

Azerbaijan Bibliography, Modern International Databases on Natural Sciences: Formation, Structure and Use in the Azerbaijan's Library and Bibliography Practice

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ABSTRACT

The purpose of this paper is to clarify global bibliographic databases on natural sciences, the investigation of their methodological structure and usage issues of these databases in Azerbaijan and in the world.

Methodology. The research examines two areas of bibliography on natural sciences:

1. The National bibliography of Azerbaijan, and
2. Modern library databases, and their benefits to structure methodology, and data modeling. The history of formation of libraries and information resources on natural sciences in Azerbaijan, and the improvement stages they have taken during this period have been highlighted.

Findings. Results show that asides from the advantages of databases and the success of library databases in library practice in the world, there were also difficulties and problems of creating the local bibliographic database for the natural sciences.

Originality. Examples and experiences of local libraries are discussed in the paper and compared with the world's leading library and bibliography practices. It covers scientific research on the principles of creating global electronic bibliographic databases on natural sciences, the principles of structural formation and the use of information resources in this area. The article reports the development of modern electronic bibliographic databases and their perspectives in Azerbaijan and abroad.

Keywords: library databases; natural sciences; global databases on natural sciences; data modeling; annotation database.

INTRODUCTION

Bibliographic activity on natural sciences in Azerbaijan, including its new and traditional forms, has not been fully researched and studied yet.

Considering the need for the research of bibliographic work on natural

sciences in Azerbaijan, the paper reflects on the history of the development of the national bibliography in the country, the methodology in creating the traditional bibliographic resources, and the creation of databases in the natural sciences.

METHODS

Observation, data analysis, and interviews were mainly used. The changes that have taken place in bibliography and librarianship over the years include:

- Innovations in the librarianship and bibliography field have been observed in the country's libraries over the years, and development trends and changes have been recorded.
- Year by year, there has been an increase in the number of literatures on the natural sciences in the country's libraries and an increase in user demand for these literature.
- There was a need to create new databases, and bibliographic databases dedicated to the natural sciences were formed in the National Library as well as in the Presidential Library of Azerbaijan.
- New personal and universal traditional bibliographic guides were created.
- Old records were improved and replaced with modern electronic databases.
- The establishment of international cooperation on bibliography
- The implementation of subscriptions to the international databases, etc.

Through the interview, the information received from bibliographers working in different libraries were analysed. The structure of the work carried out in the bibliographic departments of the different libraries, the annual plan and innovations were compared.

Using the data analysis method, the changes in bibliography in the country over the years have been analysed. It was determined that there are significant changes despite the slow development.

It should be noted that the National Library of Azerbaijan ranks first place among the country's libraries for the formation of local bibliographic databases. The other three places are divided between the Presidential Library of Azerbaijan, the Library of the Azerbaijan National Academy of Sciences, the Central Libraries of Azerbaijan, and the Children's and Youth Libraries.

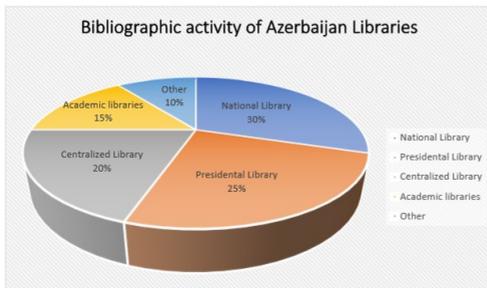


Figure 1 Bibliographic activity of Azerbaijan Libraries

STATE POLICY ON BIBLIOGRAPHY

Azerbaijan has been under Russian rule for a long time and the bibliographic rules adopted in Russia have been characteristic of our country as well. Until the 1950s, various rules of description were discovered and applied in our country.

From the beginning of our 60th year, several kinds of state standards were created and have been applied in libraries during the different periods:

- State standard 7.1-69 «Description of printed works for «Bibliography and Information Publications»;
- State standard 7.1-76 «Bibliographic description of Printed works»;
- State standard 7.1-84 «Bibliographic description of documents. General requirements and rules of compilation»;
- State standard 7.80 – 2000 «Bibliographic record. Title of the description. General requirements and compilation procedure»;
- Standard 7.1.-2003 «Bibliographic writing. Bibliographic description» (Mustafayeva, 2007).

The role of the government in library and bibliography work has great importance in Azerbaijan. The country's libraries implement the principles of work based on the decisions, orders and special programs adopted by the State. Important legislative documents adopted by the state during the independent years are the following:

1. The signing of the decree «On the state of library work in the Republic of Azerbaijan and measures to improve it.» by President Heydar Aliyev on July 27, 1996 (Xalafov, 2001).
2. Adoption of the Law of the Republic of Azerbaijan «On information, informatization and protection of information».
3. Adoption of the «Law of the Republic of Azerbaijan on Culture».
4. Enforcing the Order «On improving the activities of libraries in Azerbaijan» signed by Ilham Aliyev on April 20, 2007 (Qojayeva, 2009).

5. Accepting the program entitled “Library-information in the Republic of Azerbaijan State Program for the Development of the Sector in 2008-2013”.

Orders and laws adopted by the State are unequivocally accepted and applied by all country libraries. But the description standards are applied depending on the choice of libraries. Public libraries work based on the standard 7.1.-2003 «Bibliographic writing. Bibliographic description». Some academic libraries prefer the international experience. For example, ADA University Library is working with the RDA standards.

METHODOLOGY OF TRADITIONAL BIBLIOGRAPHY IN AZERBAIJAN LIBRARIES

The bibliographic work is carried out in appropriate directions in all types of Azerbaijan libraries:

- Organization of mechanism of information and bibliographic work in the country libraries
- Compilation of bibliographic resources
- Bibliographic information service
- Inquiry bibliographic service
- Information literacy
- Methodical work
- Promotion of bibliographic knowledge

Organization of mechanism of information and bibliographic work processes consist of the procedures below:

- The formation of the reference collection in libraries
- Creating electronic catalogue systems in libraries. Most state libraries and older university libraries are still saving traditional catalog boxes in their collection
- Creation of bibliographic resources.

The types of bibliographic resources are as follows:

- bibliographic lists
- bibliographic guides
- bibliographic summaries.
- Library catalogues, etc.

Preparation of all types of bibliographic materials is carried out in three stages:

- Preparatory - combines topic selection, summary compilation and literature selection.
- Foundation - the synthetic and analytical stage, which covers processes such as bibliographic description, annotation, abstracting, indexing and objectification, as well as grouping of bibliographic records.
- Final – editing and final formation of bibliographic resources.

BIBLIOGRAPHIC WORK IN AZERBAIJAN LIBRARIES

The larger and more developed libraries of Azerbaijan divides into two directions according to the purpose and direction of the readers:

- Public libraries
- Academic libraries

There are 2 978 public and 58 academic libraries operating in Azerbaijan. In the public libraries, bibliographic work is carried out in two forms: traditional and modern. The bibliographic departments of public libraries operate in the following directions:

- Preparation of print bibliographic materials;
- Formation of local personal and topical simple electronic databases;
- Control of the usage of traditional catalog systems;
- Creation of modern electronic catalog systems;
- Meet users' queries and help them for search
- Implementation of subscription to international electronic databases and support their usage etc.

Bibliographic records reflect in the workflow operation of public libraries in the following forms:

- traditional catalogues in local databases
- traditional bibliographic guide.

The bibliographic guide dedicated to Azerbaijani academic and geographer scientist Hasan Aliyev is presented as an example of a bibliographic guide on natural sciences. The guide was compiled by the Central Scientific Library of the Azerbaijan National Academy of Sciences. It covers information resources of the scientist and the materials dedicated to him. The information resources in the guide have been arranged according to the chronology and numbered with numbers. The bibliographic guide is intended for users interested in the activities of Hasan Aliyev.

The guide covers resources in Azerbaijani, Russian and English. It is divided into six main and three auxiliary sections: "Bibliography of works", "Maps", "Popular science articles", "Edited works", "Scientific guidance to dissertators", "Literature about life, activity and works", "Alphabet index of works", "Alphabet index of co-authors", "Alphabet index of authors".

The works of Hasan Aliyev are included in the «Bibliography of works» section. With the help of the bibliographic guide it is possible to determine that Hasan Aliyev is the author of 258 scientific works. 51 of them are in Azerbaijani, 188 in Russian and 19 are in English.

With the help of the «Maps» section of the guide, it is possible to determine that the first map authored by Hasan Aliyev was a schematic land map of the Azerbaijan SSR prepared in 1949 together with V. R. Volobuyev.

With the help of the maps section of the index, it is possible to determine that the first map authored by Hasan Aliyev was a schematic land map of the Azerbaijan SSR prepared in 1949 together with V. R. Volobuyev. (Aliyev, 2002).

It is also possible to determine with the help of «Maps» section that he is the author of 9 maps and atlases in Azerbaijani and 45 in Russian.

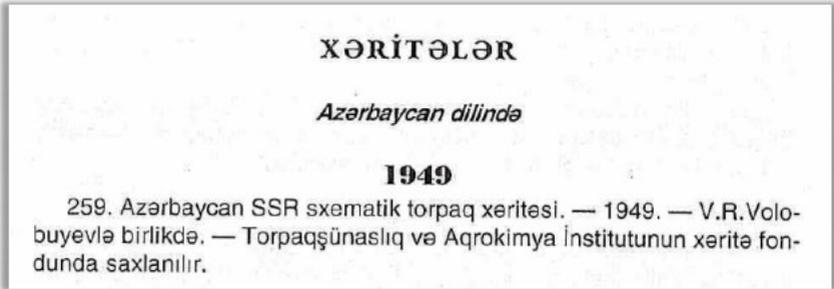


Figure 2. Bibliographic record

The work principles on bibliography of academic libraries in Azerbaijan are as follow:

- Answer user inquiries;
- Teaching information literature lessons;
- Assist in searching on databases;
- Answering requests to the reference collection.
- Exploring new databases, etc.

Academic libraries do not compile traditional bibliographic guides, they only form an electronic catalog of the library with description of the information resources. The standards that define the rules of description of the information resources, and the library classification are determined by the libraries. Libraries prefer Universal Decimal Classification, Library Bibliographic Classification and the Library of Congress Classification.

In modern times, public and academic libraries of Azerbaijan carry out in parallel traditional library work and reference librarianship work. Today the main libraries of the country have subscribed to international databases like Ithaka, William Hein Online, Taylor & Francis, Ebsco, ProQuest, etc. Some academic libraries in the country, such as ADA University Library, and UNEC Library serve users 24/7.

Most public libraries continue to implement the traditional bibliography. They are still saving old card catalogues and compiling bibliographic methodical guides.

TYPES OF LIBRARY DATABASES AND DIFFERENCES BETWEEN DATABASES AND TRADITIONAL BIBLIOGRAPHIC RESOURCES

An electronic database or electronic database, is a collection of data, or information organized for rapid search and retrieval by a computer. A library database provides researchers and all information users the necessary information from academic periodicals and serials. It is considered a searchable electronic index of published reliable resources. The following types of databases are distinguished:

- Bibliographic databases;
- Bibliographic-index databases;
- Full-text journal databases;
- Full-text book databases;
- Statistical databases;
- Open Access databases. (Hajiyeva, 2018).

The following advantages differentiate databases on natural sciences from traditional bibliographic resources:

- Make thousands of information resources available at the same time;
- Eliminate loss of time;
- Eliminate the distance problem;
- Help to narrow and expand the search on various aspects (language, date, information resource type and etc.);
- Allow you to search and retrieval of results wherever the network is available, etc.

METHODOLOGY AND PRINCIPLES OF FORMATION OF FULL-TEXT DATABASES ON NATURAL SCIENCES

The database on natural sciences is a collection that collects and saves information resources on natural sciences and likewise organises their usage. The following databases on chemistry and biology can be shown as an example: British Chemical Society's Analytical Abstracts database, the American Analytical Sciences digital library, the Beilstein database, the Biological Abstracts, the BioOne, the Merck index, the PubChem, and the Zoological record. Although database issues have been partially studied in Azerbaijan librarianship theory, this field has not been applied in practice. Generally, creating full-text databases on natural sciences requires the teamwork of IT specialists, librarians and the specialists of natural sciences. Formation of these is carried out in two stages:

1. Logical design stage
2. Physical design stage

Each design stage is made up of defined stages. The following processes are applied in the logic stage:

- Defining of the topics
- Consideration of user interests
- Generation of usage and statistics reports.
- Identification of search elements, etc.

The formation of the physical design stage is under the responsibility of IT specialists and covers the following processes:

- Physical formation of the database
- Solution of technological problems
- Providing access and usage opportunity
- Creating a user interface
- Provision of appropriate support programs in need and etc.
- Integration compatibility with Reference Management Tools: Mendeley, Refworks, EndNote, etc. (Hajiyeva, 2018).

BIBLIOGRAPHIC SERVICES IN AZERBAIJAN ON NATURAL SCIENCES

The bibliography on natural sciences in Azerbaijan began to develop in the second half of the 19th century. Library catalogues, including books on natural sciences, book catalogues for sale, and bibliographic guides on natural sciences are considered as traditional examples of bibliography on the natural sciences in Azerbaijan. The Azerbaijan National Academy of Sciences is the main scientific center for research in all sciences, as well as in the natural sciences. Although its formation took many years, the Academy of Sciences of the Azerbaijan SSR was established in 1945. The Units of “Chemical Sciences”, “Earth Sciences”, and “Biological Sciences” of the Academy specializes in natural sciences. But the section of “Physical, mathematical and technical sciences” partially covers the natural sciences. Although the Academy has library institutes, the Central Scientific Library of the Academy serves all researches of its institutes and other researchers of the country. It is a methodical center directing the activity of 27 libraries in the Academy system. The activity of the Central Scientific Library on traditional bibliographic service is invaluable. The library founded the series called «Personalities of Science and Culture» in the 1960s and began to publish personal bibliographic guides under this series. Thousands of bibliographic guides have been published under the title of those series until today. (Aliyev, 2001).

The National Library is one of the main libraries in the country that forms bibliographic resources on natural sciences. Different departments of the National Library of Azerbaijan include: Department of bibliographic and electronic information services, department of creating analytical bibliographical resources, and Department of country studies on bibliographic resources. Various subject

and personal bibliographic guides are printed by The National Library. (Aliyev, 2007).

Academic universities that provide programs on the natural sciences including the Baku State University, Azerbaijan State Pedagogical University, Khazar University are also serving bibliographic services to information users in their relevant science field.

DATABASES IN THE LIBRARY AND BIBLIOGRAPHY PRACTICE OF AZERBAIJAN

Although full-text databases have not been created in the informatization practice of Azerbaijan, they are taking into account the needs of information users. That is why, libraries and information centers subscribe to external databases and make information resources available for users. There are enough information databases on natural sciences in the world. Libraries and information centers in the country do not use full-text databases on natural sciences. They subscribe to databases that contain materials on natural sciences, along with other sciences.

Although OCLC WorldCat, an international bibliographic database, is used in Azerbaijani libraries, the country's first bibliographic database, AZLIBNET is being formed. It is a main union catalogue of Azerbaijan which was established from the initiative of the Ministry of Culture and Tourism of the Republic of Azerbaijan and the National Library named after M.F. Akhundov. The creation of the union catalogue based on the order of the President of Azerbaijan Republic dated October 6, 2008 called "Development of library and information sphere in the Republic of Azerbaijan in 2008-2013». The purpose of creating this catalogue is to develop the cataloguing system in the country, to improve the quality of bibliographic records, to control it from the centralized system, and most importantly, to fulfil the mission of creating a single national bibliographic database. The union catalogue - AZLIBNET covers all fields of science, as well as information resources on natural sciences. Main public and academic libraries of Azerbaijan including Academic Library of ADA University, Centralized Library system of Ganja City, Centralized Library system of Sumgait City, Republican Youth Library named after J.Jabbarli, Republican Child Library named after F.Kocharli, Presidential Library and others are attending to the formation of this union catalogue.

LOCAL ELECTRONIC DATABASES OF AZERBAIJAN LIBRARIES ON NATURAL SCIENCES

In recent years, the practice of creating simple electronic databases has become widespread in Azerbaijani bibliography. These databases can also be considered as more improved electronic versions of bibliographic guides. The National Library of Azerbaijan created such a database under the name of «Electronic Database». Those databases were mostly dedicated to the outstanding personalities of Azerbaijan history, literature and all persons who take an important role in the

improvement of Azerbaijan. Such databases are also formed as databases on historical landmarks, country and ethnography, and other topics.

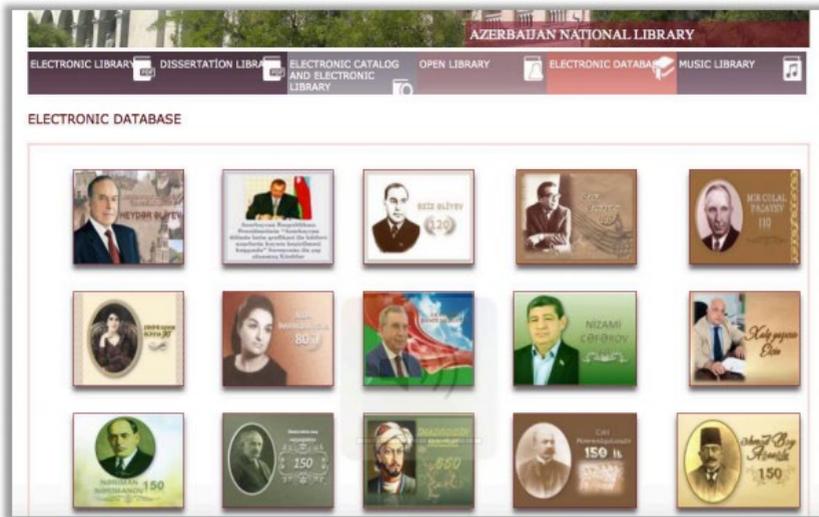


Figure 3. The interface of «Electronic Database»

One of the main deficiencies of these electronic databases is that the electronic resources that make up the database are not systematized on any basis (alphabetical, chronological, etc.). Such databases are mainly dedicated to the anniversaries of celebrities.



Figure 4. The interface of pages from the electronic database dedicated to the 170th anniversary of Hasan bey Zardabi

The electronic database dedicated to the 170th anniversary of Hasan bey Zardabi, the first naturalist scientist of the Islamic world, can be mentioned as an example of a database on the natural sciences created by the National Library.

The life and the activities of the scientist are grouped within sections and all information about him is placed within those sections.

The scientist's life, books, articles, other works, presidential decrees dedicated to him, photo gallery, works about him and other materials are located inside the sections and all information resources are bibliographically described.

Within the sections, all information are lined up according to years and are in chronological order. If there is an electronic version of the described resource, clicking the bibliographic description directs the reader directly to that resource (such as the author's work, book, state decision, presidential decree, etc.)

The disadvantage of the electronic databases of the National Library is their availability only in Azerbaijani. The lack of these kind of databases in international languages limits its global use.

Another project related to the bibliography on natural sciences, is the "Azerbaijan Ecology" Project of the Presidential Library. The database consists of five main sections called «General information», «Ecological problems», «Ecological education», «Legislative basis», and «E- resources». It also holds the subsections of the main sections.

«Azerbaijan Ecology» database is compiled in Azerbaijani, English and Russian languages. This feature of the database allows world researchers to benefit from its opportunities. The database informs users about nature in Azerbaijan: its forests, ecological zones, national parks, environmental problems and its situation, ecological calendar, and ecological dictionary.

The "General Information" section of the database reflects information on the nature in Azerbaijan. The section "Ecological Problems" contains information on the ecological situation and problems in Absheron Peninsula, and Caspian Sea. The section of "Ecological Education" performs the function of environmental education. The "Legislative Basis" section reflects all national programs and plans including official documents dedicated to Azerbaijan ecology. The e-resources section includes e-books, articles, and useful links about ecology. It also holds speeches, interviews and projects on ecology by the Vice-President of the Heydar Aliyev Foundation, the founder of İDEA social union (International Dialogue for Environmental Action) - Leyla Aliyeva.



Figure 5. The interface of the database “Azerbaijan Ecology”

E-BOOKS IN THE DATABASE CAN BE READ AND DOWNLOADED ONLINE



Figure 6. The interface of the database “Azerbaijan Ecology”. ebooks page

The bibliography section contains a list of bibliographic descriptions of environmental information resources.



Figure 7. The interface of the database “Azerbaijan Ecology”. Bibliography page

Bibliographic descriptions of the books cover the period of 1982 until the present, but the articles’ description covers the period between 2004 to 2020 years. All of the information resources are arranged in chronological order.

There are shortcomings of such kinds of databases, and these necessitate their development. Using the example of the two mentioned databases, the following features are not present in local databases but are required of them:

- The database creator must achieve its goals and provide a robust platform.
- The database must demonstrate quality in terms of coverage, technical structure and security.
- It has to offer VPN, proxy or local server as access methods.
- Ensure the security of user data and information sources.
- Data security, backup and archiving should be supported by the database.
- Performing functions such as downloading information, sending via email, printing, etc.
- Standard statistical data reporting.
- Terms and conditions related to the rights of use, etc.

CONCLUSION

The Azerbaijan Library Society is experiencing a transition period in bibliographic activity. Traditional and modern bibliographic services are applied in parallel in the country’s libraries and information centers. Modern academic libraries in the country are following innovations in the global library science field and trying to develop reference librarianship and the national bibliography of Azerbaijan. Modern innovations in this field are taught at the librarianship and bibliography departments of Baku State University and Azerbaijan State University of Culture and Arts. Although some development-oriented work has been done in this area strong development is still needed in this area. However, the taken steps create conditions for the future development of this field.

Although there are certain databases in the field of natural sciences in the Azerbaijani library practice, they have a very simple structure and basic

capabilities in accordance with the requirements of the times. There is a need to further improve the existing databases and create better databases on the natural sciences. The following methods are necessary for the development of this field:

- Organization of improved and new teaching and learning methods of higher education in the field of librarianship.
- Adaptation of the librarianship subjects to the requirements of the times in librarianship and information faculties of universities.
- Exclusion of old and non-library subjects from the curriculum.
- Experience of exchange opportunities with developed foreign libraries.
- Development of existing practices and formation of new knowledge in the field of creation of databases.

All leading library specialists in the country, as well as specialists in the field of information and informatization should strive for the development of this field in accordance with modern requirements. The importance of the development of this area is already becoming a necessity based on user demand. We hope that in the near future there will be formed databases on natural sciences that can meet the needs of users and achieve success in Azerbaijan bibliography science.

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