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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

BIBLIOMETRY IN LIBRARIES: CURRENT STATE AND PROSPECTS OF DEVELOPMENT

Speciality: 3356.01 – Library science, bibliographic science and bibliology

Field of science: History

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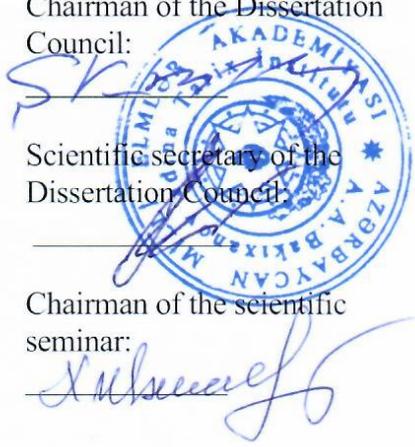
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I. GENERAL CHARACTERISTICS OF THE DISSERTATION

The relevance and the development of the subject. Today, the development of new information and communication technologies makes it necessary to carry out assessment and diagnostics in order to predict the development trends of processes in various areas of human activity. It is also important to search for more effective and relevant ways to adapt to the social environment in the library and information sphere.

Intensive development of science and rapid growth of all types of publications led to the importance of the organization and comprehensive coverage of the statistical analysis system of document-information flows in libraries.

Bibliometry as a qualitatively new form of development of analytic-synthetic processing of literature directs the attention of theorists and practitioners for librarianship to the more rational selection of efficacious information, methods of its evaluation, and effective ways of research.

In the 20th century, the method of bibliometric analysis, related to the quantitative study of document-information flow, began to be widely used. In 1960-1970, Bibliometry received the status of an independent scientific direction. Rapid growth and transformation of information resources of society appeared the need for qualitatively new knowledge by other means. Within the framework of bibliometric research, new ways and methods of analysis of document-information flows, as well as new directions of their use began to be developed.

Quantitative aspects of bibliometric analysis of document-information flow didn't find properly their theoretical and practical application in republic libraries. This confirms once more the relevance of this study.

One of the important issues is to solve the problem of developing a scientifically based effective state policy for solution of problems determining the activation of bibliometric research aimed at studying the regularities of development of library work and based on the effective use of scientific and technical potential.

One of the reasons reflecting the urgency of the topic is that Bibliometry is not just a theoretical subject. It detects its practical application in the management of libraries, information fund, quality assessment of publications and magazines.

The research in the field of Bibliometry is vital not only related to its great importance in library activities, but also for the determination of scientific policy as a whole. Therefore, taking into account this process belongs to the general scientific category, special attention should be paid to the widespread use of bibliometric methods. As a highly dynamic development of modern science in general, it is also important to develop and apply a modern complex system of objective quantitative methods, assessment, and analysis of development trends in its whole or in separate directions in librarianship. In other words, the modern type of reflexive research of library studies should be based on the objective (algorithmic) analysis opportunities of library knowledge. In particular, Bibliometry allows us to obtain such results, which may serve as a basis for a more comprehensive study of traditional analysis methods in content in the future.

The study of role and place of Bibliometry in the activities of libraries is one of the most actual directions of research in the field of library and information sciences. Libraries and information centers apply Bibliometry to manage science, and librarians and information specialists use Bibliometry to study the needs of scientific publications and scientists.

There is a great need for bibliometric data in the scientific environment, as well as in library and information activities. The supplier function of libraries as a carrier of unprocessed data or

information is completed during the bibliometric analysis of highly qualified information processing. Bibliometry is an ideal tool for using and providing the innovative services of libraries. Bibliometry not only presents new opportunities to libraries, but also poses new challenges.

In recent years, libraries undergo a complicated process as defining their roles and responsibilities in the scientific communication system. The integration level of libraries into the academic environment is increasing. Libraries are considered as full-fledged partners of the scientific research circle. One of the developing directions in the activity of libraries is the evaluative bibliometrics that has a strategic role in the process of management and evaluation of research¹.

Bibliometric research in libraries is of special importance for setting up a strategy of thematic informatization of scientists and users. The information obtained as a result of the application of the citation-analysis method allows determining: the rate of information obsolescence, the main mass of publications on this or that scientific topic, scientists whose publications have a special scientific status, and are of interest to other scientists. So it shows the active development of information services based on bibliometric data. However, the generalization of possibilities of various methods and techniques that allows solving modern information problems is very important for its implementation and improvement to a higher quality level, increase in the number of users, analytical processing of bibliometric information. For this purpose, modeling of information provision subsystem based on bibliometric research, allowing to make the transition from the ideology of information service in

¹ Галявиева, М.С. Библиометрия в библиотеке в оценках библиотекарей (по материалам зарубежных исследований) // Вестник Казанского государственного университета культуры и искусств, – 2015. №1. [Электронный ресурс]. URL: <http://cyberleninka.ru/article/n/bibliometriya-v-biblioteke-v-otsenkah-bibliotekarey-po-materialam-zarubezhnyh-issledovaniy>

libraries to systematic information provision, and accompanying scientific research work is considered a topical issue.

Except for the Electronic Library of the Institute of Information Technology of ANAS, no other library in our country is engaged in bibliometric research. Given the large number of bibliometric studies conducted in various fields in libraries of the world's countries, especially in scientific libraries, Azerbaijani libraries have almost no activities in this field of scientific metrics. Emphasizing that this field will help libraries to organize properly their scientific activities, it would be expedient to carry out work in the relevant direction in large libraries of national importance shortly.

The formation and development of national document-information base on Bibliometry is also an important factor. This is one of the issues that stimulate the relevance of the topic and its study.

The use of Bibliometry in libraries will allow for the purposeful formation of information resources, to obtain an objective image of the state of the direction under study, to plan and forecast work at a higher level in the future.

First of all, it should be noted that the application problem of Bibliometry is a very important issue for today's Azerbaijani scientific society, so his problem studied by experts - scientific politicians, scientific administrators, scientific editors of journals, publishers, library and information specialists in various fields on relevant aspects. However, a study of the problem from a historical point of view shows that this area, unlike our republic, was studied in certain spheres in different countries around the world. The problem of conducting bibliometric research, which is very relevant today, is studied to some extent in several aspects.

Presently, the Bibliometry sector operates in the E-Library Center of the Institute of Information Technology of ANAS. Specialists in the sector conduct research in the direction of the development, current status and development prospects of

Bibliometry, preparation of bibliometric maps, improving the service quality in electronic libraries via social networks, bibliometric methods in electronic libraries, studying the application opportunities of bibliometric methods in the e-library environment and they explore the problem from different aspects. Bibliometry was studied from various aspects in several scientific works by Rasim Aliguliyev, a full member of the ANAS and director of the Institute of Information Technology of ANAS, Ramiz Aliguliyev, Head of Department at the Institute, professor and doctor of technical sciences, Tahmasib Fataliyev, Head of Department at the institute, Nigar Ismayilova, Head of the Bibliometry Sector, Ph.D. in Technical Sciences, at the E-Library Center of the Institute, as well as in express-information publications² published by the Institute under the series "Information technologies" and "Information society" and conference materials³.

Additionally, the term Bibliometry was analyzed in a scientific article by teachers of the faculty of library science-information of BSU. Honored Scientist, Doctor of Historical Sciences, Professor Abuzar Khalafov in one of his scientific articles⁴ co-authored with associate professor of the Chair of Library Science, Ph.D. in Physico-

² Əliquliyev, R.M. Bibliometriya: müasir vəziyyəti, problemləri və inkişaf perspektivləri / R.M.Əliquliyev, N.T.İsmayilova // Ekspress informasiya. İnformasiya cəmiyyəti seriyası. – Bakı: "İnformasiya Texnologiyaları" nəşriyyatı, – 2015. – 71 s.; Əliquliyev, R.M. Bibliometriya: müasir vəziyyəti, problemləri və inkişaf perspektivləri / R.M.Əliquliyev, N.T.İsmayilova // Ekspress informasiya. İnformasiya cəmiyyəti seriyası. – Bakı: "İnformasiya Texnologiyaları" nəşriyyatı, – 2015. – 71 s.

³ İsmayilova, N. Bibliometriya: müasir vəziyyəti, problemləri və inkişaf perspektivləri // "E-kitabxanaların formalaşması problemləri" respublika elmi-praktiki konfransının əsərləri. – Bakı. 15 aprel, – 2016. – s. 34-36.; İsmayilova, N.T. E-elm mühitində bibliometrik metodların tətbiqi imkanları və perspektivləri haqqında // Elektron elm problemləri üzrə I respublika elmi-praktiki konfransı. – Bakı. 15-16 noyabr, – 2012. – s. 25-26.

⁴ Xələfov, A.A. Bibliometriya nəzəriyyəsi kitabxana fəaliyyətində / A.A.Xələfov, A.İ.Qurbanov, P.F.Kazimi // – Bakı: Bakı Univer-nin Xəbərləri. Humanitar elml. ser., – 2012. №1. – s. 188-193.

mathematical sciences A.Gurbanov and Lecturer of the Chair of Library Science, Doctor of Philosophy on History P.Kazimi studied the application of Bibliometry in library practice and reviewed it as an important aspect of library-information service.

Unfortunately, various approaches related to Bibliometry and its structure was not sufficiently analyzed by library and information specialists, and the work carried out by international organizations in the formation of Bibliometry not studied. Several existing problems in the formation of Bibliometry and their solutions were not studied.

Determining the participation of libraries, which is a source of important knowledge and intelligence in the formation of Bibliometry, and scientific research of the problem was not comprehensively studied and not reflected in any research work.

Object and subject of the research. The research object of the dissertation is the current situation and development prospects of bibliometric research in libraries. The subject of research is the historical development and structure of Bibliometry, the application of bibliometric research in library practice and the interaction of document and information flows with other directions of metric analysis, comparative bibliometric analysis - the practical application of information analysis strategy in the library information system and issues such as the mathematization of this field of activity.

The aim and the tasks of the research. The concept of "Bibliometry" was analyzed in the development of the topic, its role and functions studied in the formation of library funds, and the participation and importance of libraries playing a very important role in the implementation of bibliometric scientific research around the world, but very little studied, were tried to be explored at the level of scientific and theoretical requirements.

The main purpose of the dissertation is to determine the path of development from the emergence and formation of the concept "Bibliometry" to its new progress stages in a modern information society based on rich scientific, theoretical and methodological

literature in a very small number of Azerbaijani, as well as Russian, English, German and Ukrainian languages, to summarize the participation and importance of libraries in the formation of Bibliometry, development trends and new working methods in the activities of libraries in this direction, to reveal successes and current problems in this area and to explore the ways to solve problems, using of a model of information provision subsystem of scientific research work in libraries based on bibliometric methods.

The purpose in the research of the topic is the fulfillment of the following scientific tasks:

- To study world experience and draw parallels in the relevant field;
- To develop a model for studying the effectiveness of scientific-research results in libraries and to determine the parameters of its functioning depending on the object of study;
- To determine the place of Bibliometry in the study of the activities of libraries and the effectiveness of scientific research, to consider the methodology of conducting evaluation procedures;
- To substantiate the role of libraries in the formation of evaluative Bibliometry and to reveal its actual and potential opportunities;
- To develop the methodology of its analysis by revealing the dynamics of document-information flow in libraries;
- To characterize the possibilities of the modern information base for bibliometric research;
- To analyze the use of international databases to monitor scientific potential;
- To reveal the form and level of bibliometric research in Azerbaijani libraries, to analyze the current situation and to determine the effectiveness of new types of services, innovative working methods aimed at the formation of Bibliometry; to investigate the mechanism, principles, and methods of

implementation of bibliometric research, to identify and eliminate problems and shortcomings;

- To determine the working methods carried out in libraries on the formation and teaching of Bibliometry and clarify them, to promote advanced world experience and to substantiate the need for using the progressive working methods in this area in the future activities of the library.

The methods of the research. Important stages of formation and development of Bibliometry, the definition of structure, determination of the structure, study of the methodology of bibliometric research and methods of bibliometric analysis used for this purpose, the procedure of using Bibliometry in modelling library funds, and the method of logical-theoretical analysis and generalization in the study of world experience were applied in the dissertation. The research also used complex investigation methods, as well as a systematic approach, structural-typological, general historical, librarianship, comparative analysis, mathematical methods of analysis, and processing of statistical data. The nature of the research necessitated the use of special bibliometric methods.

The basic provisions of the defence. As a result of the research, the main defensive provisions are as follows:

1. The content and essence of the concept of “Bibliometry” is studied from the historical aspect, the formation as a new scientific direction and development history, its empirical laws, methods of bibliometric analysis, forms and possibilities of application of these methods in libraries, existing problems in their formation and have been presented solutions.

2. Were studied the role of Bibliometry in scientific communications, methods of teaching Bibliometry and the construction of bibliometric maps.

3. Were studied the history and the implementation features, directions, model of formation of bibliometric researches, were scientifically analyzed the foreign electronic databases allowing to

conduct these researches, was emphasized the importance of creation of Azerbaijani language bibliometric resource for obtaining bibliometric data.

4. Bibliometry thoroughly researched as the area is engaged a complex of quantitative methods of studying the flow of scientific documents, the structure of scientific information flows and arrays of science, the field of statistical research of dynamics, at the same time were considered studying document flows and widely used in recent years new scientific directions close to bibliometrics, such as informetrics, sciencemetrics, webometrics, cybermetrics, altmetrics, etc., was studied their interrelation.

5. Was determined dynamics of document-information flow in libraries based on the methods of comparative bibliometric analysis (on the example of the National Library of Azerbaijan), was assessed the current situation on the basis of statistical results. Was conducted efficiency of the use of the fund of the National Library of Azerbaijan, in order to assess the information value of different types of documents, a bibliometric analysis of all literature received by the library during 2000-2016, it was possible to determine the necessary statistics. Also, was carried as one of the important directions of the staff of the National Library of Azerbaijan, bibliometric analysis of incoming and outgoing documents during 6 years in the implementation of the international book exchange.

6. Were conducted statistics on the basis of the bibliographic index "Book yearly of Azerbaijan" during 10 years (2003-2013) of books and dissertation abstracts published in the Azerbaijani and Russian languages, as well as in other languages in the country.

The scientific novelty of the research. The scientific novelty of the dissertation (thesis) is explained by the following factors:

- The dissertation is the first research work that defines and summarizes the participation and importance of libraries in bibliometric research and the development stages of libraries for improving their performance;

- For the first time in the research work, the problems of professional training of librarians in the field of Bibliometry, as well as mastery of the methodology of bibliometric research by librarian staff were investigated and noted the importance of developing a new generation of professional librarians with high analytical skills for bibliometric analysis in libraries;

- In the study, the empirical laws of Bibliometry and their essence were revealed, the use of references as a means of scientific communication and the main bibliometric indicator in scientific research works, the most frequently cited international electronic databases, analysis methods of reference systems studied and summarized;

- In the dissertation, the interaction of Bibliometry with informetrics, scientometrics, webometrics, cyber metrics and altmetrics, the application of methods of scientometrics and Bibliometry, the issues such as impact factor, which is a special rating factor based on the application of citation index in the solution of information retrieval problems were reviewed, foreign databases allowing to conduct bibliometric research, national reference indices of foreign countries, the importance of researching bibliometric indicators scientifically substantiated;

- For the first time in the dissertation, the dynamics of the structure of document-information flow in libraries based on bibliometric analysis methodology was determined by statistical methods, the development trends of the micro flow of publications, the current situation were assessed (Based on the example of Azerbaijan National Library: formation of the fund, the field of an international book exchange and bibliometric analysis of books and dissertation abstracts based on "Book yearly of Azerbaijan");

- Additionally, for the first time in Azerbaijan, works in different languages on Bibliometry and related, as well as other new metric scientific directions were compiled in Russian for implementation of

international broadcasting in the form of a special scientific-auxiliary bibliographic index.

The theoretical and practical importance of the research.

The theoretical significance of the work is that the importance of the use of Bibliometry in libraries is studied in detail. As a result of the research, organizational and technical principles and perspectives of the application of Bibliometry are determined. These principles and perspectives are important in terms of developing the application of Bibliometry.

Generally, from the earliest bibliometric documents to the present day, including the latest editions, the research involved many sources in the analysis. The results obtained in the research process, suggestions, and recommendations may be used in the following directions:

- In the teaching of Bibliometry in libraries (especially in academic and scientific libraries) of various types operating in the republic;
- In conducting new scientific research dedicated to the study of various aspects of Bibliometry;
- In the teaching of the specialty "Methods of bibliometric research", in the process of distance education, in the preparation of relevant textbooks and teaching aids in higher and secondary special education institutions training librarians, as well as at the Faculty of Library Science and Information of Baku State University, in Baku Humanitarian College, in various higher education institutions in several specialties, etc.

The approbation and application of the work. The content, main provisions, and results of the dissertation are reflected in the scientific articles published in the republic and abroad, theses of reports at various scientific conferences, books and a bibliographic index compiled.

Connected to the topic of the dissertation, 10 scientific articles, 6 conference materials, 1 bibliographic material, 1 book published, 2 articles released as an electronic resource.

The organization where the dissertation has been carried out. The dissertation implemented at Muhammad Fuzuli Institute of Manuscripts of Azerbaijan National Academy of Sciences.

The total volume of the dissertation. The dissertation consists of an introduction, 3 chapters, 6 sub-chapters, results and a list of references, including 7 tables and 51 diagrams. The total volume of the dissertation (excluding the list of references and appendices) consists of 254321 characters. The structural sections of the dissertation consist of Introduction 21033, Chapter I 75960, Chapter II 99004, Chapter III 34085, Conclusion 24239.

II. MAIN CONTENT OF THE DISSERTATION

At the **introduction**, the urgency of the topic substantiated, the object and subject of research, forthcoming objectives and tasks, the scientific novelty of activity, practical significance, approbation, etc. commented.

In the first chapter entitled “**Bibliometry: historical development and structure**”, the issues such as a history of formation and development of Bibliometry as a new scientific direction, empirical laws, methods of bibliometric analysis, forms and opportunities of application of these methods in libraries, the role of Bibliometry in scientific communications, methods of teaching Bibliometry and setting of bibliometric maps, etc. involved in the study.

In the first subchapter "Bibliometry, its concept, its empirical laws, bibliometric mapping", the term was widely analyzed⁵, the stages of Bibliometry formation showed⁶, the importance of the bibliometric approach in the study of science discussed, the problem of the multiplicity of different definitions of Bibliometry researched⁷, empirical laws that laid the foundation for the systematic study of document flow and played an important role in the formation of Bibliometry⁸, bibliometric approaches to the study of information dissemination processes⁹, the concept of professional teaching of Bibliometry in a continuous library and information education were involved in the analysis¹⁰, existing programs for solving bibliometric mapping problems¹¹, the importance of choosing software for their

⁵ Bibliometriya // Azərbaycan Kitabxana Ensiklopediyası. Azərbaycan Respublikasının Mədəniyyət və Turizm Nazirliyi, M.F.Axundzadə adına Milli Kitabxana. – Bakı: “Zərdabi-Nəşr”, – 2015. – s. 174.

⁶ Пенькова, О.В. Библиометрия: история развития и становления / О.В.Пенькова, В.М.Тютюнник // Библиотечное дело – 2002. Библиотечное образование и практика: Поиски взаимопонимания: Тез. докл. VII междунар. науч. конф., Москва, 24-25 апр. 2002 г. – с. 92-93.

⁷ Крысина, Л.П. Толковый словарь иноязычных слов / Л.П.Крысина. – М.: “Русский язык” – “Дрофа”, – 1998. – 847 с.; Фокеев, В.А. Библиографическая наука и практика: терминологический словарь / В.А.Фокеев. – СПб., – 2008. – 272 с.; Энциклопедия эпистемологии и философии науки. Гл. ред. И.Т.Касавин. – М.: «Канон+», РООИ. “Реабилитация”, – 2009. – 1248 с. [Электронный ресурс]. URL:

http://epistemology_of_science.academic.ru/300/картографирование_науки

⁸ Egghe, L. On the classification of the classical bibliometric laws // Jour. Document, – 1988. V.44. №1. – p. 53-62.

⁹ Vickery, V.C. Bradford's law of scattering // Journal of Documentation, – 1948. Vol.4. №3. – p. 198-203.

¹⁰ Галявиева, М.С. Обучение библиометрии и наукометрии: современные образовательные прогрессы и проекты / М.С.Галявиева. – М., – 2013. [Электронный ресурс]. URL: www.myshared.ru/slide/470938/

¹¹ Мазов, Н.А. Свободно распространяемые программы для наукометрических и библиометрических исследований // Библиотеки и информационные ресурсы в современном мире науки, культуры, образования и бизнеса: 19-я междунар. конф. «Крым 2012» (2–10 июня 2012 г., г. Судак): Труды конф. – М.: Изд-во ГПНТБ России, – 2012. – с. 1-6.

successful solution, creating a map of science or bibliometric mapping as an important research problem in the field of Bibliometry¹², etc. issues clarified.

In the second subchapter "Use of bibliometric methods in the formation of library rating", the role of Bibliometry in scientific communications was explained, analysis of references examined as a bibliometric method, the index of scientific references analyzed as a tool for evaluating the results of scientific activity¹³. At the same time, the methods of bibliometric analysis, their application in library practice¹⁴, modeling of library processes and information provision subsystem of scientific research work based on these methods¹⁵, the impact of bibliometric methods on the formation of library rating were discussed, information on the practical application of Bibliometry in the formation of journal fund of libraries¹⁶, methods of analysis of references in scientific publications when evaluating the use of journals in scientific libraries¹⁷ was provided.

The second chapter of the dissertation is entitled **“Application of bibliometric research in library practice and the interaction of**

¹² Borner, K. Teaching children the structure of science / K.Borner, F.Palmer, J.M.Davis, E.Hardy, S.M.Uzzo, B.J.Hook // Proceedings of 63 the SPIE Conference On Visualization And Data Analysis, – 2009. Vol. 7243. – p. 724-307.

¹³ Hacıyeva, A.Z. Əsas bibliometrik göstərici olan istinadlar elmi kommunikasiya vasitəsi kimi // – Bakı: AMEA M.Füzuli adına Əlyazmalar İnstitutunun Elmi Əsərləri, – 2016. №1. – s. 134-142.

¹⁴ Hacıyeva, A.Z. Bibliometrik təhlil üsullarının kitabxana təcrübəsində tətbiqi, onların kitabxananın reytinginin formalaşmasına təsiri // – Bakı: Kitabxanaşünaslıq və bibliografıya (elmi-nəzəri, metodik və təcrübi jurnal), – 2016. №2 (39). – s. 61-65.

¹⁵ Савенкова, Л.В. Роль библиометрических исследований в управлении научной деятельности вуза / Л.В.Савенкова, В.Н.Волынец [Электронный ресурс]. URL: <http://www.gpntb.ru/win/inter-events/crimea2010/disk/133.pdf>

¹⁶ Hacıyeva, A.Z. The use of bibliometrics in the formation of the journal fund of scientific libraries // Proceedings of young scientists (Gənc alimlərin əsərləri), – 2016. №14. – s. 156-159.

¹⁷ Маршакова, И.В. Система цитирования научной литературы как средство слежения за развитием науки. – М.: Наука, – 1988. – 288 с.

document-information flow with other directions of metric analysis”.

The first subchapter is called “Directions of bibliometric research. Bibliometric databases as a tool for scientific management” and in the subchapter, the history and directions of implementation of bibliometric research¹⁸, foreign electronic databases allowing to conduct this research are scientifically analyzed¹⁹, the importance of creating a bibliometric resource of Azerbaijani language providing access to bibliometric data put forward.

In the second subchapter “Bibliometry in the structure of scientific studies and related metric scientific directions”, Bibliometry was comprehensively investigated as a complex of quantitative methods of studying the scientific documentary stream, a field of science engaged in statistical research of the structure and dynamics of scientific information flow and arrays of scientific studies²⁰, new scientific directions close to Bibliometry, such as informetrics²¹, scientometrics, webometrics²², cybermetrics and

¹⁸ Редкина, Н.С. Библиометрия: история и современность // Молодые в библиотечном деле, – 2003. №2. – с. 76-86.; Hajiyeva, A.Z. The conception of “bibliometrics” and history of bibliometric researches // Культура: теория и практика [Электронный научный журнал]. URL: <http://theoryofculture.ru/issues/62/847/>

¹⁹ Nasyeva, A.Z. Bibliometrik tədqiqatlar üçün beynəlxalq informasiya bazaları // – Bakı: Kitabxanasünəşliq və bibliografiya (elmi-nəzəri, metodik və təcrübi jurnal), – 2016. №1(38). – s. 106-113.

²⁰ Налимов, В.В. Наукометрия: Изучения развития науки как информационного процесса / В.В.Налимов, З.М.Мульченко. – М.: Наука, – 1969. – 192 с.

²¹ Галявиева, М.С. Обучение информетрии информационно-библиотечных специалистов: постановка проблемы // Современные проблемы науки и образования, – 2013. №3. [Электронный ресурс]. URL: <http://www.science-education.ru/109-9594>

²² Ingwersen, P. Webometrics: Ten years of expansion, in Proceedings of the International Workshop on Webometrics, Informetrics and Scientometrics & Seventh COLLNET Meeting, Nancy. – France, – 2006). [Electronic resource]. URL: <http://eprints.rclis.org/archive/00006264/01/ingwersen.pdf>

altmetrics²³, which study quantitative regularities, documentary stream and widely used in recent years were reviewed and their interaction explored.

The last, third chapter of the research is called **“Comparative bibliometric analysis - the practical application of information analysis strategy in the library-information system as a means of mathematizing this area of activity”**. This chapter defined (On the example of Azerbaijan National Library) the dynamics of document-information flow in libraries based on the methods of comparative bibliometric analysis, the current situation assessed under the statistical results. The chapter consists of 2 sub-chapters.

In the first sub-chapter “Determining the regularities of assessing the development prospects of document-information flow in libraries based on the application of bibliometric analysis methods”, a bibliometric analysis of all literature included in the library during 2000-2016 was conducted²⁴, and it was possible to determine the necessary statistical information for assessing the usage efficiency of Azerbaijan National Library and informational significance of different types of documents. As one of the important directions of the acquisition of the Azerbaijan National Library fund, a bibliometric analysis of incoming and outgoing documents was implemented during 6 years of an international book exchange²⁵.

In the second subchapter "Bibliographic information resources as one of the sources of bibliometric analysis", during 10 years (2003-2013), the statistics of books and dissertation abstracts

²³ Гаджиева А.З. Библиометрия в системе смежных научных дисциплин [Электронный ресурс]. URL: <http://www.bibliotekar.ru/media2/bibliometria.htm>

²⁴ Гаджиева А.З. Формирование фонда: сравнительный библиометрический анализ // – Волгоград: Известия Волгоградского государственного педагогического университета, – 2016. №4 (108). – с. 133-135.

²⁵ Hacıyeva, A.Z. Azərbaycan Milli Kitabxanasının beynəlxalq kitab mübadiləsi sahəsindəki fəaliyyəti (2010-2015): bibliometrik təhlil // “Kitabxana-informasiya fəaliyyəti və fənlərarası inteqrasiya” mövzusunda Beynəlxalq Elmi Konfransın materialları, 29 dekabr, 2015. – Bakı, – 2016. – s. 82-86.

published in the Azerbaijani and Russian languages, as well as in other languages was conducted in the country based on the bibliographic index “One-year book of Azerbaijan”²⁶. During the bibliometric analysis, the publication (book, dissertation abstract) as a unit of measurement was considered as a real indicator of scientific knowledge and the result of scientific activity.

The concluding part discusses the results obtained as a result of the research, recommendations, and suggestions on the more active participation of libraries in the formation of bibliometric research, the application of innovative results in the world best practices in this field summarized and presented.

Summarizing the research results conducted in accordance with the topic of the dissertation and concretizing them at the level of defensive provisions, the applicant notes the following main scientific results:

1. In the dissertation, the content and essence of "Bibliometry" concept were studied from the historical point of view, the path of its development determined, special attention paid to the analysis of Bibliometry at the international level, to the determination the role of its application in libraries. The features of bibliometric research implementation and formation model were studied, existing problems in the formation of bibliometric analysis methods clarified, and ways to solve submitted.

2. The role of Bibliometry in scientific communications, methods of teaching Bibliometry and the construction of bibliometric maps were studied.

3. Features, directions, model of formation of history and implementation of bibliometric researches, scientific analysis of foreign electronic databases allowing to conduct these researches, importance of

²⁶ Hacıyeva, A.Z. Kitabların və dissertasiya avtoferatlarının bibliometrik təhlili biblioqrafik biliyin elementi kimi (2003-2013-cü illər; müqayisəli təhlil) // – Bakı: Kitabxanaşünaslıq və biblioqrafiya (elmi-nəzəri, metodik və təcrübi jurnal), – 2015. №1 (36). – s. 132-142.

creation of Azerbaijani language bibliometric resource for obtaining bibliometric data were emphasized.

4. Bibliometry has been comprehensively studied as a complex of quantitative methods of studying the flow of scientific documents, the structure of scientific information flows and arrays of science, the field of statistical research of dynamics, informatics, elmmetry, webmetry, cybermetry, altmetry, etc., which study quantitative regularities, as well as document flows and have been widely used in recent years. Scientific metric directions close to Bibliometry, such as.

5. Dynamics of document-information flow in libraries was determined based on the methods of comparative bibliometric analysis (on the example of the National Library of Azerbaijan), the current situation was assessed on the basis of statistical results. In order to assess the effectiveness of the use of the National Library of Azerbaijan, the information value of various types of documents, a bibliometric analysis of all literature received by the library in 2000-2016 (17 years) was conducted, it was possible to determine the necessary statistics. Also, as one of the important directions of staffing of the National Library of Azerbaijan, bibliometric analysis of incoming and outgoing documents was carried out during 6 years (2010-2015) in the implementation of international book exchange.

6. On the basis of the bibliographic index "Unity of Azerbaijan Literature" for 11 years (2003-2013) statistics of books and dissertation abstracts published in the Azerbaijani and Russian languages, as well as in other languages were conducted in the country.

7. In the dissertation work, the history of bibliometric research in world libraries is involved in complex research, analyzed from the point of view of librarianship and bibliography, the state of Bibliometry formation in Azerbaijani libraries is studied, the level of use of world experience was determined, the activity of a library was considered in the system of its formation, the existing problems were investigated and the solutions of the problems were presented.

The submitted proposals are aimed at the formation of Bibliometry, the purposeful activities of libraries, scientific and informal institutions on this area, the solution of current issues in this field in our country, based on world experience.

✓ Bibliometric databases should be created for supporting scientific research. The creation of a bibliometric resource will undoubtedly stimulate the interest of Azerbaijan scientists, business leaders, information specialists in electronic information and existing types of accompanying services.

✓ In the conditions of network technologies, bibliometric and scientometric methods may be developed, and the "Azerbaijan Science Map" project prepared.

✓ The Commission on evaluation of efficiency of activity of ANAS enterprises is established, the Presidium may adopt a decision regulating the use of indicators to evaluate the performance of research institutes.

✓ A methodology for applying bibliometric research may be developed and their results be used in the theory and practice of librarianship and bibliography.

✓ The interest of libraries in the problems of analysis of cited literature flow should be activated (In connection with the new need for evaluating the scientific activity of employees of ANAS branch institutes, and universities). Libraries should be actively involved in this process, the largest libraries must subscribe regularly to the products of the US Institute of Scientific Information (ISI) and provide licensed access to the reference analysis system, summaries and methodologies on detection and use of citation indices be prepared.

✓ Execution of complex readers' inquiries by the library, implementation of bibliometric research related to planning in the field of country study should be one of the perspective activities. Bibliometric measurements may be implemented by employees during the acquisition of the fund, in the process of bibliography of literature micro stream with various topics, as well as during the participation of libraries in regional social programs and projects.

✓ Bibliometric activities should be done on the formation of electronic libraries and collectives. In this regard, specialists should master new methods and software products for the development and visualization of changes. Visualization of bibliographic records and bibliometric data (infographics) is an important and perspective direction.

✓ Summarizing the analysis results of works on personal bibliography, scientific studies, scientometrics, Bibliometry, bio graphics may allow to assess the current state of personal bibliography, its functional diversity, to reveal ways of managing the individual creativity and knowledge of the scientist via personal scientific aids.

✓ To create an information service called “Publishing Activity Assessment” in the “Resources and Services” section of the libraries website (for determining the citation index).

To reflect data on information resources and methodologies used to determine the citation index of scientists, institutions, journals and impact factors of scientific journals.

✓ To provide bibliometric analysis of Azerbaijani language dissertations on librarianship and bibliography science, their analytical characteristics.

✓ Practical application of bibliometric analysis by developing combined methods in the formation of the journal fund of libraries

✓ Information provision of scientific research in academic libraries using bibliometric methods.

✓ Training of Bibliometry professionals is a matter of perspective. The teaching of Bibliometry in the higher education system is mandatory. It is possible to organize courses in this field based on the experience of various universities around the world. It is possible for specialists in libraries and information institutions to master the methodology of conducting bibliometric research through the organization of special education. The methodology of studying the dynamics of document-information flow by bibliometric methods should be teaching the course "Methods of bibliometric research"

compiled by specialists and included in the educational process of educational institutions according to all methodological requirements. The main purpose of the course is to train a specialist for studying the methods of quantitative analysis of document-information flow.

It should be noted that a differential approach for assessing the effectiveness of scientific activity in libraries is important. Multilevel research of document-information flow will allow setting the activity of libraries at the most relevant and effective level. The increasing volume of scientific information in libraries makes the implementation of bibliometric research relevant. Their implementation requires special knowledge, competent use of new technologies and information resources. The combination of bibliometric methods with modern technical means and information resources allows to expand the possibilities of research in libraries, to structure document arrays and to direct them in an increasing flow. Prospects for the application of bibliometric methods are related to the development of new information technologies and the implementation of information support of science.

List of published scientific works of the author related to the subject of the dissertation

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