Informacione inovacije i efektivnost akademske biblioteke - Primer biblioteke Fakulteta za inženjerski menadžment
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Apstrakt: Inovacije u rukovođenju informacijama u poslovnim i obrazovnim sistemima posebno se odražavaju na rad akademskih biblioteka. Cilj rada je da prikaže kako primena novih tehnologija i upotreba elektronskih baza naučnih podataka utiče na bibliotečku delatnost, u odnosu na nastavne i naučne aktivnosti. Analizom podataka, ukazuje se na vezu između potreba korisnika i mogućnosti bibliotečkih usluga i na taj način istražuje se upotrebna vrednost bibliotečko-informacionih resursa i efektivnost bibliotečkog poslovanja u visokom obrazovanju.

Studija slučaja biblioteke Fakulteta za inženjerski menadžment prati odziv korisnika prilikom povezivanja sa informacionim sistemima od značaja za nastavni i naučni rad. Podaci o korišćenju fonda, pristupu bazama naučnih informacija, praćenju bibliografija istraživača pokazuju da se bibliotečka delatnost u visokom obrazovanju menja i razvija u skladu sa aktuelnim potrebama korisnika. Što su bibliotečko-informacioni resursi obuhvatniji, stvara se i bolja osnova za obrazovanje i naučna istraživanja. Tradicionalni i moderni pristupi se međusobno ne isključuju, već dopunjuju. Ključnu ulogu pri planiranju inovacija u biblioteci imaju podrška ustanove i komunikacija sa nastavnicima. U cilju pristupa aktuelnim i pouzdanim podacima, rad naglašava saradnju sa srodnim institucijama, razvoj i povezivanje informacionih sistema.

Ključne reči: visokoškolske biblioteke, upravljanje podacima, inovacije, pristup informacijama, bibliotečke usluge.

Information Innovations and Effectiveness of the Academic Library - The Example of Belgrade School of Engineering Management Library

Abstract: Data management innovations in business and educational systems are especially reflected in the work of academic libraries. This paper shows how the application of new technologies and use of scientific databases affect the library activities, in relation to teaching and scientific activities. Data analysis indicates the connection between the needs of library users in higher education and the possibilities of library services, and thus explores the use value of library information resources and effectiveness of library operations in higher education.

Case study of the Belgrade School of Engineering Management Library shows the response of users through the process of introducing innovations. Data on the use of the fund, access to scientific databases, monitoring the researchers’ bibliographies show that activities at the academic library change and develop according to current user needs. As library and information resources became more comprehensive, the basis for education and scientific research becomes stronger. Traditional and modern approaches are not mutually exclusive, but complement each other. Leadership support and communication with teachers play key roles in planning innovations and activities at the library. In order to access current and reliable data, the paper emphasizes cooperation with related institutions, development and connection of information systems.
Key words: Academic Libraries, Data Management, Innovations, Access to Information, Library Services.

1. Introduction

Activities of the academic library are organized in support of study programs. Users are students, teaching and administrative staff. Library services refer to research and access to relevant and verifiable sources, providing information that in practice should contribute to the achievement of the goals of higher education.

Based on the experience in the organization of the academic library activities and daily communication with users, the effectiveness of library support for teaching, learning and scientific work was researched. After the introduced innovations, connection with scientific e-sources, data on the use of all forms of material are collected and by comparative data analysis, conclusions were reached, that could be guidelines in future work.

The aim of the paper is to show how changes in the business of the higher education library, conditioned by modern circumstances and user needs, contribute to the quality of educational and research processes. How to find balance between needs and interest, and develop the ability to adapt, according to current changes and technological innovations in the higher education library?

Systemically organized catalogs, as well as databases of scientific sources, have become a necessary tool, a guide through the sea of information that is published every day. The question arises, what does data search management look like in practice? To what extent are students and teachers at the faculty referred to library support? What types of support are represented and to what extent?

2. Information innovations in the academic library - a research framework

Information access, as a field of information science, Jesse Shera linked to the process of communication. The problem is not that one has too much knowledge, but that one does not have enough knowledge of the right kind. "The only remedy for too much knowledge is more knowledge - knowledge how to use the knowledge we have" (Shera 1971:78).

The importance of the Internet in obtaining information at any time is not the question. According to the Millers, from the perspective of a librarian who needs to provide relevant sources, a library that has all the data, open all the time and to the whole world, is still just a dream. Most collections in libraries are not digitized, and those that are digitized, are related to works that belong to cultural heritage and are exempt from copyright. In the information society, the librarian's work is developing in the direction of managing the flow of information, as well as knowing where and how to physically or virtually localize the information carrier (Muller and Muller, 2005: 17), in this sense, it is necessary to focus on content, not on the holder, more on the information than the substrate that carries it (Muller and Muller, 2005: 18).

Elaine Svenonius deals with the system of organizing information and says that the hallmark of the information age is the opening of the possibility of immediate electronic access to digital information, but technology alone is not enough and the effectiveness of the system for accessing information is proportional to the knowledge invested in its organization (Svenonius, 2007: 7).

Koltay deals with the support of research work by academic libraries and points out that changes in the information behavior of researchers call for a major transformation of the role and tasks of academic libraries (Koltay, 2016). In accordance with the changes in the University, it is indicated that the physical space in libraries is now a place to interact with new technologies, visual data, a place to support research (including data management, open access databases, and other types of digital research support).

In a study exploring librarians' experiences managing data for research purposes, Faniel and Connaway address factors that influence the ability to support researchers. Through interviews with 36 academic library professionals in the United States, 5 influencing factors are highlighted: technical resources; human resources; researchers' perception of the library; leadership support and communication, coordination and collaboration (Faniel and Connaway, 2018: 100).
A Case Study on improving communication with PhD students in University libraries, carried out in Great Britain (De Montfort University), highlights the importance of meaningful, timely and two-way communication, introduces the concept of meaningful communicators and suggests that there are several levels at which misunderstandings can occur and misalignment in business communication with users (Petch et al. 2016). Of particular importance is the moment - when students get the necessary information. In order for the messages to be meaningful and timely, the communicators that are closest to the teaching process, the teaching staff, should be included. It is easiest during the teaching process to identify which help in accessing resources is needed and when. In this sense, Montiel-Overall recommends the cooperation of teachers and librarians, because it contributes to learning and teaching processes (Montiel-Overall, 2009).

The Digital Libraries Manifesto (IFLA/UNESCO) emphasizes the importance of bridging the digital gap and making the world's cultural and scientific heritage accessible to all. The digital library is an integral part of library services, as a collection of digital objects of confirmed quality available on the web (Đukić and Trifunović 2012: 66).

In the work on digital libraries as libraries of the future, the solution lies in adapting to new technologies and developing an organized system, which will be able to oppose the chaotic nature of the Internet (Krinulović and Stijepović, 2015: 142). Research and preservation of digital materials are questions that will be asked, and in which the demands of all, primarily scientific and cultural institutions should be unified (Krinulović and Stijepović, 2015: 149). From the above, it can be concluded that, under the influence of the information technologies development, the changes are especially current and evident in academic libraries.

3. Library activities and provision of services in practice

The effects of library activity at the academic institution are not immediately visible, nor do they bring evident material profit. Maintaining a library requires investment. In order to ensure quality, it is necessary to define the library's vision, mission and strategy for its realization, long-term and short-term goals. (Filipi-Matutinović, 2005: 4). The functioning of the higher education library as an organizational unit largely depends on how much the administration of the institution sees its importance for achieving the goals of higher education. Modern working conditions, professional staff, adequate space and equipment for teaching and research activities should be provided. Of particular importance is access to sources of information that are current, reliable, and verifiable and, in the possibilities provided by information technology, easily searchable.

The modern working conditions of the higher education library in Serbia, in accordance with the Law on Library and Information Activity, imply connection into a unique bibliographic and information system. In the National Library of Serbia, the Virtual Library of Serbia (VBS) service maintains a mutual database (on the COBISS platform). Through networking, the library becomes a member of a system. The library's local catalog base is connected to the central electronic catalog, publicly available and searchable, and once the catalog description is entered, it can be used by all libraries in the system. Machine-readable cataloging (using cataloging rules in electronic form) and data exchange via the Internet enables the search of the electronic catalog according to numerous parameters with instant access (author, title, subject and professional classification, ISBN, publisher, place of publication, year of publication, etc.).

Standardized metadata enabled the formulation and exchange of data (Moed 2006: 141). Electronic forms of scientific sources can be linked and are databases whose purpose is searchability, verifiability and reliability of scientific sources. Based on standard data formats, it is possible to instantly search for the title of the paper, view the summary of the paper, or (if available) the document in full text. Also, it is possible to monitor the citations of authors or titles, which is of particular importance when evaluating scientific work, creating bibliometric reports, and indicators of the influence of scientific journals.

Although information technology has provided numerous opportunities for searching and accessing scientific sources with significant time savings, the question is - how much it has been applied in practice? Is it a priority for founders, are they ready to invest and how do you monitor performance? What happens to users' research skills and evaluation of sources (Gruber 2018: 680), to what extent do
participants in teaching and research activities at the University see library services as the first step when accessing scientific and professional materials?

4. User needs and activity plan – the example of the Belgrade School of Engineering Management Library

On the example of the Belgrade School of Engineering Management Library, a description of the real needs and activities in the library during the implementation of innovations is given.

As the processes of teaching and research work have different dynamics and needs for access to sources, interest in library services is different. The needs of users in relation to teaching activities are focused on the basic textbook literature and additional material according to the subject programs. It is the teachers who direct the students to the necessary material.

Business cooperation between librarians and teachers is realized on several levels. Starting from the planning of fund procurement and the formation of library collections, through the provision of services, the establishment of inter-library cooperation and connections with related institutions, to the separation of outdated materials. Library activities at the faculty are conditioned by the organization of study programs and the exchange of information with teaching staff.

In addition to teaching activities at the faculty, library support is also important for research work. Teacher researchers need access to proven and reliable sources of scientific information, with as high an impact factor as possible. Data important for scientific and research work are published in peer-reviewed scientific publications, most of which have electronic access. According to the Law on Higher Education, teachers need published works in categorized journals, recognized sources of scientific information, for selection into positions. The influence factor of a scientific journal can be measured on the basis of citation analysis, in order to evaluate the scientific work. "Evaluation of scientific work through citation analysis is one of several accepted methods that are applied worldwide" (Antonić et al., 2009: 9).

After assessing the needs, at the level of the institution, the goal was set to connect the library with institutions that provide information services and provide access to scientific information bases. In accordance with that, a research plan for effective operations in the higher education library was also set. Along with the development of library activity and the increase of library resources, a record and analysis of statistical data on the use of information sources was carried out for a period of 3 months (December 2018 - February 2019). Library users were students (about 100), teaching staff and teaching assistants (32 in total). The research covered the provision of services and the development of the School's Library activities, the effects of connecting to the EBSCO database of scientific information and the E-CRIS information system on research activities in Serbia.

By the time data collection began, the Belgrade School of Engineering Management Library had already secured the work conditions (space, equipment and staff expertise, according to the Accreditation Standards). Customer service functioned in accordance with teaching needs. Before the research, the library had a collection of 5117 units in local access, formed according to the study program, had a reading room equipped with computers and Internet access.

At the beginning of the first semester, as part of a special course, students were introduced to library services. This type of education enables familiarization with different types of required sources of material and methods of access, skills of searching sources at the very beginning of the educational process. Students are advised to use the library's electronic catalog (COBISS/OPAC), given that the School's Library is a member of the unique mutual library system of the Republic of Serbia.

During the research period, in three months the book fund was increased by 134 units according to the subject programs, which means a total of 5241 units of library materials in local access. Basic textbook literature for students is also provided, according to the plan for the summer semester.

Innovations within library and information services were: provided access to EBSCO bases of scientific and professional sources and updating the bibliographies of the teaching staff.

By accessing the EBSCO databases of scholarly sources, more than 8,500 full-text journal titles, including more than 7,300 peer-reviewed journals, were available. In addition to the full text in the
original (searchable) PDF format, abstracts of scientific papers for more than 12,500 journals and a total of more than 13,200 publications, including monographs, reports, conference proceedings, etc., were also searchable. Cited references were searchable for more than 1,400 journals. After the presentation of the search and access to these electronic sources, use is enabled for students and employed teaching staff.

During the survey period, materials in local access were used as expected. From the beginning of December 2018 to the end of February 2019, a total of 168 units were issued, which includes books, journals, compact discs. The mentioned material includes textbooks and professional literature, classified according to the fields: management, marketing, economy, security, information technology, technological sciences, but also from the fields of foreign languages, art and literature.

Based on data on access to the electronic database and download of sources (Table 1), it was determined that users performed a total of 5763 searches, downloaded 775 documents in full text and 387 in abstracts, a total of 1185 downloaded texts. The full-text documents used are viewed as downloaded library items. The titles of magazines with high impact factors published by Taylor&Francis, Springer, Wiley, Sage Publications and other renowned publishing houses were used the most. Areas related to the study program are represented: management (engineering management, human resources management, and quality management), economy, finance, information technology, artificial intelligence, security, higher education, law, ecology, etc. In addition, usage data refers to topics related to medicine and health, psychology, sociological and cultural issues, etc.

Table 1. Presentation of the use of the database of scientific sources for the period: December 2018 - February 2019.

<table>
<thead>
<tr>
<th>Database</th>
<th>1) Total Searches</th>
<th>2) Total Requests</th>
<th>3) Total Full-Text Requests</th>
<th>4) Total Linkout</th>
<th>5) Abstract Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Search Complete</td>
<td>93</td>
<td>78</td>
<td>57</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Academic Search Premier</td>
<td>888</td>
<td>625</td>
<td>406</td>
<td>20</td>
<td>199</td>
</tr>
<tr>
<td>Associated Press Video Collection</td>
<td>268</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Business Source Premier</td>
<td>725</td>
<td>284</td>
<td>175</td>
<td>3</td>
<td>106</td>
</tr>
<tr>
<td>EBSCO Publishing Citations</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Image Collection</td>
<td>890</td>
<td>23</td>
<td>0</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>Image Quick View Collection</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MarketLine Company Profiles Authority</td>
<td>719</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Regional Business News</td>
<td>706</td>
<td>35</td>
<td>20</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>eBook Academic Collection</td>
<td>727</td>
<td>125</td>
<td>105</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>eBook Collection (EBSCOhost)</td>
<td>726</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>5763</td>
<td>1185</td>
<td>775</td>
<td>23</td>
<td>387</td>
</tr>
</tbody>
</table>

Full-text electronic units downloaded are compared to the number of units rented in local access. When comparing the numbers of units used, in local access (168) and through the database (775), it can be concluded that users used 4.6 times more units with remote access compared to the material located in
the library, or in percentages 18% to 82%. Therefore, the response of users, for the very beginning of using electronic resources with remote access, justified expectations and confirmed the necessity of connection. Nevertheless, it should be said that both types of access to materials are important and in demand. The fund in the local approach is the basis for supporting the maintenance of the study program, the access to the bases of scientific sources is an upgrade, mostly for the needs of teaching and research work. They are not mutually exclusive, but complement each other, in order to provide effective service.

![Diagram showing the ratio of used units with remote access and units in local access, expressed as a percentage, for the period: December 2018 - February 2019.](image)

Figure 1. Ratio of used units with remote access and units in local access, expressed as a percentage, for the period: December 2018 - February 2019.

The two way communication that harmonizes the needs of teaching and research activities and the use of library resources is necessary, in order for the resources to have a useful value. That is why teaching staff are "significant communicators". Current sources of information are a point of contact, the basis of the mutual communication - for librarians to plan business, for teachers and researchers to provide access to sources. Teachers who are actively engaged in research transfer their interests to students during the teaching process (regarding the link of requested titles).

According to the interest of the users, activities were also carried out that contribute to monitoring of published scientific works. The personal bibliographies are of particular importance for School's teaching staff. In the E-CRIS information system on research activity, there is the possibility of electronic access to researchers' bibliographies. Within the library and information systems in the network, a record of researchers and institutions has been established, on the basis of which bibliographies can be maintained. Records in the COBISS system, based on the database of authors (CONOR) and the assigned code of the researcher, and according to the established typology of the work, are grouped within the personal bibliography. According to the system, when the researcher's work is recorded in the electronic catalog (COBISS/OPAC), it is also searchable through the researcher's bibliography. Applied in practice, in the records of the School of Engineering Management, as a research organization within the E-CRIS system, at the end of February 2019, 32 researchers (teachers, library users) were recorded, whose scientific and professional work was recorded and searchable in this way. The significance is that there is the possibility of updating bibliographic data, adding new references, following the chronology and current scientific work of the author.

The analysis of the obtained statistical data shows that a connection has been established between the possibilities of information services provided by the library and the real needs of users in a higher education institution.

The example of the Belgrade School of Engineering Management Library displayed the effectiveness of library operations. Data on the fund use, access to EBSCO databases, the researchers' bibliographic data in the E-CRIS system clearly show that the academic library activity is changing, developing and contributing to the quality of higher education.
Changes in library operations can be especially pronounced in higher education institutions, because the need for information for the purpose of education, scientific work can be recorded. The role of libraries is changing from reactive to productive, library services change from day to day and contribute more effectively to the quality of teaching and research activities when they are developed systematically.

This is an example, in a short period of time that includes the introduction of innovations, but even in that case, based on the response of users, the use value of library-information resources was confirmed, and the introduction of access to electronic sources was justified.

Good business decisions brought the balance between the user's needs and the library operation within a higher education institution. In the long term, the good operation of the library improves the educational process, which is shown by the satisfaction of the students and the interest in enrollment.

5. Conclusion

Successful teaching-scientific activities and library activity within a higher education institution are very closely related, and properly coordinated cooperation can be expected to increase the overall quality of work and results of the higher education institution.

In addition to regular activities, as support for the implementation of the curriculum, at a time when information is the most valuable resource, the business activities of the academic library must be directed in accordance with changes in higher education and the current needs of users.

A library is a growing organism (Ranganathan, 1931). Library activity today must keep up with the times. Higher education libraries in Serbia are not isolated collections, but are connected in a unique information system. When providing services in the faculty library, the focus should not be on the content holders, but on the content for which easy access should be provided. Regardless of the form, it is important to enable the search of materials in local access through a unique electronic catalogue.

In addition to searching and using "tangible" collections, an important service of the academic library is access to resources in digital form, which can be in local or remote access. Linking to scholarly databases requires investment, but allows easy searching and instant access to electronic journals and books, which has proven to be a sought-after and useful resource for higher education libraries.

The development of library resources in practice depends on the importance of the support of the institution to which the library belongs. Library services at the faculty are interrelated, conditional and if they are systematically arranged, they can contribute to the quality of work. The more comprehensive the library and information resources are, the better the basis for education, training and research work within the higher education institution is created. In this sense, it is important to recognize the importance of the development and connection of information systems, cooperation with related institutions in order to enable access to the necessary data.

References


