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О. В. Безсмертна, аспірант, Харківська державна академія культури, м. Харків

МЕДИЧНІ БІБЛІОТЕКИ ТА ВЕБ-ТЕХНОЛОГІЇ

Проаналізовано використання сучасних веб-технологій на сайтах зарубіжних медичних бібліотек та впровадження їх у практику вітчизняних бібліотек з метою поліпшення інформаційного обслуговування користувачів. Виявлено, що вітчизняні бібліотеки недостатньо впроваджують сучасні веб-технології. Особливо висвітлено роль мобільних технологій у бібліотеці. Основні компоненти мобільних сайтів зарубіжних медичних бібліотек: інформація про робочі години, місцезнаходження, посилання на мобільні БД, електронний каталог, сервіс продовження книг, новини бібліотеки та ін. Жодна вітчизняна медична бібліотека не оптимізувала свій сайт для мобільних пристроїв.

Ключові слова: *медичні бібліотеки, веб-технології, мобільні технології, сайти, сервіси та послуги.*

О. В. Бессмертная, аспірант, Харьковская государственная академия культуры, г. Харьков

МЕДИЦИНСКИЕ БИБЛИОТЕКИ И ВЕБ-ТЕХНОЛОГИИ

Проанализировано использование современных веб-технологий на сайтах зарубежных медицинских библиотек и внедрение их в практику в отечественных библиотеках с целью информационного обслуживания пользователей. Изучение сайтов украинских медицинских библиотек показало недостаточное практическое использование современных веб-технологий. Описано значение мобильных технологий для библиотек. Основные компоненты мобильных сайтов зарубежных медицинских библиотек: информация о часах работы, ссылки на мобильные БД, электронный каталог, услуга продления книг, новости библиотеки и др. Ни одна отечественная медицинская библиотека не оптимизировала свой сайт для мобильных устройств.

Ключевые слова: *медицинские библиотеки, веб-технологии, мобильные технологии, сайты, сервисы и услуги.*

O. V. Bezsmertna, postgraduate student, Kharkiv State Academy of Culture, Kharkiv

MEDICAL LIBRARIES AND THE USE OF WEB TECHNOLOGIES

The paper presents an analysis of the use of modern web technologies on the sites of foreign medical libraries. The author suggests to use these technologies in the work of national medical libraries in order to improve information provision of users. The study of the website of Ukrainian medical libraries has shown insufficient practical use of modern web technologies. The role of mobile technologies in libraries is described. Main components of foreign medical libraries' mobile sites are: information about working hours, location, links to mobile databases, online public access catalog, renewal books, library news and others. No Ukrainian medical library has optimized its website for mobile devices.

Key words: *medical libraries, web technologies, mobile technologies, websites, services and resources.*

The development of libraries using modern information computer and web technologies has radically changed the understanding of their roles and facilities in the field of information service for users.

Libraries as the most skilled communication broker in the «medical information – user» system have a duty to provide continuous online support cooperation between the parties of communication through the production of electronic products and services.

Introducing modern web technologies to library service production, generating library electronic resources and accessing to the external database significantly increase the role of libraries in the science communication system [8, p. 61].

Electronic scientific communication is developing today by radical increasing its efficiency and leads to a rapid increase in collections of online scholarly journal scattered in the global cyberspace. In this regard, the role of subject scientific libraries as terminal document communication systems significantly increases. They are designed to provide permanent storage and cumulation of complete electronic collections of journals for present and future generations [7].

Libraries, including the medical ones, are have to work now not only with collections of printed journals, but also with electronic ones, as well as with global and digital resources in general (electronic editions, digital libraries, bibliographic and abstract databases). This is a quite difficult development for university libraries designed to provide scientific information to academic community and render instant access service to electronic resources for its users not only within the library building, but for the whole university campus [9]. Another important trend to be considered is that the publishers, subscription agencies and information services take on the role of libraries, use different aggregation schemes of information and access to it [4].

One of the most important success factors of the Internet is its convenience of use. Most people prefer to look for information on the Internet at home or in office instead of searching systematically in library catalogs and then making a trip to the Library to get quality information. Apart from serious scholars and students, most people will just stop their information search altogether if they cannot find what they want on the Internet and not take the next step to go to the Library because of its relative inconvenience. Mobile devices today are taking convenience to a new height. The mobile device is fast becoming an appendage of our body. [2, p.11].

Mobile access to library services is not a new concept: in November, 1993, the University of South Alabama Library initiated the Library

Without a Roof Project to test the feasibility of using Personal Digital Assistants (PDAs) in a library environment [2, p. 86]. The project was conducted with the assistance of AT&T, BellSouth Cellular, and Notable Technologies, Inc. Apparently, this was the first systematic effort to connect a PDA to library online public access catalogs (OPACs), commercial online databases, and the Internet using a cellular communications link.

The interest in the PDA increased at the turn of the twenty-first century. Medical libraries were among the first to recognize the potential of mobile technology in libraries. A publication in 2002 in the Journal of the Medical Library Association, one of the first focuses on the possibilities of PDAs in medical libraries. PDAs have the potential to revolutionize not only the world of libraries, but the entire world of information technology as well. [5, p.94].

In the first decade of the 20th century, both public and academic libraries have begun implementing mobile versions of at least some elements of their web sites including catalogs. In 2006 a case study was published about the development of the mobile web site at Ball State University (BSU) Libraries [6]. According to the article, the BSU Libraries' mobile site offers library patrons a catalog and journal search, videos about the libraries, information about collections, services such as interlibrary loan, and quick links to mobile reference web sites. The study found that "library web sites can be adapted to the limited power, memory, bandwidth of mobile devices, and small screen mobile devices are acceptable for showing web services that are easy to read, easy to navigate, and that provide timely information". The information provided by BSU's research is a timely reminder that while library sites often contain large amounts of information, librarians can still effectively communicate their content in a mobile context [1, p. 313].

The aim of this paper is to explore the state of foreign experience in the use of modern web technologies at medical libraries as well as the current state of the information service in Ukrainian medical libraries using Internet technologies.

The websites analysis of foreign medical libraries showed that they use modern web technology extensively to improve the efficiency of information services. In addition to the well-known and successfully applied web technologies in Ukrainian libraries (virtual exhibitions, Web guides and index, virtual reference and information service, etc.), foreign libraries have been deeply involved in the use of more advanced Web 2.0 and Web 3.0 technology.

For users' convenience, it makes sense to inform them about library news, upcoming events, etc. To this effect some library use the RSS-

feeds (Really Simple Syndication) – a special category of XML-format for publishing frequently updated information like news, abstracts of valuable publications and so on. Usually the information is presented in a compact form, that is, it's a ticker with links to the source page with the full text. With the help of RSS-feed library is able to keep informed users about the new accession to the collection and other library events.

To improve the efficiency of science communication, most of websites contain catalogs (or indexes) of E-journals with a note about online access to the full-text articles for a fee or free of charge. The full text articles can be found mainly on the sites of aggregators of large bibliographic databases, in most cases, these are: MEDLINE, PubMed, Scopus, ScienceDirect, Springer, Elsevier, EBSCO.

The study of the websites of regional medical libraries and libraries of medical universities of Ukrainian shows that they don't use modern web technologies enough: just 21 (52.5%) medical libraries have a website or blog. Only 9 sites (22.5%) have a list of periodical publications with links to full texts. The lists (or the table) include mainly Ukrainian journals and journals from neighboring countries, 3 sites (7.5%) contain short lists of foreign editions. In most cases information about medical journals on the websites is limited only to titles. Journal lists at the scientific library site of National Pharmacy University also contain information about journal issues with the full-text articles on the Internet. The most complete description of the journals is presented at the site of the scientific library of Kharkiv National Medical University, where in addition to the lists of national and foreign journals, the online catalog has specialized database "e-Periodicals" with a complete description about edition, keywords, abstracts, links.

Developing library mobile websites and improving them with a mobile version of the online public access catalog (OPAC) become increasingly important for optimizing information provision of users. At any time or place customers increasingly expect from the library comfortable access to web resources and services, which was available not so long ago only on the computer at the library.

Our study of websites of foreign medical libraries revealed a range of resources and services available to users with mobile devices. The content of the sites was viewed using a tablet computer based on Android operating system.

Almost every mobile site contains information about working hours of the library, address and a map (library hours, library location, hours & locations and so forth). Besides, the libraries offer e-mail address and phone number (contact us, ask a librarian, ask us, contacts). Mobile

websites of medical libraries of McGill University (Canada) and The University of Tennessee (USA) enable you to talk with the librarian by chat in real time. Many modern libraries have accounts at different social networks, so the mobile sites have links to Facebook, Twitter etc.

Medical libraries make lists (navigators) of mobile applications (based on Android, iOS, BlackBerry, Windows, Palm), mobile sites, databases with a mobile interface in Medicine and Health in order to improve information provision of users. These lists are available at the websites of the medical libraries of the University of Texas, the University of Arkansas, the McGill University, the University of Florida and the University of Tennessee.

It is important to note that the most advanced medical library in creating mobile applications and websites for users is the United State National Library (U.S. NLM) of Medicine, which produces 17 applications based on iOS (11), Android (4) BlackBerry (2). There are applications such as: AIDSinfo HIV / AIDS Glossary (a powerful tool that provides mobile access to over 850 pertinent HIV/AIDS glossary terms in both English and Spanish), PubMedHandhelds (an app for discovering relevant health information at the National Library of Medicine. Journal abstracts, TBLs (“the bottom line” summaries) and full text articles (requires subscription to journals) can be accessed anywhere the Internet is available, users can save search results for reading later), Turning The Pages (app allows users to touch and virtually turn the pages of rare medical books and manuscripts from the collections of the U.S. NLM), LactMed (database of drugs and dietary supplements that may affect breastfeeding; all data are derived from the scientific literature and fully referenced; summaries of the reported information are provided and include links to other NLM databases), Health Hotlines (directory of organizations with toll-free telephone numbers. It is derived from DIRLINE, the National Library of Medicine’s Directory of Information Resources Online. This database contains descriptions of almost 9,000 biomedical organizations and resources) and others. Also at the website of U.S. NLM, some web-resources and web-services are optimized for handheld devices (PubMed Mobile, MedlinePlus Mobile, Drug Information Portal Mobile, Digital Collections and etc.).

Although there are many mobile versions of sites of medical libraries, not all of them offer a search by the electronic catalog. This is due to the fact that the library has to purchase a special mobile interface of catalog from the supplier of automated library system, or library should develop such catalog by its own efforts, but it requires experienced professionals. Such optimized catalogs for mobile devices are at the site of medical

libraries of the McGill University, the University of Tennessee, the University of Florida.

Some libraries offer additional services at mobile websites: to renew the use of library books (renew books), to book a study room (room booking), to check free computers at the library (computer finder), to watch video tours of the library on YouTube (Library tour). In order to help users navigate in the exponentially growing information flow the library created subject guides (library guides). Springshare company is a supplier of a special platform for creating such guidelines "LibGuides". This software is usable because of its optimization for reading on mobile devices.

The results of the study of foreign medical libraries' mobile websites have revealed the main components of their content: information about library working hours, location, means of communication (phone, e-mail, and chat), links to mobile databases (websites) and application, links to accounts in social networks, online public access catalog, renewal books, library news, checking free computers and rooms at the library. Unfortunately, no Ukrainian medical library has optimized its website for mobile devices. Studies of foreign medical libraries' mobile websites will enable to borrow the best ideas for the development and creating such websites for Ukrainian libraries. First of all it is necessary to conduct a survey of customers about the use of mobile devices, as well as to identify their preferences.

Conclusions. Foreign experience of medical libraries should be actively used when creating sites of national libraries which will enhance the efficiency and quality of information services of health professionals in the web-space.

The study of websites of Ukrainian medical libraries has shown an insufficient practical use of modern web technologies. In particular, there is no complete list of medical journals and information about them, while foreign libraries present most complete catalogs of periodicals (there are several thousand of publications) with functional search.

The growing popularity of mobile devices necessitates the development of modern smartphones in order to optimize sites, services, and create own mobile applications. This will enhance the efficiency and quality of information services of medical specialists in the web environment. Further efforts along this line provide great opportunities for improving the quality of services to medical libraries users. As the information revolution continues, libraries will experiment with mobile devices and services to support the information needs of their users wherever they may be.

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