

## **Librarians as Information and Knowledge Managers**

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**Abstract:** The immense stock of information and knowledge available in the twenty-first century imposed the need for designing a new kind of profession or modifying existing ones, especially the librarian profession, and educate professionals in collecting and disseminating the aforementioned. If the creation of new knowledge is to be understood in terms of Ikujiro Nonaka's "spiral of knowledge" theory, then future library professionals should be instructed as to enable the process of converting data into information, but particularly focus on facilitating transfer of information into knowledge. In order to successfully manage the ever-growing number of information and knowledge, it became indispensable to educate and train a new type of library officers, which could take over the role of mediators and enable users to access relevant information, and, thus, help them create new knowledge themselves. This would require instructing future library professionals in managing available information and knowledge in the most optimal way, performing both tasks of Information, as well as of Knowledge Managers. Furthermore, as the world library funds are being increasingly digitalized, the role of libraries and librarians has changed forever. Library professionals had to adapt to the rapid development of information and communication technologies and use digital tools as much as possible in order to evolve within their profession. Thus, a new type of librarian or information and knowledge manager should be able to provide library users with adequate information and knowledge by means of appropriate software. This is precisely why it is essential to educate librarians, during their basic academic studies, as to how to use digital methods and tools in order to achieve greater efficiency in searching data and overall easier distribution of information and knowledge to library users. This paper will deal with the new role of librarians as information and knowledge managers and their education, as well as with the influence that libraries, particularly digital libraries, have on information and knowledge management in general. Finally, this paper will emphasize the efforts of the Faculty of Philology of the University of Belgrade to incorporate these new tendencies within the curriculum of courses offered at its Department of Library Science and Information Technology.

**Keywords:** Librarians, information, knowledge, managers, Ikujiro Nonaka, "spiral of knowledge", library officers, mediators, digital methods and tools, software, digital library, Faculty of Philology, University of Belgrade, Department of Library Science and Information Technology;

## **1. Introduction**

The stock of information and knowledge available in the twenty-first century imposed the need for designing a new kind of profession or modifying existing ones, especially the librarian profession, and educate professionals in collecting and disseminating the aforementioned. If the creation of new knowledge is to be understood in terms of Ikujiro Nonaka's "spiral of knowledge" theory, then future library professionals should be instructed as to enable the process of converting data into information, but particularly focus on facilitating transfer of information into knowledge. In order to successfully manage the ever-growing number of information and knowledge, it became indispensable to educate and train a new type of library officers that could take over the role of mediators and enable users to access relevant information, and, thus, help them create new knowledge themselves. This would require instructing future library professionals in managing available information and knowledge in the most optimal way, performing both tasks of Information, as well as of Knowledge Managers.

## **2. Libraries as educational, cultural and spiritual centres and lighthouses in a digital age**

Libraries have always been educational, cultural and spiritual centres, places where people had access to relevant knowledge and information. These institutions invest greatly into the intellectual development of their users and contribute to the development of overall democracy of knowledge. They spread informative literacy and general culture, form and standardize descriptions of their funds in accordance with the interests of the readership, as well as protect their records, which is nowadays often done through the process of digitalization. Considering that the Internet, as a global digital library, and a series of small private digital libraries, encourage and facilitate access to diverse and extensive information, the position of librarianship has changed dramatically. Libraries must find the way to adequately respond to the needs and challenges of the modern age. The library can improve its role to a considerable extent provided that it offers at least part of its library fund in a digital form. This process should be carried out in an appropriate manner and it requires experts in the field of digitization, as well as the library staff who will be capable of showing users how to access the information they are interested in. However, we believe that the future status of the library science in society will mostly depend on the successful creation of educated, progressive, efficient, active, motivated and flexible librarians.

There are numerous assumptions about the future of libraries in a digital age. While some believe that they will become educational and recreational centres with theme-oriented collections of non-book materials, video walls, "educational" cafeterias, virtual conferences, theatre, museum, laboratory tools

and teaching aids<sup>1</sup>, others see the future library as a machine enabling time travel and interactive communication with all the creators of history<sup>2</sup>, an advanced tool for usage of artificial intelligence for individual advancement<sup>3</sup>, global archive of knowledge and information, whose availability depends on the technologically highly educated and capable librarian<sup>4</sup>. The modern library should also represent a specific gateway to knowledge that enables cultural development and research, supports lifelong learning; enables higher level of democratic values, plurality, diversity and multiculturalism of the community and society in general, contributes to the development and maintenance of intellectual freedom, protects user privacy and confidentiality, promotes responsible access to quality information for all library users, opposes to censorship and all violations of human rights in the field of intellectual expression, etc.

We are fully convinced that the survival of librarian profession will never be really put into question. Namely, regardless of the fact that librarians will be probably referred to as information and knowledge managers in the future, they will remain the intermediaries between library users and the knowledge, which will become available both in printed, as well as in digital form. In order to overcome problems that a traditional library encounters in information age, modern libraries must offer the ever-present and increasing number of electronic information and, hence, facilitate researchers to find appropriate information accessible in digital format. Therefore, many institutions began to create their own open source digital libraries. In addition to this, “the true nature of business (...) of information”<sup>5</sup>, handling of it, its storage, processing and distribution, represents the basic requirements for each profession, but it particularly addresses librarianship and archive management as specialized scientific disciplines that deal with the organization of knowledge and Knowledge Management.

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<sup>1</sup>Silverstone, S., (2002). Big-Picture-Overview Exhibit Displays: Books, Visuals, Virtual. Available at: [http://alpha.fdu.edu/~marcum/visions\\_silverstone.doc](http://alpha.fdu.edu/~marcum/visions_silverstone.doc)

<sup>2</sup>Kennedy, W.R., Metaphor Factory. Available at: <http://alpha.fdu.edu/~marcum/metaphorfactory.doc>.

<sup>3</sup>Surprenant, T. T., Perry, C. A., The Academic Cybrarian in 2012: A Futuristic Essay. Available at: [http://alpha.fdu.edu/~marcum/supernant\\_perry.doc](http://alpha.fdu.edu/~marcum/supernant_perry.doc).

<sup>4</sup>Billings, H., (2003). *The Wild Card Academic Library in 2013*. // College and Research Libraries. - 64, 2 (March 2003), pp. 105-109; Researchers, Technologists and Proactive Partners / Steven E. Gromatzky. - Available at: <http://alpha.fdu.edu/~marcum/gromatzky.doc>; 21st-Century Technical Services: The UNLV Libraries Experience / Brad Eden. - Available at: <http://alpha.fdu.edu/~marcum/Visions2012entry.ppt>.

<sup>5</sup>Davidow, W. H., Malone, M. S., (1992). *The Virtual Corporation – Structuring and Revitalizing the Corporation for the 21<sup>st</sup> Century*. New York: Harper Business.

### 3. Defining Knowledge and Knowledge Management

In order to properly educate future library workers, who can then become Information and Knowledge Managers, we must try to fully understand the concept of knowledge and knowledge management. Knowledge has been defined in so many ways, hence, for the purpose of this paper, we will offer an overview of the most important literature on this topic. Peter Drucker<sup>6</sup>, founder of modern management as such, saw the knowledge as a meaningful resource that makes a new society inimitable. Moreover, in his work *Landmarks of Tomorrow: A Report on the New "post-modern" World*, Drucker emphasized the fact that "education has become the central capital investment, the highly educated people the central productive resource in such society."<sup>7</sup> He was the first to mention the term *knowledge worker*. In their work *Successful Knowledge Management Projects*<sup>8</sup>, Davenport, De Long and Beers treat knowledge as experience, context, judgment, belief, and information. They find that knowledge represents the most important resource within organizations (strategically speaking), while Toffler<sup>9</sup> considers knowledge as the essence of power in information age. Ikujiro Nonaka influenced greatly the field of knowledge management by introducing his "spiral of knowledge" theory. By applying this concept to Japanese companies, Nonaka and Takeuchi<sup>10</sup> concluded that knowledge differs greatly from information and that it is about meaning that is context-specific and relational. Furthermore, they differentiate tacit knowledge, which is not easily expressed or communicated visually or verbally, since it is subjective, context specific, and difficult to catch, and explicit knowledge, which is seen as objective, communicative in verbal or visual manner, and more easily codified. Finally, a large number, perhaps most of the authors of these works that explore the nature and implications of knowledge seem to feel that attempts to define the term "knowledge" necessary, but at the same time recognizing that it is difficult to provide a concise and precise definition, if not impossible. A large number of definitions that are widely used are neither precise nor concise.

Although many researchers have tried to give an exact definition of knowledge management, it appears that this relatively new discipline is somewhat resistant to definitions. In their aforementioned work, Davenport, De Long, and Beers<sup>11</sup> find that knowledge management relates to "the exploitation and development

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<sup>6</sup> Drucker, P., (1993). *Post-capitalist Society*. Oxford: Butterworth Heinemann.

<sup>7</sup> Drucker, P., (1959). *Landmarks of Tomorrow: A Report on the New "post-modern" World*. p. 124.

<sup>8</sup> Davenport, T. H., De Long D. W., Beers M. C., (1998). *Successful Knowledge Management Projects*. *Sloan Management Review* 39, no. 2 (1998): 43-57.

<sup>9</sup> Toffler, A., (1990). *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century*. New York: Bantam Books.

<sup>10</sup> Nonaka I., Takeuchi H., (1995). *The Knowledge-Creating Company: How Japan Companies Create the Dynamics of Innovation?* New York: Oxford University Press.

<sup>11</sup> Davenport, T. H., De Long D. W., Beers M. C., (1998). *Successful Knowledge Management Projects*. *Sloan Management Review* 39, no. 2 (1998): 43-57.

of the knowledge assets of an organization with a view of furthering the organization's objectives". Within her work *Knowledge Management in an Academic Library Case Study: KM within Oxford University Library Services*, Tatiana White claims that knowledge management represents "a process of creating, storing, sharing and reusing organizational knowledge (know how) to enable an organization to achieve its goals and objectives."<sup>12</sup> Jeanne Holm also sees it as a process of obtaining the right information for the right people at the right time so that people can create, share, and act on that information.<sup>13</sup> Within his work *Knowledge Management: Making Sense of an Oxymoron*<sup>14</sup>, David Skyrme defines knowledge management as a "process or practice of creating, acquiring, capturing, sharing, and using knowledge, wherever it resides, to enhance learning and performance in organizations." Finally, for the purpose of this paper, it is important to differentiate information management, which is based on explicit knowledge, from knowledge management that includes tacit knowledge as well, or the *know how* component of human knowledge.

#### **4. Introducing Knowledge Management in Libraries**

According to theories of economic, political, social and cultural development (Barrington Moore Jr.<sup>15</sup>, Alexander Gerschenkron<sup>16</sup>, W.W. Rostow<sup>17</sup>, Henry Rosovsky<sup>18</sup>, Hofstede<sup>19</sup>), and of scientific revolutions and paradigm shifts (Thomas Kuhn<sup>20</sup> and Rene Thom's Theory of Catastrophes<sup>21</sup>), the growth of national economies and cultures could, in the present day and age, be viewed as

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<sup>12</sup> White, T., (2004). *Knowledge Management in an Academic Library Case Study: KM within Oxford University Library Services (OULS)*, Available online at: <http://eprints.ouls.ox.ac.uk/archive/>.

<sup>13</sup> Holm J., (2001). *Capturing the Spirit of Knowledge Management. American Conference on Information Systems*, Boston, Massachusetts.

<sup>14</sup> Skyrme, D., (1997). *Knowledge Management: Making Sense of an Oxymoron. Management Insights 2*.

<sup>15</sup> Moore, B. Jr., (1966). *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*. Boston: Beacon Press (1993).

<sup>16</sup> Gerschenkron, A., (1962). *Economic Backwardness in Historical Perspective*. Cambridge: Harvard University Press.

<sup>17</sup> Rostow, W.W., (1960). *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge: Cambridge University Press.

<sup>18</sup> Ohkawa, K., Rosovsky, H., (1973). *Japanese Economic Growth: Trend Acceleration in the Twentieth Century*. Stanford: Stanford University Press.

<sup>19</sup> Hofstede, G., Hofstede, G.J., Minkov, M., (2010). *Cultures and Organizations: Software of the Mind* (3rd Edition). New York: McGraw Hill.

<sup>20</sup> Kuhn, T.S., (1996). *The Structure of Scientific Revolutions* (3rd Edition). Chicago: University of Chicago Press.

<sup>21</sup> Thom, R., (1994). *Structural Stability and Morphogenesis*. Westview Press.

highly dependent ones and correlated with the degree of development of knowledge organization and knowledge management, embodied in Library Science and Information Science Education, as its tool of dissemination throughout the economy, society and culture as a whole. Therefore, in order to stay competitive in modern labour market, librarians will have to become Information and Knowledge Managers and provide library users with explicit, as well as with tacit (know how) knowledge. Only in this way, will they maintain the reputation and enhance the role of librarians in a modern, digital age. This requires overall revitalization of the librarian profession, both in the educational system regard, as well as in social terms, which should be driven by the requirements for selective dissemination of information, universal availability of publications and general bibliographic control. This is not only conditioned by librarian education, but also by redirection of crucial role in the production and distribution of information, cooperation in the field of placement of information and by the respect of data privacy, intellectual property and intellectual freedom in broader social terms. In a more narrow sense, this is orchestrated by the requirements for individualization of services, increased availability of a variety of electronic and traditional sources of knowledge; space adaptability; sophistication and variety of ways to access the necessary information.

### **5. Modernizing Education of Librarians in a Digital Age**

The digital age, in addition to providing the opportunity of accessing a large amount of information, which were otherwise inaccessible in the past, by means of digital technologies, being definitely an immense advantage of the modern era, created a necessity for professionals who work in educational, research, cultural and archival institutions to improve their skills and knowledge in many fields. As a result of this phenomenon, library professionals have to adapt promptly to the rapid development of information and communication technologies and use digital tools as much as possible in order to evolve within their profession. Namely, a new type of librarian, as future information and knowledge manager, should be capable of providing library users with adequate information and knowledge by means of appropriate software. Therefore, it is essential to educate librarians, during their basic academic studies, as to how to use digital methods and tools in order to achieve greater efficiency in searching data and overall easier distribution of information and knowledge to library users. This also requires a high degree of information and media literacy of future librarians, who can then educate library users and wider community in this direction.

### **6. The Importance of Information and Media Literacy in Educating Library Professionals as Future Information and Knowledge Managers**

With the development of modern Information and Communication Technology (ICT) and due to its ever-growing use in everyday life, the new type of literacy

was created. It became clear that, in addition to the basic skills of reading and writing, people must become increasingly information and media literate. Therefore, basic literacy nowadays also includes digital, textual and technological literacy. Media literacy, which imposes necessity of learning about different types of media, became indispensable for modern age man. Information and media literate person would actually be the one recognizing that certain level of information and media literacy is absolutely necessary, the one that is instructed as to how to find information and use it appropriately in order to contribute to the democratization of the society and knowledge. Information and media literacy also implies appropriate behaviour in finding and using information and leads towards informed and ethical use of information. Accordingly, people should be taught to honour the principles of ethics when using information sources available in digital form. This type of literacy aims at avoiding violation of intellectual property rights, including copyrights, promotion of plagiarism, spread of socially unacceptable and dangerous contents and limits imposed to the intellectual freedom. Librarians more than any other specialists working in educational, research and cultural institutions must fully adopt the principles of Information and Media Literacy and implement them in their work. Insufficient knowledge in regards to the Information and Media Literacy is often related to librarians who finished their studies when the emphasis on digital information and media was not that strong. Modern librarians are expected to have extensive knowledge of the matter, organize special educational courses to enable library users to become information and media literate, to the same extent as to perform selective dissemination of information to individuals. Hence, the courses aimed at raising the level of Information and Media Literacy of future librarians are highly regarded. Therefore, they must be introduced into curricula at all level of studies, undergraduate, as well as postgraduate, in order to improve the position of librarianship and enhance the role of librarians. The high level of Information and Media Literacy will enable librarians to truly become Information and Knowledge Managers in the future.

## **7. Process of Digitization and its Impact on Educating Future Information and Knowledge Managers**

The concept of digital libraries originates from the scientific, cultural, social and educational need to create medium that can transcend economic, political and national boundaries. This type of libraries strives to preserve the documentary-historical, cultural and scientific heritage, enrich the national and global memory, invest in intellectual development and contribute to the reinforcement of democracy of knowledge. Transfer of handwritten and printed information into digital form encourages multiplicity, organization, flexibility and distribution, which are considered distinctive advantages of digital preservation over traditional forms of information storage. In the present age the process of digitalization that was initiated by numerous libraries worldwide enabled availability of knowledge on practically any subject to a wide community of users. This process has made the implementation of distance education and

lifelong learning entirely possible. Taking into consideration the importance and the place that digital sources of information have within a modern society, future librarians will particularly have to be educated as to how to use digital tools and sources of information, as well as transfer their knowledge onto library users. This should be one of the main features of modern librarians if they are to become Information and Knowledge Managers.

### **8. The Faculty of Philology University of Belgrade, Center for Library and Information Science Education in Serbia**

The Faculty of Philology of the University of Belgrade is the oldest and largest faculty of its kind not only in Serbia, but also in the whole region. In addition to the study of Serbian language and literature, this Faculty offers the study of over thirty foreign languages, general literature, general linguistics, but also the study of library and information science. The Faculty of Philology is a reputable and prestigious higher education institution with a long tradition and numerous centres and institutes (Confucius Institute, International Slavic Centre, Centre for Serbian as a foreign language, etc.). This educational institution became a symbol of the community when it comes to research and education in the field of language, literature and culture. The Faculty traditionally cherishes numerous and significant cultural and scientific meetings and events. We strive towards the creative approach to education and culture, as well as to popularization of science. Over 9,000 students currently studies at the Faculty of Philology and works with over 400 teachers and assistants. Together, they make an active and vital academic community within which, in addition to teaching and research, a number of other activities are carried out as well (cultural, artistic, etc.). Teaching at the Faculty is organized on all three levels of academic study: undergraduate, masters and doctoral level. The Faculty of Philology of the University of Belgrade offers the only university program in Library and Information Science in Serbia and aims at improving, amongst other things, the state of these professions in our country.

### **9. The Contribution of the Faculty of Philology, University of Belgrade to Educating Librarians as Future Information and Knowledge Managers**

In order to educate the new type of librarians, who should become Information and Knowledge Managers in the future, universities worldwide started to modify their curricula and offer them within their library and/or information science departments. Bearing in mind the latest innovations in the field of librarianship, digitization and the overall rise in the use of digital tools and information sources, the Faculty of Philology of the University of Belgrade has recognized the need to (re)design, i.e. modernize, curricula for library and information science education and training within its Department of Library and Information Science. In order to achieve this, the Faculty intends to incorporate modern Information and Communication Technologies to a greater extent at the



BA, MA, and PhD level of studies. This primarily refers to the courses designed by and held at our Department of Library and Information Science at the BA level of study, but also within the study program *Language, Literature, Culture* (LLC) at all level of studies. Willing to educate efficient librarians and informationists, in accordance with modern trends in these scientific fields, the Faculty of Philology modernized its courses by aligning its library and information science curricula with the ones that have been successfully implemented at the most prestigious universities worldwide.

Taking into consideration the fact that the digital age imposed the need for librarians to be trained in order to work with modern digital technologies, as well as the necessity of digitizing library funds and making them accessible by means of digital tools and libraries, there has been an increasing number of information science subjects at the Faculty of Philology of the University of Belgrade. Under the old program of the Library and Information Science Department of the Faculty of Philology in Belgrade (which was in force up to the 2005/06 academic year), there were four obligatory courses that exclusively dealt with the field of Information Science: Informatics I, II, III and IV. In order to modernize studies of library and information science, the Faculty of Philology designed entirely new programs, which were implemented on two occasions (the first one lasted from 2006/07 until 2008/09 academic year and the second one, which is currently active, from 2009/10 until 2014/15 academic year). These new programs introduced, in accordance with the Bologna principles, amongst others, the following elements in our library and information science courses: information literacy, Internet and web technologies, programming, structure of information, databases and library information systems, multimedia documents, digital text, etc. We believe that we have given our students, by offering enriched courses within our Library and Information Science Department's curricula, the opportunity of not only becoming librarians, but also future Information and Knowledge managers in the modern constellation of libraries that are increasingly being digitized by means of modern ICTs.

Digital age and the ever-present and growing use of Information and Communication Technologies made an immense impact on the way we live and work. Due to an increased number of information, which can sometimes be overwhelming, many professions were subject to change and, hence, had to improve the services they provide in this regard. There is no profession to which this applies as much as to the librarianship. In the future, librarians will certainly have to become somewhat similar to Information and Knowledge Managers. Universities that offer programs in the field of library and information science greatly modernized their curricula in order to educate this type of experts. The Faculty of Philology of the University of Belgrade has already introduced many modifications in its higher education curricula offered at all levels of study within its Department of Library and Information Science, as to meet the needs

of the labor market for the new type of experts – librarians as information and knowledge managers.

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