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e-mail olga.avramenko32@gmail.com, ORCID 0000-0001-6715-6104**AUXILIARY SERVICES FOR SCIENCE IN MODERN LIBRARY: NEW INFORMATION SERVICES FOR THE DEVELOPMENT OF SCIENCE COMMUNICATION**

Objective. The paper explains the need for providing auxiliary services for science in university library within modern scientific communication and covers main facets of library work in Kryvyi Rih State Pedagogical University (KSPU), emphasizing instructional services for science metrics. **Methods.** Research was conducted using synthesis, structural and functional analysis, systematic approach, survey, interview, and conversation. **Results.** Successful reimagining of library's functions is the key to university's success within modern science communication. Expanding basic library competencies makes university library a reliable foundation for research activities in higher education institution. **Conclusions.** The experience of auxiliary services for scientists in university library today possesses new meanings, leading to expansion of the range of information services provided by university librarians. University's science metrics is one of the determining indicators of authority of its researches; and today it is the library that serves as the foundation for implementing and utilizing science metrics data in university.

Keywords: university library; auxiliary services for science; information and library services; science communication; library and science metrics

Introduction

Today, the mission of instructional services is becoming one of the leading functions of a university library. Research of science metrics is actively used to evaluate the performance of a modern scientific-educational institution with the use of bibliometric analysis of publication activity in scientific document flow of a higher education institution (Nikolayenko & Rybalchenko, 2019). Doing science, each member of faculty uses international services for science metrics: frequently updates personal Google Scholar account, receives new citation rates, works with the registry of unique scientist identifier ORCID, studies new researches in his or her branch using citation and abstract databases Scopus and Web of Science. The position of librarian as an active participant in the scientific and educational process is changing: library professionals are involved in the development of modern system of science communication; they help to increase the representation of university studies in science metrics databases, provide advice on improving the credibility of scientific findings. Such cooperation with the university scientists determines evolution of the trends in providing auxiliary services for science by the university library. One of the leading Ukrainian library scientists, T. O. Kolesnikova emphasizes that it is through partnership with researchers a new milestone of library service development has been achieved, the distinguishing features of which are:

- shifting scientific libraries' focus of attention from services for the general reader to prioritizing services for the scientists;

- active partnership of scientific libraries at all stages of research lifecycle: from providing information and access to collections of documents to publication, preservation, dissemination and further analysis and evaluation of research results (Kolesnikova, 2016).

According to N. Nikolayenko, bibliometric indicators are needed for the following important facets of the functioning of a higher education institution:

- evaluating the university's scientists' achievements according to authoritative international and Ukrainian ratings;
- confirming the status of a higher education institution;
- improving personal ratings of the scientists affiliated with the university;
- accessing new opportunities for modern higher education (Nikolayenko, 2018).

The Library of Kryvyi Rih State Pedagogical University is directly involved in the science metrics activities of the higher education institution. Alongside traditional forms of informing scientists, librarians carry out a series of activities aimed at increasing the presence of members of the academic community of the university in the modern scientific environment, facilitating establishment of new scientific relations with foreign colleagues, exchange of theoretical and practical experience. During the creation of personal web pages for scientists, specialists of the KSPU library constantly provided detailed consulting on updating personal accounts, completing and editing information about achievements of the scientists, their professional biography, research interests, positions and academic titles, published papers and participation in conferences, their works and dissertations, informal education, etc.

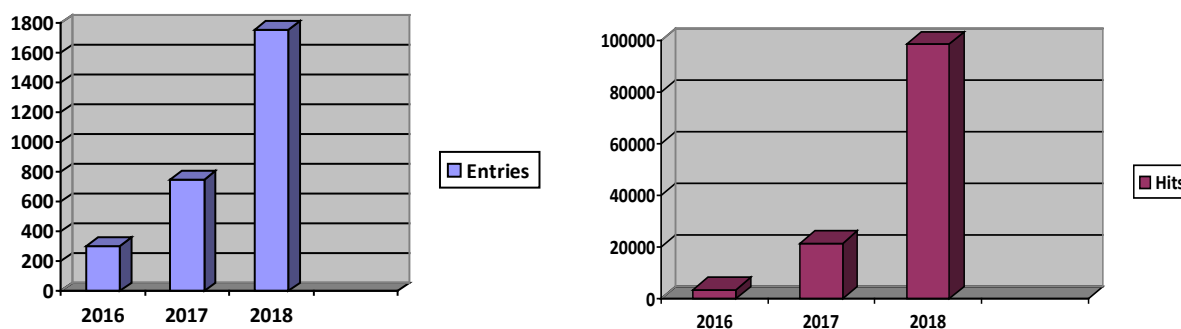
Information seminars, organized by the university librarians, play an important role in promoting awareness of the modern system of science communication and dissemination of skills, needed for efficient management of science metrics. For example, since October 2017, when Kryvyi Rih State Pedagogical University gained access to the Web of Science platform, scientists and librarians have frequently participated in series of webinars by Clarivate Analytics, learning new facts and skills necessary for using the resources and tools for science metrics, refining search skills by learning to combine available filters and tags across the database, studying and discussing the peculiarities of accounting for scientific findings and the issues of publishing papers in reputable professional journals, while avoiding the "predatory" fakes.

An important facet of providing the auxiliary library services for science is assisting in the publication of papers in the university's electronic archive, allowing open access to full-text materials. Availability of these electronic publications contributes to improvement of citation indexes of the university's scientific findings, increases credibility of scientists as well as the presence and visibility of their works in the information space of their respective branches. This electronic library provides a reliable information system, capable of storing and ensuring efficient usage of various collections of electronic documents (text, visual, audio, video, etc.) localized within the system and also accessible through telecommunication networks (Antopolsky & Vigursky, 1999).

Quantitative indicators of the use of the KSPU repository

Year	2016	2017	2018
Entries	305	750	1759
Hits	3473	21574	98639

Quantitative indicators of the use of the KSPU repository (*continuation*)



In addition, archives and new issues of scientific journals and collections of scientific papers are available via KSPU's own online resource "Scientific Publications of the University". In order to improve search capabilities and consolidate the authorship of scientists, each publication in these collections is assigned an international digital identifier DOI. This constitutes an important element of the university-wide system of information support for scientific research.

Among challenges, faced by librarians who provide auxiliary services for science, fulfilling the advisory mission of university library, are lack of access to modern information resources and external databases, necessary for successful research, problems of staff training and redistribution of functions between library departments, issues of integration processes that require close, well-coordinated collaboration between those responsible for various parts of library work.

Methods

The complexity of studying library and bibliographic activity lies in the multifaceted nature of its functions, which are closely interrelated and interdependent. Only their totality can constitute the essence of the library work as a system. This necessitates the use of a variety of methods for analysis, depending on the purpose of the study.

Providing auxiliary services for science is the object of our research; defining it, we rely on the principles of a specialized approach to the study of library information processes. At the same time, with the purpose of synthetic approach to the topic under study, we use a system of various methods, as well as the results of previous interdisciplinary research.

Systematic approach to studying the subject of our research - new information services of university library - determines that providing auxiliary services for science by library professionals is considered as a single complex system.

Implementation of the systematic approach is necessitated by the branched nature of activity and increase of complexity within the library structure, changing its backbone functions, expanding interlibrary cooperation, emerging necessity of creating a coordinated system of cooperation, difficulties acquiring and updating resources and sometimes lack of available sources of acquisition, branched library and bibliographic requests and the need for their prompt and reliable fulfillment.

The basic principles of systematic approach as a methodology for research of auxiliary library services for science are:

- defining individual components of the library's auxiliary services for science;

- revealing connections between them;
- studying interconnections of this type of library work with activities of other structural units of the University;
- discovering prospects for further development of the library's auxiliary services for science.

Structural and functional analysis is an important element of the methodology. It involves treating the object of study as a system; its components are separated and their functions are defined.

Survey is another method for researching information services to promote the development of science communication. It allows revealing facts about phenomena and processes, motives and plans, for example, those regarding the introduction of new communicative components to the interaction between the library and the user. The interview method is related to the previous one: it is another kind of an oral survey. Interviews are often considered the same as conversation because of their external similarity. Conversation techniques, which were also used during our research, and interview are quite alike; nevertheless, they are significantly different, too. The purpose of conversation is providing specific assistance to the user; the purpose of interview is obtaining relevant information, analyzing and summarizing it. It is during the interview that information is shared not only by the respondent for the interviewer, but also vice versa. Therefore, professionalism of the interviewer is subject to increased requirements: he or she should be not only proficient in the interviewing method, but also has to be knowledgeable in the subject matter, be able to correctly use the set of terms and technology, necessary for the work process.

In 2017 and 2018 IT department of the library conducted 72 interviews with the scientists of Kryvyi Rih State Pedagogical University. Main topics included the issues of using science metrics databases and updating personal accounts of the scientists (“How often do you update information regarding your research activity?”, “How useful are science metrics databases for your branch?” were among the interview questions).

Results and Discussion

Modern transformative processes taking place in the field of library and information services correspond to the qualitative changes in information needs of society. All practical and theoretical activities of library professionals aim to improve the efficiency of meeting current needs of users and fulfilling their requests.

In order to achieve this goal, a constant systematic self-development of professional information services providers is required. It is not possible to acquire new library and information competencies without constant self-improvement and professional development of library specialists. During communication with peers from other libraries, exchange of experience, participation in scientific and practical conferences, seminars, round tables, etc. the components of providing auxiliary services for science are being distinguished, among which the leading position belongs to the introduction of new information services. Studying the current findings of library science allows developing a comprehensive strategy for work and modernizing the main processes, needed to improve effective science communication for researchers based in higher education institutions.

The term “innovative experience” should be used only regarding those modern developments, which comprise the most efficient ways of using the tools of library and information activities. Such developments include those facilitating successful implementation

of previously undiscovered forms and methods of library work and those improving and developing the more traditional types of professional activities.

Researcher V. Gorovy emphasizes that the libraries' transition to new technologies and managerial decisions, caused by growing public requests, is characterized by a mixed system of traditional and new approaches to information services (Gorovy, 2005).

The hybrid model, suggested by T. O. Kolesnikova, facilitates harmonic functioning of two models in a single library: the classic one and digital library, institutional repository, new digital science model of library-based publishing. At the same time this model implies its gradual transformation into analytic and cognitive communication model of a library establishment with the features of a media center (Kolesnikova, 2011).

The issue of coexistence, of synergy between traditional and innovative ways of providing information services for the library users remains a topic of discussion in the professional community of librarians. In today's context, it seems appropriate to use both paradigms of information services, depending on the needs of users and the specifics of the information provided.

According to the research of the university scientists' experience with tools provided by science metrics databases, there is considerable demand for auxiliary library services for conducting research in various branches. Besides, the usage trends of university digital archive increased significantly, as it is effective means of improving citation indexes. According to the data presented in the table and chart above, the quantitative indicators of institutional repository use have increased several times in recent years. This is due to the active implementation of the electronic segment of the university's science communication system.

Conclusions

The dynamic development of modern library science requires the creation of an updated methodological apparatus for determining further research trends in the fields of library metrics, science metrics and information metrics. In library practice, interaction between elements of practical experience is manifested in new trends of the library science. Of course, single facts of experience may indicate some deviations from this trend; however, these errors do not change the overall trend, defined through aggregating the facts of practice.

Facts indicate that the problems of the auxiliary branch of library services for scientists require further theoretical study and practical elaboration. The experience of introducing this element to the work of the Kryvyi Rih State Pedagogical University library proves that modern information services, assisting the science metrics, are the required forms of library work. The constant transformation of new experiences into modern, verified by daily practice methodological foundations for the functioning of library creates a number of opportunities for in-depth research, systematization and synthesis of new work foundations, aimed at comprehensive information support and prompt providing auxiliary services for scientists, based in higher education institutions.

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НАУКОВО-ДОПОМІЖНА ДІЯЛЬНІСТЬ СУЧАСНОЇ БІБЛІОТЕКИ: НОВІ ІНФОРМАЦІЙНІ СЕРВІСИ ДЛЯ РОЗВИТКУ НАУКОВОЇ КОМУНІКАЦІЇ

Мета. У роботі передбачено обґрунтувати необхідність науково-допоміжної діяльності бібліотеки закладу вищої освіти в сучасних умовах розвитку системи наукових комунікацій, а також висвітлити основні напрями роботи фахівців бібліотеки Криворізького державного педагогічного університету (КДПУ) під час надання консультаційних послуг науковцям із питань наукометрії. **Методика.** Під час дослідження було використано такий методологічний апарат, як комплекс методів синтезу, структурно-функціонального аналізу, системного підходу, опитування, інтерв'ю, бесіди. **Результати.** Успішна переорієнтація основних функцій бібліотеки закладу вищої освіти є запорукою ефективного функціонування університету в сучасній системі наукових комунікацій. Розширення та поглиблення базових компетенцій бібліотечних фахівців є необхідною умовою становлення університетської бібліотеки як надійної основи науково-дослідницької діяльності закладів вищої освіти. **Висновки.** Накопичення нового досвіду з науково-допоміжної діяльності бібліотеки ЗВО стало поштовхом для розширення спектру інформаційних сервісів, що входять до сфери компетенції бібліотечних фахівців. Наукометрична діяльність університету стала одним із визначальних показників авторитетності його наукової роботи. Саме університетська бібліотека виступає сьогодні базовим структурним підрозділом із упровадження й використання можливостей наукометричних показників для відображення ефективності роботи університету.

Ключові слова: бібліотека закладу вищої освіти; науково-допоміжна діяльність; бібліотечно-інформаційне обслуговування; наукова комунікація; бібліометричні й наукометричні показники