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INFORMATION PROFESSIONAL AND THE KNOWLEDGE ORGANIZATION IN THE DATA WEB

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Abstract: Digital inclusion is also related to the development of skills and competences in individuals for efficient access, use and dissemination of information. In addition, continuous technological evolution, such as the emergence of the semantic Web, leads to new profiles and demands of the information professional. The organization and management of information with large collections of materials need to constantly reassess the identity and main purposes of its users. Libraries are continually developing processes and services in order to exploit the benefits of the Semantic Web. In this work, we discuss the main trends in this field, especially those that influence the context of the Web of Data.

Keywords: Information Organization, Knowledge Management, Web of Data, Digital Age, Information Professional.

INTRODUCTION

The Web is a network of contents interconnected through hypertext documents. Its mapping is possible by processes of analysis and successive collection of content pages from a previously known set of document locations. Such searches are carried out automatically by computer programs usually called crawlers, collectors or scouts. Even in this automatic mapping, the initially assumed set of locations from which the search is made influences the result obtained. Furthermore, not all of the Web is interconnected: there are many subsets of interconnected documents, of varying sizes, with no connection to the rest of the network (for example: "islands" of information). The first principle of the Web, proposed by the World Wide Web Consortium W3C Brazil states (W3C, 2011):

> "The main value of the Web is social. More than just technology, this is an environment for human communication, commercial transactions, opportunities to share knowledge and, to be a universal environment, it must be available to all people, regardless of the equipment and software they use, especially the culture in which they fall within, geographic location, physical or mental abilities, socioeconomic or educational conditions".

The universality of the Web can only be guaranteed and deepened with a democratic and pluralistic governance model that focuses on access by all and on its own technological evolution (CGI.br, 2011).

The issue of digital inclusion has been treated since the 1990s as the need to allow access to computers and ICT tools (Information and Communication Technology). However, new propositions have addressed inclusion not only in terms of access to digital tools, but also in terms of access and use of distributed content. Promoting digital inclusion and, consequently, social inclusion does not only mean promoting the universality of ICT tools, but enabling their critical use, stimulating the improvement of informational and cognitive potential and citizen activities. The concern is no longer learning basic WEB navigation tools and shifts to the different forms of knowledge collection and production. Issues of social inclusion through digital inclusion and current social and educational practices become central (Passarelli 2012).

The term informational competence, or *Information Literacy*, has its origins in the study of the information society, and is linked to the need to develop in individual's aptitudes about skills and competences related to access, use and dissemination of information, aiming to make use of it in an ethical and efficient way, so that the human being through their intellect and cognitive process can produce new knowledge (Campello 2003).

Information literacy has constituted, in recent years, a new research field of interest to education, information science and cognitive sciences. The challenge lies in initially learning

the basic use of technological resources - digital literacy - and then appropriating them to generate new knowledge - information literacy. In the context of information literacy, the challenges are multiple: the difficulty of university libraries, with their very expensive collections, in competing with digital collections; virtual libraries and search engines offering information immediately and at zero cost; the deconstruction of the concept of individual author and the emergence of digital collectives. The new contours of the network society have been the object of study and research for professionals from the most diverse areas.

This qualitative and exploratory research aims to provide a reflection on the performance of the information professional in the organization of knowledge in the Web of Data, with a view to making it more explicit or building hypotheses.

THE INFORMATION PROFESSIONAL AND THE DIGITAL AGE

In the world context defined by globalization and constant technological change, knowledge has become the main wealth of nations, it can also constitute the main factor of inequality in today's societies. The Information Society is the cornerstone of Knowledge Societies. The concept of "information society", related to the idea of technological innovation, is characterized by the rapid growth of available information and the changes caused by the technology used to generate, disseminate, access and use information (Melo 2007).

On the other hand, the concept of "knowledge society" includes a dimension of social, cultural, economic, political and institutional transformation, as well as a more pluralistic and developmental perspective, expressing the complexity and dynamism of the changes that are taking place. Knowledge

is not only important for economic growth, but also for strengthening and developing all sectors of society. According to UNESCO (2017):

> "Knowledge and information have a significant impact on people's lives. Sharing knowledge and information, particularly through information and communication technologies (ICT), has the power to transform economies and societies… knowledge societies must be built on four pillars: respect for cultural and linguistic diversity; freedom of expression; universal access to information and knowledge; and quality education for all".

The notion of easy access to information provided by advances in computer network and telecommunications technology has created an erroneous notion of the technological imperative as a response to humanity's communicational and educational deficiencies. The knowledge and use of this technological tool are essential nowadays, but it is necessary to consider that technology by itself does not lead to communication and education. Informational competence is strongly related to the process of internalizing knowledge, skills and values related to information and learning. In a more practical context, it represents a set of skills needed to locate, interpret, analyze, synthesize, evaluate and communicate information in different tools and supports (Dudziak 2001; 2003).

Individuals have their stores of information and these are used to understand external information and the different situations they are in at a given moment. Information search and use behavior are shaped, from an epistemological point of view, by the individual's cognitive characteristics and by factors that generate the user's encounter with information systems or the consequences of such confrontation. The importance of the cognitive aspect for information seeking behavior is presented by Kuklthau (2008):

"Several studies have supported the notion of information seeking as a knowledge construction process with different cognitive and affective stages (Cole 1997; George et al., 2006; Harada 2002; Pitts 1995; Tang and Salomão 1998; Serola and Vakkari 2005; Vakkari 2001; Vakkari et al., 2003, Vakkari and Hakala 2000, Wang and Soergel 1998, Yang, 1997). The Information Search Process model often causes anxiety and uncertainty........studies have confirmed this notion of interaction between cognitive, affective, and behavioral factors in information seeking (Bilal 2000; 2001; 2002; Bilal and Kirby 2002; George et al., 2006; Heinstrom 2002; Jiao and Onwuegbuzie 1997; 1999; Jiao et al. 2006, Jiao et al. 1996; Mellon 1988; Onwuegbuzie 1997; Onwuegbuzie and Jiao 1998; 2004; Wang and Soergel, 1988)".

It is necessary to pay attention to the fact that it is no longer possible to limit oneself to the task of locating sources of information. It is necessary to take into account the tasks of interpretation, formulation and learning involved in the process of searching for this information. Increased access to vast amounts of information requires, however, services that focus on the meaning of the search rather than merely on the location of the source. From this perspective, information users cannot be seen only as members of the system, but as the "reason for being" of the information service.

Information systems organized in the traditional perspective are primarily focused on the acquisition and management of large collections of materials. It was assumed, for decades, that the technical activities of the systems were their strategic point. Users were considered to be using the system exactly as it had been designed. It was unimaginable to ask systems essential questions about the identity and main purposes of their users. As information was considered to exist outside of people and transferable from one to another, it seemed possible that the efficiency and success of a system's operations could be measured as a function of the number of sources of information retrieved by the system versus what actually happened. was of interest to the user. This, in reality, places the user once again as an imperfect information processor, since it is already known that not all people are interested in the same sources indicated. As a result of this procedure, today much is known about the planning, acquisition, organization, control and development of collections, but very little about how people make use of systems or for what purposes and how information, the raw material of systems, is being used (Ferreira 1995).

THE ORGANIZATION OF INFORMATION ON THE DATA WEB

The impact of the use of the Web on society, individuals and organizations has become an object of research, going beyond the specialized field of applied computing, and reaching areas of organizational and sociological studies. As it is essentially dynamic and borderless, both from a physical and virtual point of view, it is important that it be known in detail, both to ensure its free transformation and to allow its availability, reliability and accessibility by all.

The so-called Web 2.0 follows a philosophy with reading and writing principles of a participatory nature, in which each user can directly intervene in the choice and introduction of data within each site; it is cooperative, as it shares ideas, preferences, information and knowledge; it is interactive, insofar as, through the full range of multimedia resources, a simultaneous dialogue with users is possible; it is democratic, because under this philosophy there is freedom of expression, thought, and, above all, the transit of information, regardless of the interests of each one; it is also sociotechnical, since, through all its characteristics, an exchange of cultures, religions, ethnicities and others is

possible. Today, not only the user participates, but also adds content that, when shared in other collaborative resources, begins to receive comments from members linked to their community, adding value to the shared information, in addition to creating several paths to the location of the resource itself. Thus, we have a new relationship and interaction in which the sophisticated level of electronic social attitudes increases.

The Semantic Web presents a new model of interactivity between the information user and the internet. This must ideally present all of your information labelled with indications of context and meaning, organized in a way that both humans and machines can understand it. A new denomination emerges for different intended evolutions on the Web and its interaction with the user: Web 3.0 (Passarelli 2008). Among the many aspects included in this designation, the following stand out:

- Semantic Web;

- Geospatial Web;

- Web 3D and augmented reality;

- More dynamic Web content, adding artificial intelligence;

- Greater web compatibility with database technology;

In this contemporary environment, a new user of information appears with new demands for computational resources and new capacities to produce new knowledge. Considering the main aspects of Information Competence: Information Technology, Information Sources, Information Processes, Information Control, Knowledge Construction, Knowledge Extension and Intelligence (Bruce 2003), emphasis is placed on a professional actively involved with the teaching and learning processes in Information Literacy: the librarian (Souza 2010).

METHODOLOGICAL PROCEDURES

This qualitative and exploratory research aims to provide a reflection on the performance of the information professional in the organization of knowledge on the web of data, with a view to making it more explicit or building hypotheses. Research is concerned, therefore, with aspects of reality that cannot be quantified, focusing on understanding and explaining the dynamics of social relations. The literature review presents an overview of education with new informational and digital resources, information literacy, transdisciplinarity between the field of Librarianship, Information and Communication and the growing trend of Information Schools - iSchools. The methodological procedures adopted for this work comprise two dimensions: theoretical and applied. From a theoretical point of view, it is characterized as being of the exploratory descriptive type of qualitative nature, due to the fact that its objective is to gather data and information on the topics addressed.

RESULTS

Scientific knowledge and access to technological innovations are very unequally distributed, considering in this comparison countries, regions, social strata, age groups, educational levels, among others. Thus, the issue of cultural diversity and studies on it must be part of theoretical consideration, empirical investigation and policy planning in the area of promoting Information Literacy. Furthermore, the typical information user does not just want to extract specific and definitive information in the shortest possible time or, alternatively, is willing to invest effort in seeking and exploring information and knowledge. The truth is that people continually oscillate between extracting and exploring, and the use of information

is a messy, disorderly process, subject to the whims of human nature, like any other activity (Canclini 2009). Among the most important elements that influence the use of information are the individual's attitudes towards information and its search, attitudes that are the result of education, training, past experience, personal preferences.

The universe of digital information expands in the context of what we now call Big Data, where the search for information becomes increasingly difficult since the digital universe is made up of unstructured data that needs to be organized, accessed, appropriated and then used. in the production of new knowledge. The Web of Data will come with the objective of organizing this information so that users can find information more easily. The Semantic search, as Web Data searchers are called, organize information by specific subjects, connecting knowledge. The Semantic Search of the Web of Data will divide the results into categories so that the search for information is faster and more organized.

Figure 1 relates the Degree of Connectivity of Information with the Degree of Social Connectivity according to technological evolution: Web - Connecting Information, Social Web - Connecting People, Semantic Web - Connecting Knowledge and the Metaweb - Connecting Intelligence.
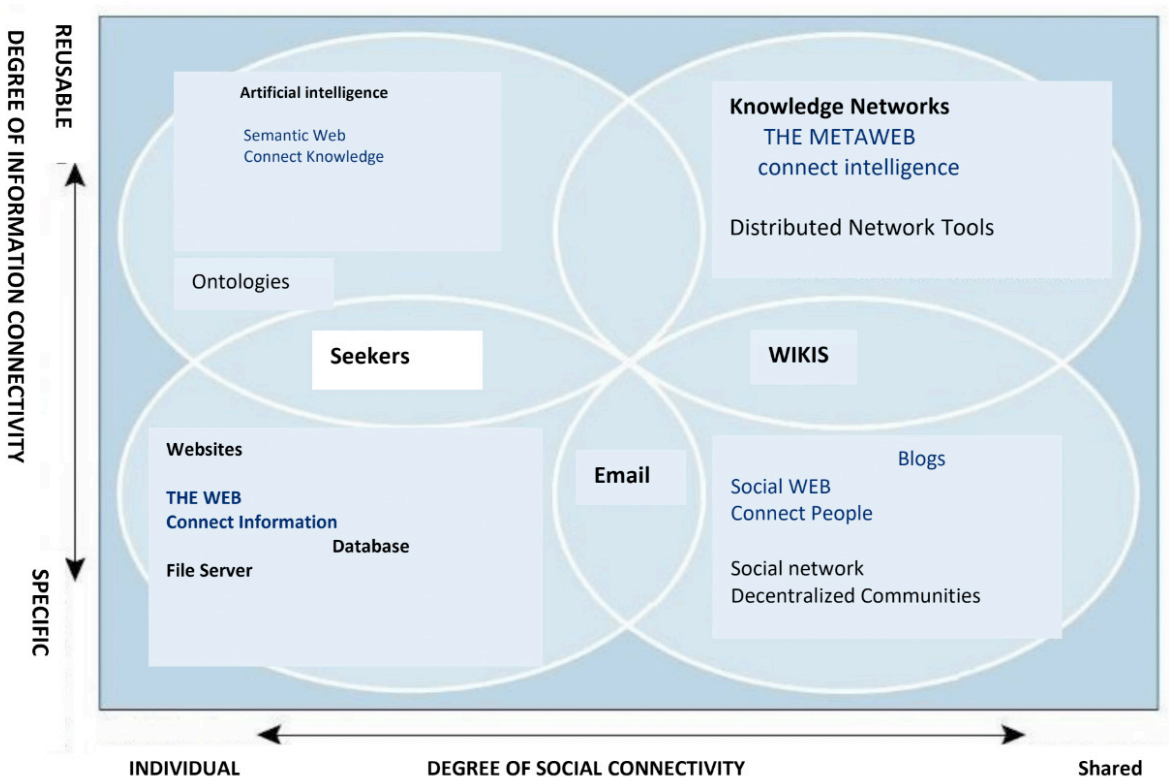

Figure 1. Technological Evolution of the Web – Author's Adaptation

Source: http://www.novaspivack.com/science/new-version-of-my-metaweb-graph-the-future-of-the-net

The knowledge organization connects the three processes of strategic information use – meaning creation, knowledge construction and decision making – in a continuous cycle of learning and adaptation that we can call the knowledge cycle.

Libraries are continually developing processes and services in order to exploit the benefits of Web 2.0. Library 3.0 refers to libraries leveraging technologies such as the Semantic Web, cloud computing, mobile devices, and reimagining the use of established technologies such as federated search (RFID) to facilitate the dissemination of user-generated content and collaboration to promote and make library collections accessible. The result of Library 3.0 is the expansion of the "borderless library", where collections can be made easily available to library users, regardless of their physical location. Library 3.0 is a virtual complement to physical library spaces (Belling 2013).

It is in this context of increasing availability of data that the "digital age" presents itself with multiple opportunities for information professionals to use information and communication technologies in the management and organization of information on the Web of Data.

CONCLUSIONS

There is currently a need for new proposals for managerial and strategic approaches associated with the use of Information Technology in the appropriation and generation of knowledge in the context of the Intelligent Web. Faced with the emergence of a digital economy - formation of complex patterns from a multiplicity of interactions, it is up to us to evaluate the continuous tensions in education between Information Science and Librarianship in this new scenario oriented to the formation of human resources: future librarians - information professionals. It is

necessary to prepare information professionals qualified to deal with the complexity of the global labor market, providing a systematic review of teaching plans associated with the main issues that are changing in their area of knowledge in the social, political, economic, technological and cultural context. : the impact of digital devices and social networks, the evolution of library services including virtual reference, ubiquitous support for libraries, digital access to repositories, digital preservation, new efforts to organize knowledge, the Semantic Web, the library catalog of next generation, the impact of digital publishing and e-books, policy issues related to broadband access and net neutrality, new interpretations of copyright related to the mass digitization of academic books and articles, new initiatives for integrate libraries, archives and museums (RUBIN, 2010).

The challenge imposed by the Digital Age in understanding the role of information, and in particular in the area of Information Science, in the scenario that specialists call the "4th Industrial Revolution" - started in the early 90s with the rise of the dematerialization of functions and processes and knowledge work. The training and qualification of human resources, technological cooperation, large-scale use of information technologies and communication ICTs are paving the way for the digital revolution.

In a society in continuous change, we have to rethink teaching models and observe the complexities of the 4.0 labor market and its relations with Information, Communication and Culture and structure programs that allow training information professionals with the necessary skills to work in a labor market increasingly dependent on digital skills.

In the Information Age and, more precisely, in the network context in which we are immersed, there are many challenges and problems that we cannot only face, but that

we must study in detail and depth in order to find the most appropriate global and specific answers (SILVA, 2008).

In this work, we discuss the trends in this field, in particular those that influence the context of the so-called Library 3.0, so that, more and more, technology can provide the creation and attainment of value to the information user. It is expected that the development of this area will lead to a greater understanding of the resources of collaborative technology used in digital information environments. In any case, the insertion of these technologies consists of innovation that must be linked to the tradition and mission of libraries and repositories, as well as to the performance of the information professional in the organization and management of information in the Web of Data.

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