Tunisia.

Some countries have preferred to gather the information field within a unique university institution. Others have chosen decentralization of teaching in order to answer the needs of executives within regions.

There are 2 elements related to research organizations which need to be dealt with:

- The naming of these institutions
- The department supervision

Table1: the naming of research and teaching institutions:

NAMING	NUMBER OF SCHOOLS	RATE
Information Science	1	7.14
Librarianship and Information Science	1	7.14
Libraries and Information	5	35.71
Libraries, Archives and Information	4	28.57
Library and Documentation Sciences	2	14.28
Documentation	1	7.14
	14	

As far as the naming of these schools and departments is concerned, we can bring out these orientations:

- The use of the concept of “Information Science” alone or jointly with librarianship twice. This is to recognize that the informational field is a scientific discipline, which is not fully the case for the majority of other departments.
- The use of the concept of information jointly with libraries (9 departments): it means in this case that the information domain ‘has not reached the statute of a science’. It merely remains linked to the other concept of libraries and not to ‘library science or librarianship’.
- The use of the concept of documentation: this concerns 3 schools, among which 2 link it to library science, stressing, in appearance at least, the technical aspect of documentation at the expense of the scientific aspect (information science).
- The use of all these concepts indicates that the passage from the traditional naming ‘library or documentation’ to the new naming which is information science is not easy at all. This change of naming faces not only the refusal of administrative and university decision-makers (the teachers-researchers of the Documentation Superior Institute in Tunis have claimed in vain the change of naming for 10 years), but also the hesitation of information specialists themselves. These latter wonder about the informational field identity, and about the contents of the information programs provided.

Departments’ supervision: this theme is linked to what has been said earlier because the identity of a department translates the position of the informational discipline on an epistemological level. Most Institutions are affiliated to Arts and Human Sciences universities (6 departments), or to Education and Social Sciences (4 departments). Schools are directly supervised by the university President (Documentation Superior Institute of Tunis), or by the Planning Ministry (Information Science School of Morocco). The belonging of the documentation-information domain to Social and Human Sciences is put ahead in all Arab universities.

1.3.2: Research activities:

Research activities are organised within research units and laboratories. There are presently, as far as we know, 4 structures:

- Research centre on Information Systems and Services, Cairo University
- Research laboratory on ‘New Information Technologies and their role in the national development’, Constantine University.
- Research laboratory in Technical and Scientific Information belonging to the research centre in technical and scientific information (CERIST) of Algiers.
- Research unit ‘Digital Library: for the development of inheritance’ at the Documentation Superior Institute, University of Manouba in Tunis. This unit gathers 34 Tunisian researchers (both teachers of the Institute and doctorate students). Its research is structured round the major theme of the numerical document development both on the level of products and services, and on the level of users; aiming to conceive appropriate tools for the management and diffusion of the numerical information. The research being carried out stresses the problems related to the use of communication and information technologies within a multilingual environment in

relation particularly to the Arabic language and also within a world wide context and its effects on southern states particularly Tunisia.

There are two research projects underway within this unit:

First project: reading in the numerical era: electronic books and the reading skill.

Second project: an inquiry on 'the professionals in the field of information-documentation in Tunisia: assessment of skills and the sector needs'.

Apart from these laboratories, the rest of university institutions have not yet structured their scientific activities, giving thus free course to individual work and personal initiatives.

The absence of research proper structures could be explained by the nature of university teachers' statutes and careers. The teachers are mainly recruited to teach and not to carry on research. The Arab university system, inundated with the flow of students and teaching problems, does not comply with the principle of 'publish or perish' as being applied in American Universities.

Nevertheless, it is important to indicate that some departments organize postgraduate research, or a basic type of scientific research. They provide a doctorate formation (masters and doctorate levels) for young researchers in Cairo, Alexandria and Constantine universities.

1.3.3: Scientific Foundations and Associations:

Some Arabic organizations and foundations offer a space to exchange and diffuse research works in Library and Information Science, by organizing colloquiums, seminars and by publishing the proceedings along with specialized magazines. Among these structures, we can cite:

- * Arab Federation of Libraries and Information (AFLI) in Tunis. This is a non governmental Arab librarians' association. Its head office has been in Tunis since its creation in 1986. It has organised 16 congresses and published their proceedings.
- * Arab League for Education, Culture, and Science Organization (ALECSO). This is a governmental organisation based in Tunis since its transfer from Cairo in 1981. It has also organised several congresses and published special works.
- * Temimi Foundation for Information and Scientific Research (TFISR) in Tunis. This is a private scientific foundation created by a university teacher.
- * Egyptian Librarians Association: the most dynamic among Arab associations.
- * Moroccan Informatists' Association.
- * Tunisian Documentalists' Association.

Other associations are less dynamic even on a professional level, and have little interest in scientific activities.

This modest contribution of associations is not proper to the informational sector, the whole associative tissue and civil society in the Arab world are not influential because of the political climate which is little favourable to the freedom of assembling and exchanges.

Edition activities in Library and Information sciences: in the absence of a solid commercial publishing branch, except in Egypt, universities and foundations take in charge the publications in the domain of documentation-information. University press units do not communicate research results quickly enough. Consequently, there

is an accumulation of manuscripts waiting to be published, thesis and proceedings are slowly edited, some magazines are irregularly published.

1.3.4: Specialized Magazines:

There are 8 specialized periodicals published by:

- * 2 University establishments: Information and Documentation Maghreb Magazine (Documentation Superior Institute in Tunis), and Information and Libraries Magazine (University of Constantine in Algeria).
- * One inter-arab Magazine: Arab Magazine for Information (ALECSO, Tunis)
- * One Foundation: Arab Magazine for Information and Documentation Archives (FTERSI, Tunis)
- * One Research Centre: Magazine of IST (CERIST, Algiers)
- * Two professional associations: RASSID (ATD, Tunis), and Informatist (Morocco).
- * One commercial publisher: New Information and Libraries tendencies (Academic Library, Cairo).

We would like to give here some remarks about these periodicals:

- Lack of publishing protocol as far as some titles are concerned.
- Lack of files on particular themes.
- Irregularity of some headings (articles, book reviews, chronicles, theses and paper preservation).
- Absence of editorial expertise in some magazines: the magazines having their reading committees are published by universities, by Temimi Foundation or by a private editor.
- Excessive length of articles; some magazines accept articles exceeding 50 pages; this of course to make it up for the lack of articles in periods of shortage.
- The publication irregularity illustrates all types of difficulties encountered by the writing committees (delay in editorial expertise, financial and technical problems).
- Abstracts and author biographies are not always present in all magazines.

Let us examine the scientific contents of these publications.

2. Library and Information Sciences Arab Productions:

Research characteristics:

It is not easy to study the main research orientations in the field of information documentation and to determine the theoretical and methodological contribution of Arab researchers. This is, all the more difficult, because research is recent and the synthesis works, which might help, are missing. Some partially bibliometric studies that measure the scientific production in information science, have though, brought interesting figures. We will be limited by a work outline on information science research, trying at the same time to examine the theoretical contribution of Arab researchers in this new born discipline. The main information source used in this essay is the specialized bibliography in the field of libraries and information by the Egyptian professor, Mohamed Fathi Abdelhadi which takes an inventory of the Arab studies and research works in the field. The most important source, includes however some drawbacks related to bibliographic description, and to themes classification. It does not reach a high level of exhaustivity since it does not include all works scattered on different supports and in different regions. Some partially bibliometric studies have been conducted based on this source and concern research in Egypt (14) or research on a particular theme such as

internet. Other bibliometric studies were achieved in Tunisia a specialized bibliography in bibliography (or the science of the written) (15).

2.1: themes developed: empirism and theory:

The research carried out by Arab professionals and university teachers in the field of information is structured round 7 axis:

- * Theory and methodology
- * Conservation and documentary patrimony
- * Technical treatment: content analysis, documentary languages.
- * Information new technologies: digital bilingual information systems.
- * Knowledge management: quality
- * Uses and users
- * Miscellaneous: e-learning, information sociology, information training, and jobs, and so on.

The number of works is unequally divided up among different themes. Arab researchers do not care much about epistemological and methodological questions. Only few studies and searches deal with research methods, library and information science classifications, the history of the written and epistemological posture. On the opposite, the other themes are fairly well developed.

The questions of library conservation, documentation and archives services, documents treatment and documentary languages use, illustrate 'a technical approach' done essentially by professionals who try to find practical solutions in order to organize better the collections and fill the gap due to the missing work tools. A particular attention was given by the authors to information technologies (digitalization, databases, internet, multimedia, digital library), stressing thus the interest of Arab information specialists in the new numerical environment. The problems of Arab characters coding, user interfaces management, and bilingual information systems have a central place in these writings.

Works on knowledge management, resources management, information services and products evaluation and quality are also among the main concerns of Arab researchers who open the debate about re-engineering of libraries, strategic plannification, performance indicators, and information specialists rehabilitation in the era of networks. Other themes such as formation, skills and new professions, e-learning, the impact of CIT on users and free access to IST have also been developed. This is an opening on the new research tendencies in the field of Library and Information Science (LIS). Nonetheless, all these questions show that the Arab authors are much more interested by describing the informational phenomenon than by explaining it. They are interested in the appropriate means to adapt the information services to new technologies and want to act on tools which are constantly changing. This is happening in a period when the Arab information specialist should innovate, wonder about concepts, analyze the communication and information phenomenon, develop modals and take part with the rest of the international scientific community in the construction of a theoretical base for the informational field. But Arab teachers and researchers continue to privilege practical and empirical aspects and act little on the scientific level... Despite this, a theoretical reflection, which needs to be examined in what follows (16), has started to be developed for the last 10 years.

2.2: Theoretical reflection:

What do North-African researchers suggest to organize the information documentation domain in terms of concepts, studies objects and modals? How did they structure information disciplines and sections? Did they put ahead a classification plan for Information service?

It is not easy to find a clear position within a field not well decoded and where the state of confusion is due to the lack of a theoretical effort concerning the inventory and the classification of Information sciences. In order to establish this inventory, we need to study the epistemological and the methodological aspects of science. A science is defined thanks to its study object, to the explanatory modals suggested or paradigms and to its methodology. Let us first see the study object of the young science, born in 1958, and discover whether this object is shared by all specialists. It is useful to recall the definition given by the Americans to the concept 'Information science', which has then been taken over by Arab specialists and which remains valid: 'Information Science studies the properties and the behaviour of information, the forces that command the transfer procedures, and the necessary technology for its treatment in such a way as to optimize the access to it and its use' (17).

As far as the object of study of the young information science is concerned, we notice there are different points of view among specialists. Some think that its object is 'the information recorded on a particular medium' (Heilprin 1963); others speak about 'the written document (Welt in 1964) or 'information system' (Hayes 1964). An instrumental approach is defended by both researchers, such as Robert Faithorne, who thinks that the 'science of information is nothing but a federation of technologies' (18) or Weisman who speaks about 'a new branch of science which was born from the technology which generates data and from the tools of information treatment (19). These definitions stress automated treatment activities of information and the technological tools, which cause confusion between information science and computer science, or between science and tools. Arab researchers did not look into the question of study object, but we can find a reflection of their conception in the teaching programs which favour the technological approach.

2.2.1: Classification Plan:

Arab studies dealing with information science classification are extremely scarce. The Arabic bibliography of BSI of its author M.F.Abdelhadi does not give an inventory of these disciplines; it only includes an alphabetical list of subject headings. The study done by the Algerian M.Dahmane (20) is the only study which suggests a synthetic classification plan between an epistemological classification of information science and a documentary classification of bibliology (science of the written). Its diagram includes 7 classes which are: "theoretical study of information science, library science, archives and documentation, documentary organisms, documentary information sources, information representation and analysis, information research and stocking, information production, reproduction and circulation, uses and users study, and finally supporting techniques and services". This plan remains, according to its author, continuously open to include new sub-classes.

2.2.2: Informational paradigms:

American and European researchers have suggested patterns to explain the informational phenomenon, that is to say, define its relations with information communication sciences and its interdisciplinary nature. Among these patterns, we quote the physical paradigm or the mechanics of Ellis (21), the pattern with 3 fundamental processes (construction, treatment and use of information), the pattern with 4 processes, the

classical pattern of the documentary activity (22), the pattern of information retrieval, cognitive paradigm, and so on...

Within the north-African context, the unique pattern suggested, as far as we know, is the one belonging to 2 Tunisian researchers: A. Ben Cheikh and M. Hassen (23) who put forward the pattern of production mode which can be the theoretical framework for a critical thought about written communication. Production mode of communication has to do with as well as the infrastructure, that is to say all production instruments, work methods, production connections, as well as the super structural, namely the concepts related to social representations and practices. The same authors insert in this theoretical plan, two peripheral notions which are space and field.

Despite this contribution, Arab theoretical efforts remain too limited to be able to elucidate concepts and to take part in the development worldwide this young science of information.

The other theoretical works published by Arab researchers are either synthesis of Anglo-Saxon works, or straight Arabic translations of English works. To illustrate the first case we can cite the synthesis by Ahmed Badr entitled 'Information and library science: studies in theory and interdisciplinary' (in Arabic) (24). In this work, the author acknowledges the inadequacy of Arab theoretical thought to build modals and theories related to this subject. In the second case meaning the mere translation, we find the translation of the book of Vickery (Brian and Lina), 'Information Science in theory and practice' translated by the Egyptian Hishmet Kacem (25).

The reading of these books shows a deficiency in the theoretical effort of construction of information science in the Arab world as a field of scientific investigation, and this despite the existence of researchers and academic institutions for over 50 years and the production of important empirical studies.

The debate over epistemological questions has not yet started among Arab specialists. These latter do not yet form a real scientific community able to think about the future of theoretical research in information science field.

2.2.3: How to promote theoretical research in information science:

It is obvious that Arab theoretical research is not well developed. Even though we have defined the informational field, we haven't well strengthened it. Consequently, it becomes more convenient to think about the appropriate modalities to study the new information science in Arab countries.

Three fundamental lines seem to us to be essential to reinforce research on theoretical foundations and methodological aspects of the information science. They are:

- Scientific communication
- Reference works
- Some orientations of the theoretical thought.

• Scientific Communication:

The theoretical thought in Information science cannot be developed without appropriate working tools for researchers, encouraging group work and multiplying contacts and exchanges. Some means remain essential here:

- a) The creation of bibliographic databases to locate and identify Arabic works in information science: the specialized bibliography of Mohamed Fathi Abdelhadi will be the starting point for this.

- b) The production of an Arabic citation index: it is difficult to know about the development of the discipline and to plan research works without a citation index. Citation analysis would help to measure scientific activities, to clarify research tendencies in information science and to establish a map of the links between different works. It is getting essential to create a citation index in the Arab world under the control of an academic institution or a research laboratory.
- c) The setting on line of Arabic magazines specialized in information science: in addition to bibliographic databases, the digitalization of Arabic periodicals' contents and their putting on line in an open access mode will enhance the value of the Arabic researchers' writings (with translations to foreign languages), will maintain a better visibility on the net, and will encourage regional and international debates.
- d) The creation of open archives in information science in order to include pre-publications and post publications and gather public comments.
- e) Important participation in discussion forums, in newsgroups and so on ...

- **Reference works:**

- a) Publication of Arabic terminology dictionaries in information science: the debates and change of views will not be fruitful as long as researchers do not speak the same language. Researchers translate differently concepts according to whether they belong to Anglophone or Francophone culture. It becomes imperative to establish norms and standards of terms within the informational field and to publish a unified dictionary of Arabic terminology.
- b) Publication of an Arabic encyclopaedia in information science: the aim being to measure information science and to present the knowledge organization system in this field. The matter is not to translate into Arabic an already existing encyclopaedia, but rather to create a work which would reflect the idea Arab specialists have about information science, in a given period, along with calling for contributions of the international scientific community.

- **Some theoretical thought orientations:**

A scientific project in this direction could be defined and proposed only after long discussions between different research groups. It is a collective work under the responsibility of all Arabic researchers and university teachers. We will content ourselves with putting ahead some ideas in order to take part in this thought. The questioning of concepts, the designing of the informational phenomenon and the suggestion of a classification scheme, the rediscovery of the cultural origins of informational notions are the ground for this reflection. Information science research is a sheer research, unfamiliar to the social context, on the opposite; it is fully inserted in history. The informational phenomenon grows within the socio-cultural conditions peculiar to each society. "To implant concepts (26)" makes it necessary to get free from the theoretical modals of the western knowledge and then to produce learning which fits the Arab reality and specifications.

NOTES

- 1) Al-Kalkashandi.- Sobh al acha fi Sinât al incha ou « le matin de l'hémérolope ou l'art de la rédaction ». See Gdoura Wahid.- « La conception de la bibliologie chez Al-Kalkashaudi ».- in: *Bibliologie, communication et culture:*

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- 2) GDOURA, Wahid.-« L'autre accès à l'information dans les sociétés en émergence : étude de cas du monde arabe ».- in *Revue maghrébine de documentation et d'information*.- n° 13-14-15, 2005.- pp.44-45
 - 3) ABDELHADI, Fathi ; SHAHIN, Shérif.- Les bibliothèques publiques et les bibliothèques nationales dans le monde arabe.- Tunis : ALECSO, 2003 (in arabic)
 - 4) GDOURA, Wahid.- La communication scientifique et le libre accès à l'information scientifique : les chercheurs et bibliothèques universitaires arabes.- Tunis : ALECSO, 2006.- pp.239-242
 - 5) MAHMOUD, Salwa ; BEN HENDA, Mokhtar.- L'impact des NTIC sur les usages d'accès et de diffusion de l'information scientifique et technique dans le contexte hospitalo-universitaire: cas de la Tunisie.- *Revue maghrébine de documentation et d'information*, n°12, 2002.- pp.215-237
 - 6) ABDALLAH, Naouel.- L'utilisation des services d'internet par les enseignants de l'université du Caire.- in : *Univers de l'information des bibliothèques et d'édition*, juillet 1999.- pp.81-106
 - 7) BOUAZZA, A ; HAMSHARI,O.- Usages d'internet par les enseignants de l'université Qabus of Oman.- in : *Dirasset* (Jordan) n°2, 2000.-pp.328-342
 - 8) GDOURA, Wahid.- L'écrit scientifique et la transition vers le numérique : étude de cas des revues savantes arabes.- in : *Revue arabe d'archives, de documentation et d'information*.- n° 15-16, november 2004.- pp.53-75
 - 9) GDOURA, Wahid.- Utilisation des archives ouvertes et des revues en libre accès : attitudes des chercheurs tunisiens.- in : *Documentaliste science de l'information*, 2007 (to be published)
 - 10) Let us recall that the first school of librarians was founded by Melvil Dewey in 1887 at the University of Columbia in New York. Other schools were created later in the United States and in Great Britain and then in all Europe. The American Libraries Association has started since 1900 the evaluation of formation programs and the elaboration of norms and standards in the teaching of library science. The university of Case Western Reserve in the United States was the first to start in 1950 a formation program in information science, getting thus away from the other programs related to librarianship.
 - 11) In Tunisia, the teaching of library science has started within an institution training executives for the public sector which is l'Ecole Nationale d'Administration (1969-1970) before it moved to the University of Tunis (1979).
 - 12) L'Institut Ali Bach-Hamba of Tunis was the first institution to create in 1964 a short term of 6 months for professional recycling in Tunisia. This formation answered the most urgent needs of Tunisian administration. A centre for bibliographic techniques was also created, a year later, within the National Library of Tunisia in order to form library technicians.
 - 13) ABDELHADI, Mohamed Fethi.- La production intellectuelle arabe en bibliothéconomie et information 1996-2000.- Riyadh : King Fahd National library, 2001
 - 14) MAHMOUD, Oussema Sayed.-« La production intellectuelle égyptienne en bibliothéconomie et information 1996-2000, étude analytique ».- in : *Arab journal of Library and Information Science*, n°1, 2005.- pp.5-26

- 15) BOUAZZA, Abdelmajid ; KEFI, Naceur.-« Etude bibliométrique de la production tunisienne dans le domaine de la bibliologie à travers quatre périodiques spécialisés de 1980 à 1988 ».-in : *Théorie, méthodologie et recherche en bibliologie*.- Paris : Bibliothèque Nationale, 1991
- 16) Fondin observes the same phenomenon, to a lesser degree in other places:” they (the professionals of information) want to experiment, manipulate and apply even before they have acquired the theoretical tools which would allow them to understand the functioning of different objects and mainly to integrate these objects in their environment”.
- FONDIN, Hubert.-“ Ergonomie des systèmes d’information documentaire: les homes et leurs pratiques”.- University Michel De montaigne Bordeaux III, 1991 (Thèse de Doctorat d’état es lettres et sciences humaines), p.23
- 17) BORKO, H. - Information science: what is it? In: *American documentation*, January 1968, pp.3-5.
- Other definition largely accepted by Americans, the one suggested by Neelamaghan ‘Information science is an interdisciplinary science which deals with the characteristics and behaviour of information, factors which influence the flow of information in order to make the access and the use of this information easier and in reasonable price.
- 18) Cited in DESCHATELETS, Gilles.-“ L’enseignement des technologies de la DBA”.-in *Revue maghrébine de documentation*, n°6-7.- p.15
- 19) Cited in SABBAGH, Imed.-« Evolution du concept informatologie ».-in *Etudes et recherche en BSI dans le monde arabe : colloque AFLI*.- Zaghuan : CEROMDI, 1994
- 20) DAHMANE, Majid.-« La taxinomie des sciences de l’information entre les paradigmes classiques et l’évolution actuelle : quels enseignements ? ».-in *Revue d’IST (CERIST d’alger)*, n°1, 1997.-pp.29-52
- 21) Ellis, David.- A behavioural approach to information retrieval system design ».-in *The journal of documentation*, n°32 sep. 1989.-pp.171-212
- 22) FONDIN, Hubert.- La science de l’information: contribution pour un paradigme informationnel.-in : *Documentation et bibliothèques* ; n°1, jan-march, 2003.-pp. 23-29
- 23) BEN CHEIKH, Abdelkader ; HASSEN, Mustapha.-« Science de la communication, science de l’écrit : formation et modèle théorique sous-jacent ».-in *Revue tunisienne de communication*, n°13 jan-june 1993.-pp. 7-17
- 24) BADR, Ahmed.- Information and library science : studies in theory and interdisciplinarity (in arabic).- Cairo: Publisher Gharieb Biikshop, 1996
- 25) VICKERY, Brian; VICKERY, Alina.- Information science in theory and practice.- transl. Hishmet Kacem.- Cairo: Publisher Gharieb Biikshop, 1991
- 26) HAMMAMI, Sadok.- Les sciences de l’information et de la communication: réflexion sur les difficultés d’émergence d’une discipline.-in *Revue tunisienne de communication*, n°45, 2005.-pp.7-42