The Extent of the Application of University Libraries in the Jordan to the Standard Protocol Z39.50

Dr. Omar Mohammad Al-Jaradat
Head of , Departement of library &information Science,Al- Balga Applied Uuniversity, Irbid College
Uuniversity
E-mail: omjar2@bau.edu.jo

Fatema Ahmad AL-Samraie, PhD
Departement of library &information Science,Al- Balga Applied Uuniversity, Irbid College Uuniversity
fatema_samrai2006@yahoo.com

Abstract

Despite the great importance of a (Z39.50) Protocol in any mechanical system because of its serious benefits for libraries and information, however, there are limitations in using this Protocol in Jordanian universities libraries. Therefore the study dealt with protocol (Z39.50) practically and theoretically to benefit from it in Jordanian libraries through applying it at the Jordanian University Libraries represented by (Yarmouk University Library and the library of the University of Science and technology Irbid), and how to use and benefit from the mechanism applied in foreign libraries compared to the application in studied Jordanian libraries. The study consisted of (30) staff (60) officer in the sections of the studied university libraries (indexing and categorization, provisioning, periodicals, databases), formed (50%) of the chosen randomly sample study. Data collection adopted two methods: first: written interview questions, composed of (15) question. Second: asked questions questionnaire, consisting of (17) question, and after analyzing it, it showed that (84%) of workers were assisted by the protocol in doing their works, and it has a great role in information retrieval and search and retrieval of bibliographic records, while the system using the protocol in Jordanian universities only use (Horizon) system, also it was found that the Protocol does not provide collaborative interlibrary loan service between libraries. Search recommended that training courses must be done for library professionals to familiarize them with the Protocol and services so they can use it optimally, and the utilization of the possibilities provided by protocol must be expanded throughout the libraries.
Keywords: libraries , Application, Protocol, Government university

Introduction:

Progress and development in computing, software and communications technologies and its applications in libraries and information centers, lead to forming many automated systems and available bibliographic databases on-line searches, which searching in it became a problem for researchers and specialist of libraries and information, because of the multiplicity of these rules, and differences in search and retrieval methods.

In this sense the specification standard Z39.50 has been issued, which was designed originally for electronic search and retrieval of bibliographic information, to overcome search problems of multiple databases and geographical distances, although there is a difference in the used hardware and software, where it select a standard way for communication between different automated systems in hardware and software specifications for the search and retrieval of bibliographic databases, this specification works by the mean of (Client/Server). This specification is also not a programming language, nor is a beneficiary's interfacing for application program, or applications Specifications for the preparation of databases, as well as it is not a structure for documentary bibliographic searches. Z39.50 supports open systems, which means that it is not a monopolist or private for a contractor or individual or owned by anybody, but was made to be responsive to the needs of developers (implementing) who uses it, and the consumers of information in order to achieve the requested benefit.

It is Natural that library science is interested in standards and specifications as the work in libraries require unifying the processes of controlling the information containers and retrieving it to the need for a standard specification in this science and especially with the surge in libraries.

The need for standards has increase, with the progress and developments in computing, software and communications technologies and its applications in libraries and information and the use of automated systems, because of this many specifications standard was featured in the field of libraries, information and commissions and competent international organizations was formed specialized with standards such as: International Organization for Standardization (ISO) International Organization For stand organization and (ANSI) American National Standard Institute where these organizations and institutions has issued standards in librarianship and information in many areas such as technical operations of various types ,information containers, conventional and non-conventional, automated systems and the use of the Internet and various applications , search and retrieval methods.

Since the last quarter of the twentieth century different mechanical systems and many bibliographic databases available on-line have appeared, and searching through it becomes a problem for researchers and libraries and information specialist because of its many different ways to search and retrieval.

In this sense the Z39.50 Standard specification identified and was designed to search and retrieve bibliographic information electronically. In order to overcome the problems of search and retrieval in indexes and multiple databases deployed on a wide geographical scope although there is a difference in the used hardware and software.

1. Literature review

(Hiba Abdul Sattar, 2004) study, changing the future of digital libraries the researcher presented a summary for the definitions using Extensible Markup language(XML), as it's beginning in 1986 and then mentioned the importance of Extensible languages, referring to the language most important stages and developments it experienced and the most important formulas that was developed by the language to design sites for libraries on XML & XTML then made a comparison between the use of Internet languages which were as follows:

1. mostly used HTML
2. XML spread, leading to the death of HTML quickly
3. merger between languages and the emergence of a new language called XHTML used now

Then mentioned the most important things provided by XML :

1. Meta data
2. Exchange of data between various applications within intranets for libraries.
3. Production of bibliographies of all kinds.
4. Provide an open structure to accommodate different types of metadata (allow the integration of structured and unstructured data).

The researcher then talked about the role of information retrieval form geographical far bases where the facilities provided by the standard and problems associated with its use, and indicated the role of the (Zee Rex) Z 39.50 future generation in resolving these problems and formulating it   as Z39.50 where it reengineering XMl capabilities.

(Ahmad Faraj Ahmad, 2004) study, aimed at displaying Z39.50 Standard as a tool that still efficient in conducting searches and retrieve operations within different organizations, and the standard is displayed through the stated historical dimension of this standard, its origins are from the International Organization for Standardization ISO which was originated in 1978 and has taken upon itself the task of identifying a possible frame of reference in its light the development of communication standards with the aim of linking different automatic computer systems, the result of this Committee work is the emergence of the so-called Open network threading model, which is the concept of Protocol layers named "LAYERS" which consists of seven layers.

First: the seventh layer application
Second: the sixth layer presentation
Third: the fifth layer interconnection and coordination,
Fourth: the fourth layer transport
Fifth: the third layer communications network
Sixth: the second layer data link
Seventh: the first layer the material level

The versions of this Protocol were talked about by the year of issuing, the possibilities provided and introducing the problematic characteristics of this Protocol, z39.50 standard was introduced and the TCP/IP network protocol, principles, functions and services provided by the standard roles of this Protocol has also been subjected, and the principle of client/server and services available through this standard, as was exposure to standard applications in indexes and workstations and integrating the standard with global Web standard and exposure of z39.50 standard and national libraries, such as the French National Library, the National Library of Canada, and future prospects For this criterion.

(Mahmud Abdel Sattar, 2006) presented an outline of the next generation of information retrieval standard Z39.50, that was announced in February 2004 by the International Agency for maintenance of Z39.50 standard about launching the next generation of the standard which was called the ZING a set of standards and protocols which are aimed at improving the use of criterion and overcome the problems facing users and at the same time don't work by itself, but integrates with standard. The underlying objectives of the issuance of this generation was also mentioned:

1. that the intellectual content of the z39.50 standard becomes more prevalent and more accessible
2. making z39.50 standard more attractive to the providers of information services and systems developers
3. Reducing obstacles to standard users.

The five Subsidiary criteria and protocols have been also mentioned:

1. SRW/SRU- (Search /retrieve for web service)
2. CQL- (common query language)
3. zoom-form (z39.50) (object-oriented model (z39.50
4. Zee Rex-interpretation (z39.50) XML in engineered & explained R –Engineering ,explain Z39.50)
5. EZ39.50- (simple implementation of z39.50 over soap using REX

(Wisam Mahmoud Darwish, 2006) study gives a brief and clarifying history of the specification standard (Z39.50) with view to the potential and the services provided by this specification in its third issue, then stated the importance of this specification at the applications of various libraries, and then briefly introduced the advantages and disadvantages of this specification.

Then reviewed the expected future for this specification in terms of issuing a revision of version 3, the next generation of this specification ZING and the review and development of the fourth version of this specification. The role of the specification was indicated by bibliographic information retrieval where this specification was applied in different bodies, including:

- National libraries such as the library Congress, the British Library, the National Library of Canada.
- Indexing services such as the Chemical Abstract reclamation
- Automated systems in libraries such as the Horizon, VTLS, Unicorn
- Bibliographic utilities such as: OCLC (On Line Computer Library Center) RLIN
- Universities such as: University of Texas, and Boston University.
- Some libraries in Egypt acquiring automated systems which support this specification standard such as the Mubarak public library and the library of Alexandria and the Egyptian national agricultural library and the library of American University in Egypt, along with several other libraries.

The importance of the specification was demonstrated in two main pillars

First: The researcher or the beneficiaries

The importance of this specification for the researcher and the beneficiaries from the library comes form the great amount of library indexes and bibliographic and non bibliographic databases that are spread on a wide geographical area which make it difficult for the researcher, but through applying this standard searching process was easier for the beneficiaries in an index of one library or different indexes altogether using the same research strategy that have been applied before and the same search interface that have been identified by the library, and is not that different or not different at all form the search interface used in the library system. The researcher through the same search interface could search data base in the full text or archival that library participating in, knowing that it does not require the researcher to be familiar with these standard specification.

Second: libraries and information centers:

Before the promulgation of the standard specification, libraries and information specialist was required to know lot of interfaces and search procedures of each system so they can search and retrieval of these indexes and rules, but with the application of this standard specification, it is possible for the information specialists to provide search and retrieval in a large and massive library indexes with the same interface and retrieve the recordings in the form of mark and directly enter into automated system either to some or all registrations required.

(Wissam Mahmoud Darwish, 2004) study clarified the importance of the specification standard Z39.50 applications in libraries and showed the importance of this specification at various libraries and applications in general with an outline of the advantages and disadvantages of this specification.

Then reviewed the future of the specification, in terms of issuing a revision of version 3 and the issuing of the next generation of this specification (ZING), and auditing the development of version 4 of this specification and reviewed the most important services and the practical side that specification present to libraries:

1. technical processing:
   Searching the local and global libraries indexes and retrieving bibliographic records, which help to accomplish functional processes in codified and unified form.
2. provisioning:
   Supporting the specification standard (Z39.50) within the search provisioning subsystem, searching is done directly in publishers indexes that is available through this specification.
3. information services
   A lot of information services is provided in a faster and easier form through supported automated

systems for standard specification (Z39.50) such as:

- ❖ Document supply service
- ❖ Inter-library loan service cooperative
- ❖ Surrounding service and selective broadcast
- ❖ Reference services.
- ❖ Default standard indexes.

2. The Importance of the study

This research has an important role in publicizing the Protocol, the importance of Library subscription in it, and methods to utilize it in governmental University libraries.

This research can be divided into three basic categories:

1. researchers or beneficiaries:

   Research is important for this category as there is a huge and massive quantity of libraries indexes and bibliographic and non-bibliographic databases that are spread on a wide geographical distribution, which its difficulty for researchers are manifested in losing time and effort in the search for information within the indexes and databases, with different search procedures and beneficiary interfaces.

2. libraries and information centers:

   Having an automated system using Z39.50, makes it easy for the librarian specialist to deal with researcher and beneficiary.

3. Developer and supplier of automated systems and bibliographic databases:

People responsible for the preparation of automated systems must have a full knowledge of this Protocol and the benefits of the system because the efficiency of automated systems for libraries assessed by its support for the Z39.50 standard specification.

3. Problem of the Study

Despite the importance of (Z39.50) presence in any automated system to as immense benefits for libraries and information, however, there are limitations in using this Protocol by libraries in Jordanian universities and making it available to the beneficiaries.

4. Goal of research:

Research aims to identify the Protocol and it different publications and the way it worked, and also identify the different methods of Protocol and its application in university libraries in Jordan represented b (Yarmouk University Library, library of the University of Science and technology).

5. Research questions

- What is the Z39.50 protocol?
- What resources and services are provided by the Protocol in its third edition for the Jordanian University libraries?
- What are the facilities and benefits provided by the Protocol to beneficiary and the Jordanian University libraries?
- What are the areas of application of the Protocol in the Jordanian University libraries?
- How to use Protocol trough Internet in the Jordanian University libraries?
- How to take advantage of standards and features of the services in Jordanian University libraries?

6. Search limits

Search addresses the topic of Standard Z39.50, theoretical and practical study to take advantage of it.

7. Geographical limits

The Jordanian libraries through, how to apply it in Jordanian governmental University libraries (Yarmouk, science and technology).

8. Time boundaries

Time boundaries of the study stretches since 1995, which is the time of the third edition release date so far, taking in consideration that the third version came within it the foregoing versions.

9. Linguistic boundaries

Study was limited to Arabic and English language.

10. Research Society
Search community consisted 60 staff working at Yarmouk University and University of Science and technology
in both universities, who workes in the following sections:
1. Indexing and classification section
2. Supply section
3. The patrol section
4. The data base section

11. Search Sample
Sample search constituted of 60 staff (50%) of library staff, selected by randomly selected sample method,
bringing the number of staff to which the questionnaire was distributed to, 30 employee from Yarmouk
University and Science and technology.

12. Search tool
A questionnaire has been built and personal interviews were made to measure the extent of society study
knowledge and familiarity with the Z39.50 protocol depending on theoretical literature and previous studies. The
questionnaire contained 17 questions its responses weighed as follows: (always, sometimes, and rarely). Personal
interview questions also contained 15questions.
For details see questionnaire Appendix and interview questions.

13. Search variables
The search included three independent variables and one dependent variable as follows:-
First: the independent variables:
    1. Specialization variable
    2. The section variable
    3. Years of experience variable: varied from 5-25 years
Secondly: the dependent variable:
    The familiarity of the community search with the Protocol and how to benefit form it.

14. What is Z39.50?
1. "is a standard protocol that is globally used in information retrieval between computers connected by a
   network, this Protocol allow beneficiaries to search multiple systems in the Internet using one interface
   (User Interface).[6]
2. "is an American standard (standard specification, Protocol) for information retrieval, operate in the open
   communication system, issued (NISO, ANSI) this standard facilitate the use of huge databases through
   standardization, and various features for search and retrieval of information, support the process of
   retrieval of information published in the client/server environment. [7]
3. "custom protocol to work with different information research applications, allowing specific necessary
   actions and execute the query and search within different information systems, for example far-flung
   databases, aims to conduct research within bibliographic and non bibliographic databases with the
   possibility of displaying enquiry results in the form of client/server communication, so that each user has
   a Z39.50 client software can search within different databases through a Z39.50 server." [8]
4. Z39.50: "a set of protocols for describing and creating the connection between two or more systems,
   with the aim of providing research and bibliographic data exchange between similar databases which are
   not necessarily identical. Depends on client and server technology in information retrieval, this became a
   common protocol for linking systems robotic libraries. "[9]

15. How does the Z39.50?[10]
Z39.50 works in networks environment based on client/server structure, where it manages a range of services
aimed at the exchange of data and information between the client system on the one hand (which is part of the
local system of library or information centre where basic research takes place, its main task is the implementing
of all communication functions, which intervene during the starting of the research, enquiry transfer and request
recordings that represent the results of the enquiry) and the loaded server system on the computer, on the other
hand (which is the goal, and it represents the interface with the remotely database of the system which is
enquired by, and answering queries from the client system).
    It works like a common language understood by all systems that support Z39.50, linking different
languages and dialects of various information systems. When using Z39.50 client and seever must be capable of
understanding the Z39.50 language.
    Most systems that apply the Z39.50 use the TCP/IP protocol to link itself with other systems, and

compatible program with Z39.50 protocol for searching and retrieval functions that works as a translator between systems, for beneficiaries all this happens behind the scenes and they only see the display and the search interfaces.

1- the role played by the client system (Z39.50-Client System)[11] :

The client undertakes a set of the following functions:

1. Dialogue between the beneficiary and the computer, which is represented by identifying the view, query interface and coordination and display the results.
2. Additional functions such as printing, storing. ...
3. Directs the query to the Z39.50 servers systems which are searched.
4. Select the way of presenting the services to beneficiaries and presenting the recordings in a process done without being seen by the beneficiaries.
5. The possibility of using structured databases (organized and tidied according to a certain pattern) according to a specific bibliographic format, either MARC or MARC21 or XML.
6. The possibility of applying the same query on several databases without any need to learn the language of command or query method on each database separately.

2- The role played by the server system (Z39.50-Server System):

The server plays a key role in the search and the most important functions carried out by it are the following:

1. Color coding and structuring the query according to Standard Z39.50.
2. Viewing the query and performs it on the queried rules.
3. Coordination and coded the results according to standard z39.50 and sent to the client.

3- what is the work of Z39.50 Protocol [12] :

To make the connection between the systems Z39.50 makes standardization and codification of mutual communication messages between the client and server (specified through a standard starting searching processes), establishes the relationship (link) where Z39.50 begins the session and confer the expected border for activities, that appears (for example, the maximum size of recordings that are to be transferred from server to client, version supporting Protocol, etc.) then the customer submit inquiry (Query) then the client Z39.50 translation enquiry and represent it uniformly and passes it to the Z39.50 server, where the server performs the search in databases and posted results, then Client can retrieve recordings that contain additional treatment results from the server. Moreover the customer can handle recordings and view for the beneficiary (recipient does not need to familiarize themselves with this mechanism; the desired results would be presented to him through the display interface ...)

16. Services provided by Z39.50 [13] [14]

In addition to the primary objective of the standard which is to facilitate information retrieval and searching in various rules, Z39.50 provided the following benefits generally:

1. Seamless access: the best services of Z39.50 that it provides Seamless access to different databases through one interface.

   Therefore libraries can offer their users a single interface to search all library indexes, CD-ROMs, on-line information databases and other Internet sources. In addition, you can export data from various sources and rules in common language (e.g. MARC) to load into the local database.
2. Sharing In Recourses: standard supports participation process in broad-based sources, represented in the area of libraries in:

   • Expand search indexes libraries.
   • Inter-library Loan by providing information about groups of libraries.
   • Request directly delivery of materials and documents.
3. Increase the production: with Z39.50 users do not need to learn how to search each database separately, as they use one interface, and thus avoid duplication of effort in learning those different systems. You can also reduce the time devoted to staff training on operations that require. Search in databases such as indexing, and supply, and mutual loan. Generally, the easy access to electronic resources shortens the time used by users in searching for information.

* the standard enjoy as well as a number of functions and services which made it a fertile environment that provides non-traditional and advanced facilities for handling many applications provided by libraries in the following areas:

1. (Processing): through library accessing an automated system to support the specification standard (Z39.50) inside indexing subsystem which can search local libraries and global indexes and retrieve bibliographic

records, which help to accomplish substantive operations (descriptive indexing - objective indexing - classification) in a codified and unified form with less effort and time. Indexer can also choose to retrieve a set of fields and make adjustments according to the policy of the substantive operations of the library.

2. (Acquisition): by supporting the specification standard (Z39.50) within the acquisition subsystem, search is directly done in publishers indexes available through specification.

3. (Information Services): many information services are provided in a faster and easier way through supported automated systems for standard specification (Z39.50) such as:

    * (Document Delivered Services): this process could be done at the beginning of the search for document and then request and sent to the researcher in electronic form through subscription library search and retrieval in the library catalogues and databases with full text.

    * Collaborative interlibrary loan service (ILL): with the availability of searching the catalogues of libraries and multiple databases, this service can be provided easily and quickly at the national level.

    * (Current Awareness) and (Selective Dissemination of Information SDI): rather than merely providing such services on an automated library system and databases these services has been provided at the level of broad indexes, libraries and databases.

    * (reference services): reference search specialist as the possibility to search in indexes and databases worldwide and respond to the enquiry in the form of a fax or e-mail faster.

    * (Virtual Union Catalogs): the possibility of establishing default standard indexes on a national scale and broad geographical national level, it is possible to create the default common index at the State level through the adoption of a responsible body (e.g. National Library) collection of bibliographic databases of other libraries within the State and load it on the libraries system to support the specification standard (Z39.50) to build a big database with the libraries indexes in this way appears the idea of default index (such as Egyptian libraries network experience related to information centre and decision support Center in Ministers Board in establishing a default index for Egyptian libraries, but this experience is applied only for the ails system, it is possible through (Z39.50) support, within this system will it will be better to create this index default broadly to all Egyptian libraries). In Broad geographical level or at the level of the continent or geographic region (Arab world) by compiling databases internationally to create an index default unified on a continental level or geographic region.

17. The historical stages of the Z39.50 protocol (History of Z39.50)[15] [16] [17]

Z39.50 protocol arose through LSP: Linked Systems Project) an initiative to standardize research methods in major bibliographic databases include: OCLC, Congress library, Washington library network (WLN), research libraries information network (RLIN), at the same time, the Organization was working to produce a standard protocol NISO to retrieve information using Office applications. Therefore, LSP efforts moved to NISO where work was merged and upgraded to become later a Z39.50 standard protocol for information retrieval.

    The protocol iead goes back to 1970, but 1988 saw the first version of the Protocol, work has been intensified and efforts was unified then to release modified versions of the Protocol so as each new version address the problems that other version have faced before, and offers many facilities and features.

* This Protocol have been issued from the the national information standards organization (NISO) and American National Standards Institute (ANSI).

* Library of Congress LC: have been chosen to serve as (Maintenance Agency) for monitoring and recording Protocol.

    In 1990 the users or the implementors of 50Z39 have been formed. And it was known as (Z39.50Implementors Group ZIG) Membership of the Community includes producers and suppliers, as well as information advisors, membership is open to all interested parties as well. It gathers almost 3 times per year to discuss new versions, required preparation for the versions changing, working on the details of the standard, access agreements on draft standard, ZIG list use general electronic discussion dialog to discuss operational processes and development versions of standard between meetings.

18. Versions of the Protocol (Z39.50Versions)[18] [19]

    1. first release "Version 1":

      known as (Z39.50-1988), and was designed to retrieve bibliographic data, was not dealing with files as image files, , graphics and text files, such as Postscript, was not dealing also with non bibliographic registers.

    2. The second version "Version 2":

      It was known as (Z39.50-1992 for Search and Retrieve"SR"), which has the potential for bibliographic search and retrieval mainly of bibliographic records in the form of Marc, (MARC: Machine Readable Catalog).

    3. The third version "Version 3":

It was known as (Z39.50-1995) dealing with text or bibliographic information, along with increased capabilities and services offered by this version from its predecessor and had adopted (ISO) to this release in its standard version (ISO 23950-) 1998, replacing numeric criteria (10162/10163 ISO), and thus becomes the international standard ISO 23950 matches exactly the America specification (Z39.50-1995).

In 2003 standard (Z39.89) specification was issued, specific to using the specification standard (Z39.50) in library applications

4. The fourth version ": Version 4

This version was launched through the NISO includes many new services such as Raking service or the ability to sort the results so they are listed under the link to the question posed.

19. Z39.50 applications [20] [21] [22]

19.1. Many initiatives have emerged to implement Z39.50 protocol by many interested institutions by providing the following information; these are examples of foreign applications:

1. Indexes (bibliographic sources): this category can be divided into two main applications:
    1. CATSS (Cataloging Support System) de ISM
    2. RLIN (Research Libraries Information Network) de RLG-

-These applications depend on the Z39.50 standard, and designed to use the TCP/IP protocol. ISM has developed a client software Z39.5 (inside System CATSS) which is set so that it can conduct searches within the RLIN database through TCP/IP standard Z39.50 Association.

This represents an advantage for the beneficiary so that when you start a search on RLIN database, with the ability to search using only one command, thus increasing the opportunity to obtain favorable results for a search theme, nor is there any problem in dealing with different query combinations beneficiary between the two systems, where the Standard Z39.50 construction task between the two systems – crossing through the TCP/IP protocol.

-Regarding the future prospects of these two systems, there is the continuous development and improvement, for ISM it can compete with OCLC giant database, ISM offers services in the form of Server/client and Z39.50 standard can continue to play a prominent role in this regard.

2. Workstations: in this framework the necessary information can be provided to researchers through their computers or through workstations available within the institutions.
    From these stations:
        - Geopac: research station Geopac belong to GEAC Corporation which can be installed on a personal computer: (PC Personal Computer) under the Windows operating system. It provides services to broad categories of beneficiaries, along with those who do not have extensive experience in dealing with the database system. It targets Internet users who have a (SLIP type): Serial Line Internet Protocol). It can be noted that Geopac do not only comply with text information to permit the display of images and audio material and animations in a multiple variety of forms.
        -VTLS-: this station is called the VTLS Info station and allows conducting a research in the form of Super links within indexes depending on VTLS system, it also allows displaying images, audio, and animated images, in addition to the application of client sample Z39.50 which makes it able to achieve all functions undertaken by the Geopac.

3. Great national libraries: this Protocol is applied in many libraries and information centers, especially national libraries, such as:

-French National Library: inauguration of Z39.50 within the automated system for the library to use as additional search engine, and the third version has been adopted, where it is possible to see the bibliographic records and statements.

Profile has also been prepared and initialized (with features and substantive concerns) through the French National Library and the index of French libraries and the Ministry of national education, allows for dialogue between national library system user from one side and French universities libraries system SU in the other side.

-Canadian National Library: representing the application through AMICUS project, a system designed to manage bibliographic information for Canadian National Library. Contains nearly 10 million bibliographic records. Representing a real treasure of bibliographic information in the various sectors of Canadian knowledge and publications, periodicals and all printed media in stock within the Canadian National Library and other national libraries.

Through AMICUS beneficiary can access the recordings and messages of PhD. "theses" and governmental documents and administrative documents, periodicals and journals, series and movies and Canadian archives, in addition to entering files for Congress library resulting in add thousands of

recordings each year for texts in their collections.

It also contains various Canadian libraries and groups with a view to facilitating inter-library loan operations. The main objective of AMICUS is to use it to transport queries and results in an AMICUS Canadian National Library also aims to use this standard for external communication, this standard also aims to make the bibliographic and reference services and guidance and inter-library loan more efficiently and effectively.

Canadian National Library focused its efforts towards achieving two main objectives: to continue to develop and improve the system of AMICUS, good planning and follow-up to ensure that AMICUS is merged and linked with groups of applications and special services for the Canadian Library and special Internet services.

Many methods are available for accessing AMICUS so it can be used through the Database or through the Internet, all the database of AMICUS is placed at the hands of each Subscriber, as well as the database can be accessed through collections of computers available for use within the library.

Trends expected in the next few years include applications transmission AMICUS to Digital Alpha Server, which works under the UNIX operating system. Changing to a computer depending on the AMICUS operating system that allows Canadian Library using Platform type AMICUS to manage electronic texts along with link information more easily with the bibliographic database.

4. automated systems of libraries such as HORIZON: Dynix developed "horizon" system in 1993. It was the first client/server system for managing libraries, designed entirely as second generation of library management systems, horizon is the strongest library management system today in the world, with the advantage of many superior properties in the area of invoked maintenance menus, adjust the periodicals, and staffing. Horizon system supports a set of standards that facilitate communication and interaction with other systems, and Marc 21 include, Z39.50 protocol, Dublin Core, standard interface protocol SIP, American standard loan Exchange Protocol NCIP, Internet Messaging Protocol NCIP TCP/IP language database structural query SQL, data exchange protocol X12 subscriptions, electronic data exchange to supply Enriched (Enriched EDIFACT, American provide protocol BISAC, USA periodical supply SISAC (Dainks company is participating directly in the development of these standards through membership And various standards committees service as a member who have the right to vote in the USA National Organization for Standardization Group Charter Member of NISO, standards implementers ZIG)), and participant in the initiative framework for operations between schools SIF).

5. Universities such as Boston University, the University of Texas.

6. Indexing services: service like reclamation (Chemical Abstract).

19.2. Regarding Arabic applications, [23] [24] [25] [26] [27] [28] lots of libraries have worked (notably Egyptian) to incorporate Z39.50 within the automated system for the library.

Examples:

1. Mobark public library pay particular attention to information technology, library established a Department for information systems and provided it with a set of qualified specialists who create infrastructure for information technology and development, the library uses integrated library automation "Unicorn" which is a multilingual global normative system allows the use of Arabic language besides English. The system provides a number of office jobs such as provisioning, indexing and adjusts periodicals, reports, and search the library catalogue online "OPAC".

2. (ENAL Egyptian National Agriculture Library): the purpose of this library is to collect, organize, analyze and facilitate the utilization of agricultural information so as to become the library of agricultural information network hub covering all Egypt and connect to information network in the world. It offers numerous services, as a loaning, reference services, bibliographic and innovative services such as current and selective transmission of information and direct search (adopting several international standards including Z39.50.). It includes a variety of information sources such as books, periodicals, laser discs and video thumbnails.

3. Library of Alexandria, library of American University in Egypt...

4. Regulations to manage the libraries, such as:

* Future library management system: is a widespread system in major Egyptian universities libraries (such as Alexandria University, Ain Shams University, Assiut University, ...) allows to absorb more of the University and library together working on the same system while maintaining the privacy of each of them. The program does not require access to computers to maintain the security and confidentiality of data.

-The main components of the system :-(indexing/ electronic library/ adjust the periodicals /lists of inventondexinry/maintenance acquisitions/research/reports & statistics/system administration/server and client Z39.50) ZING-

* (Insignia Library Automation System): this system is completely compatible and easy which helps Microsoft

Office user to fully familiarize themselves with the system, so they can explore parts of the system through a few easy steps, allowing to save millions of registrations, and can carry out all the necessary administrative and technical processes to manage all types and sizes of holdings of libraries, and supports an Arabic copy mode of Marc MARC which is compatible with indexing rules of Anglo-American, second edition AACR2 and the system absorbed along with indexing books and periodicals, indexing other containers from information sources Such as: manuscripts, articles, computer files, maps, musical, film and Web pages ...

-Reference system (Insignia) provides methods for unlimited access to all types of receptacles information regardless of their locations , presence or means of preservation.

Through:-

1. search: search system is supported with six different types of search engines, search screens are simple, easy and effective, and the beneficiary can search in a particular library or libraries associated with the system, and the researcher can update selected lists, printing bibliographies or save search output receptacles in a private place of the beneficiary.

    Search types include:

-Simple search: search by keyword, title, author, topic ... Etc., or call number through simple steps.

-Parachute: search for books with pictures that repent for their contents.(Librarians can update the classification of belongings such as materials for certain courses or books on specific events.

-Advanced search: use logical link between specific constants.

-Search by classification number: you can search using Dewey classification number or library of Congress Classification.

-Search based on relied lists: where finding container through relied recordings (author, subject, and series).

- Z39.50 Search: search terms in any library in the world within (Z39.50) (machine-readable cataloguing using normative systems).

2. Presentation through the network: the beneficiary can take advantage of various features by remotely entering the network, so he can: save containers- follow-up or renewal-update their personal files- revision history search in any loan-linked library system-updated bibliographies and sent via email.

3. The personal files of beneficiaries: saves a tremendous amount of detailed information on the level of confidentiality regime beneficiaries. User allows individuals or groups to perform hard work without conflict with other data and administrative functions.

4. indexing: the system advantage is that it is strong and flexible to robotic libraries, whether import free registrations via Z39.50 or full use of Marc 21 format with files based on the indicative lists, reminder cards and available tools makes a strong and easy system of Insignia at the same time.

5. Supply: the main thing that distinguish this system is that its fully integrated supply with indexing unit, and the application of electronic information exchange.

20. The third Section: statistical analysis, findings and recommendations

After personal interviewing and distribution of the questionnaire on the 30study sample search of worker in each section within the library, giving a brief explanation on the subject considered before filling the questionnaire, and after analyzing the information collected we reached the following.

20.1. First: the distribution of study sample members according to study variables (years of experience, specialization, the section where they work in)

Years of experience	specialization		section			
	Libraries	other disciplines	indexing and cataloguing	database	supplying	Periodicals
Less than 5	2	1	0	0	3	0
5-10	1	5	3	0	1	2
10-15	4	0	3	0	0	1
15-20	2	6	1	0	3	4
20-25	1	3	1	0	2	1

Table No. (1)

(Distribution of the study sample members by study variables)

Table (1) shows the distribution of the search sample members by search variables (years of experience, specialization, section), which shows that the largest number of employees in both libraries (Yarmouk, science and technology) had years of experience from 15 to 20 years, while those whose experience is less than 5 years are the least number, indicating that a large number of them are experienced.

It also shows us that most employees are not specialists in libraries but with experience in their work.

The table also indicates that databases section did not tell us any information because they do not have knowledge and experience in Standard Z39.50, because standard facilitates their work and thus they do not need

to know more about it.

20.2. analysis of the questionnaire

Through table (2) and the questionnaire it is clear that (see attachment):

A. comprehensive analytical overview

It is clear through the answers obtained from a sample search that a large number of employees agreed that using the Z39.50 standard is easier in obtaining information; it is time and effort saving at work, and they were able to deal with this Protocol without any constraints.

Also, 84% of the sample of the study stressed that the Protocol help to expedite indexing and classification processes in a formalized and unified way with less time and effort. In addition, there were a few employees who did not have full knowledge of the protocol but were eger to learn about it and use it in their work.

B. Partial analytical perception

Through Analysis each question which the questionnaire contained each at a time, and looking at table (2) and the attached questionnaire questions it was noted:

1. 84% of the employees stress that they were assisted by the standard in indexing processing and cataloguing in a codified and unified form and with minimal time and effort, where 16% of respondents agree to that sometimes.
2. We also note that 84% of workers assisted by criterion on the selection and retrieval of a set of fields and modify them.
3. That 88% of respondents stressed that the criterion always help them in saving results and transfer registrations bibliographic retrieval from one system to another.
4. More than 72% of the sample agreed that the standard help in the direct search in the publishers available indexes while 28% of respondents are assisted by criterion in this property only occasionally.
5. 72% stressed that the standard is recognizable by its electronic document request and this demonstrates the importance of this criterion and its ability to secure documents electronically to facilitate workers job, while the number of the sample group that are helped by the standard on cooperative loan service was 56% and 32% of them assisted by criterion sometimes and 12% are not helped by the standard on loan service cooperative.
6. 80% of respondents confirm the accessing to databases through one interface, this also shows that the standard facilitates work for employees.
7. 84% of respondents said they use registered Marc compatible with standard which helps in exporting data and there was no officer of the sample who did not confirm this.
8. 60% of the sample uses simple search through the standard, and 36% of them use it sometimes.
9. organize search results and modify the recipient on the important as the most important feature that characterizes the standard 76% of respondents agreed, and 20% of them helps them sometimes
10. Browsing recovered substances 80% of the sample groups was helped by the standard on this property and 16% sometimes helps.
11. 56% of respondents who use conjunctions Alpolyany and Albater in search, and 40% use it occasionally and 4% don't use it at all.
12. We note that 72% of the sample stressed that the standard provides the ability to create default standard indexes on a national scale and geographical one, giving great importance to standard and special feature.
13. 84% of respondents said that they could determine the nature of the anticipated answer, whether text or bibliographic or multimedia recordings.
14. The criterion provided a more specific and precise Internet browsing service for 76% of the staff while 8% of them were not provided with this service standard.
15. 56% of respondents stressed that there is an importance to password to control access to information, while 36% indicated that it is sometimes important while 8% of respondents denied the importance of password.

Through micro and macro (inclusive) analysis for the respondent's answers to the sample it is clear that the Standard Z39.50 plays a large and effective role in information retrieval, search and retrieval of bibliographic records.

The standard aims to conduct a research in databases with far-flung display results, it also aims to facilitate the services provided by libraries, indexing, classification, cooperative loaning and create indexes default and browsing online. The standard also provided for staff information services and organizes results faster and more easily.

Paragraphs	always	sometimes	rarely	1%	2%	3%	likely
1	21	4	0	84%	16%	0%	2.84
2	21	4	0	84%	16%	0%	2.84
3	22	2	1	88%	8%	4%	2.92
4	22	2	1	88%	8%	4%	2.92
5	18	7	0	72%	28%	0%	2.72
6	18	6	1	72%	24%	4%	2.76
7	14	8	3	56%	32%	12%	2.68
8	20	4	1	80%	16%	4%	2.84
9	21	4	0	84%	16%	0%	2.84
10	15	9	1	60%	36%	4%	2.64
11	14	10	1	56%	40%	4%	2.6
12	19	5	1	76%	20%	4%	2.8
13	20	4	1	80%	16%	4%	2.84
14	18	5	1	72%	24%	4%	2.76
15	21	3	1	84%	12%	4%	2.88
16	19	4	2	76%	16%	8%	2.84
17	14	9	2	56%	36%	8%	2.64

Schedule No. (2)

Questionnaires Analysis

20.3. Results of the interview

After providing the questionnaire and making the interview at Yarmouk University and University of science and technology and through the study and discussion of reality using standard Z39.50 in library and their familiarity to this Protocol, results were obtained for each section of the library in accordance with procedures and discussions and then to General conclusions as abstract background reflect the results of the use and knowledge of the Protocol.

21. **Indexing and classification**
   ❖ At Yarmouk University:
      A. Protocol is used in English books indexing and integrating different registers
      B. providing employees with time and effort, and worked to increase productivity at work
      C. Possibility of providing several search service databases as soon as OCLC-library of congresses – Ohio link-horizon group
      D. One of the most important problems encountered by the employees is the problem of sorting (sort method) and limiting the search protocol in English books without searching in Arabic books.

   Thus, employees are able to use and benefit from the work protocol without adequate knowledge of the Protocol, and the reason is that there is not adequate training courses provided for workers.
   ❖ In University of science and technology:
      A. Protocol is used and applied through daily work
      B. The main facilities and works carried out by the Protocol: bibliographic processes, Marc records, information filtering, linking and merging recordings, modification and development of additional data and saving them.
      C. One of the most important benefits and advantages is the speed, precision and helping in reducing data and information inflation.
      D. Protocol helps employee in complex and simple searching and there is no need to educate and teach the beneficiary about the system because it is easy to use.

22. **Serials**
   ❖ Yarmouk University:
      A. Protocol is used in periodicals for the import process and request for periodicals.
      B. Main facilities provided the Protocol section periodicals is a full log import and save time and effort.
      C. One of the most important problems facing workers that the protocol is based on collectibles and the views of the created enterprise, which differs from collectibles and other enterprise views.

D. Method of requesting periodicals is still traditional (through requests and receive offers, not electronic)

The study found that employees are not fully aware the Protocol and how it works and lack of knowledge of the future of the protocol and its development.

- ❖ In University of science and technology:
  - A. Protocol is used in this section in terms of linking data and relies on electronic regestration.
  - B. one of the most important uses of the Protocol in this section is "Search"
  - C. training course has been provided for Z39.50 protocol
  - D. the most important benefits provided by the protocol in work is shorting the steps of work speed and accuracy while the old method need longer time to import.
  - E. Complex search is uses only in this section.
  - F. Reached periodicals stopped and became electronic and traditional periodicals are demand from companies by bidding.

23. Supply section
- ❖ Yarmouk University:
  Employees do not have a clue about the Protocol and how to use it, it has been cleared that they use Alhoorizone system and by it they can use the Protocol but they did not have full knowledge of the Protocol and there was no cooperation from the staff in supply section due to lack of knowledge.
- ❖ In University of science and technology:
  - A. There is a familiarity with the concept of Protocol and the most important uses of the standard in supply: data retrieval and retrieval of recordings.
  - B. Library provided training course for employees to familiarize them with the Protocol and how to use it.
  - C. the Protocol assists in direct search in electronic form and search through transactions and simple and complex search.
  - D. Requesting materials as follows: searching before requesting, fill the request, save the results and store them on the database.
  - E. Main characteristics provided to the supply section is precession, speed, the possibility of detecting mistakes and saving time and effort.

24. databases and guidance
- ❖ Yarmouk University: Although the use of the Protocol, the search found that they use ready databases without addressing the use of the Protocol.
- ❖ In University of science and technology: could not obtain information from the Chief of section because this section is linked with the main library.

25. Conclusion
Search found that different sections of the library look differently on the principles of the Protocol work, including some who know about the Protocol and other who does not have a clue about the topic, knowing that the Protocol is used in all sections. All employees are using the Protocol in sections of the library and helps them perform their jobs nicely and in a unified way and with minimal time and effort.

1. all employees are using the Protocol in sections of the library and helps them perform their jobs nicely and in a unified way and with minimal time and effort.
2. the staff reaffirmed that the Protocol helps them in requesting for a job electronically, this demonstrates the importance of the Protocol.
3. it was found that the only section that does not use the protocol is the database section.
4. a large number of workers using the mark register that is compatible with standard which helps them in exporting data.
5. the third version of the Protocol has a large range of premium services provided to employees like search, retrieval and organize and modify the results.
6. the project of forming the common default index in libraries of Jordan is one of the most important projects and sponsored by Alimteaiz center with the Jordanian public universities.
7. the actual application of the Protocol through the automated systems used by Jordanian University Libraries is weak in its entirety.
8. lack of works familiarity with the next generation of the protocol. ZING
9. Unlike the features that characterizes the Protocol but there are negative aspects may hinder the work of

employees.

10. the support of the government workers in university libraries to the Protocol and spreading the awareness of it among its employees and its principle.
11. the only system protocol used in public universities in Jordan is the Horizon system.

26. Recommendation

1. the need for further development of Z 39.50 by Protocol developers to benefit from its services in the library.
2. training courses for library professionals to familiarize them with the Protocol and its services so they can use it optimally.
3. the possibility of teaching Z39.50 protocol for library and information science students at Jordanian universities to help them support their function properly.
4. the need to make use of all the possibilities and services provided by the Protocol in all sections of the library
5. expanding the research in the Arabic libraries catalogues
6. encourage publishers to create indexes as database and support rule specification to help supply section
7. support and encourage the Jordanian Government libraries in create index.
8. the Jordanian Government libraries should use logistics service of documents and loan cooperative libraries.
9. chiefs recommended the need to know the Protocol and conduct training sessions for employees, they also encouraged many workers to use protocol because it is effort and time saving and it increase productivity.

the need to seek the protocol and it should include Arabic books and not limited to only English books.

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