

**ARTICLE****Library and Information Science contributions
to university libraries management**

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ABSTRACT

Librarianship and Information Science are two fields that have intrinsic relation between each other, mainly in Brazil. However, in spite of the convergences, these areas arose in different historical periods and with objectives to meet very specific demands. Currently, it is noticed that Librarianship is more focused on issues related to social responsibility and democratization of education, while Information Science focuses its efforts on research in order to understand information as a phenomenon in different contexts. Among these, this article is interesting, in the strategic and professional information, usually within organizations. Between these two approaches is the university library, which occupies a prominent role in the area of education as well as strategic planning of a country. Therefore, the purpose of this article is to analyze the contributions of the two fields for the management of university libraries today. Through the literature review, it is concluded that the two areas provide complementary inputs that allow the managers of these units to create an environment and services that meet the needs of their users in a more satisfactory way. Librarianship brings both technical and humanistic contributions to university libraries, while Information Science contributes to issues related to the instability of today's society, which demands constant redefinition of the services provided.

KEYWORDS

Librarianship. Information Sciences. Academic libraries. Libraries management.

**Contribuições da Biblioteconomia e Ciência da
Informação para a gestão de bibliotecas universitárias****RESUMO**

A Biblioteconomia e a Ciência da Informação são dois campos que possuem intrínseca relação entre si, principalmente no Brasil. Contudo, apesar das convergências, essas áreas surgiram em períodos históricos diferentes e com objetivos de atender demandas bem específicas. Atualmente, percebe-se que a Biblioteconomia está mais centrada em questões relacionadas com responsabilidade social e democratização da educação, enquanto a Ciência da Informação foca seus esforços em pesquisas relacionadas à compreensão da informação enquanto fenômeno em diferentes contextos. Dentre estes, interessa a este artigo, a informação estratégica e profissional, dentro de organizações. Entre esses dois enfoques, está a biblioteca universitária, que ocupa um papel de destaque tanto na área da educação como na de planejamento estratégico de um país. Por isso, o propósito deste artigo é analisar as contribuições dos dois campos para a gestão de bibliotecas universitárias na atualidade. Por meio da revisão de literatura, conclui-se que as duas áreas fornecem insumos complementares que propiciam aos gestores

dessas unidades criarem um ambiente e serviços que atendam de forma mais satisfatória seus usuários. A Biblioteconomia traz contribuições tanto na parte técnica quanto humanística para as bibliotecas universitárias, enquanto a Ciência da Informação contribui com questões relacionadas a instabilidade da sociedade atual, que demanda constantes redefinições dos serviços prestados.

PALAVRAS-CHAVE

Biblioteconomia. Ciência da Informação. Bibliotecas universitárias. Gestão de bibliotecas.



JITA: DD. Academic libraries.

1 INTRODUCTION

The research fields in Librarianship and Information Science (IS) have such an intrinsic relationship with each other in Brazil that they confuse themselves. However, while the first is an area of ancient knowledge and already consolidated, the second fits the panorama of postmodern sciences and still struggles to acquire scientific maturity. Permeating those fields, a polarity exists between two different information needs: public demands and democratization of education, and private demands of economic and commercial competitiveness. While the first seeks free access to information and is focused on the social side and needs, the second restricts access to information and is more focused on technological and business aspects.

Between the intersections and particularities of these two fields, there are university libraries, which constitute a fertile field of research. Universities, mainly public ones, have a dual role in forming good professionals for the Market, researchers in the academic area and positively impacting life in society. In other words, more than just training manpower, universities should also be concerned with educating citizens who are aware of their social responsibility and capable of solving problems and challenges inside their communities. These libraries' institutions, in turn, have the role of aid in the achievement of these goals.

Thus, this article points the relationships between the areas of Librarianship and Information Science and identifies how a synthesis of the two areas can contribute to the development of services provided by university libraries (UL). The purpose is to demonstrate that the conflicts between these fields must be surpassed in order to exist cooperation and holistic analysis that allows to dynamize and modernize users' service in UL's.

The methodology adopted is the literature review in books and academic articles. The aim of this bibliographic research is to characterize the areas of Librarianship and Information Science and to establish the existing convergences and divergences. Then, it will be analyzed how the paradigms, techniques and objects of study of these fields can be used in the management of university libraries so that the institutional goals of these information units are achieved satisfactorily.

In the first part of the research, is a presentation of the origins of Librarianship, its development over time and the role of libraries in contemporary society. The second part deals with the emergence of Information Science, its interdisciplinarity and identity crisis in the postmodern context. Finally, it will be presented how university library managers can appropriate the precepts of these two areas to develop activities that make these units of information relevant to the community served.

2 LIBRARIANSHIP: SOCIAL ROLE AND RELEVANCE IN THE PRESENT

According to Fonseca (2007, p. 1), Librarianship is "the set of rules according to which books are organized in appropriate spaces: shelves, rooms, buildings". This definition comes from the etymology of the term Librarianship, which is composed of the Greek elements *biblion* (book), *théke* (box) and *nomos* (rules). In the present, however, given the evolution of libraries and other information units, the area has undergone an expansion and embraces the organization and dissemination of information in most diversified environments and formats.

The Librarianship's development is closely related to the role assigned to libraries over time. Initially, these spaces were only used for storage (deposit) of materials for the preservation of their contents and physical support, without any major concerns with the access and

circulation of documents. Until the Renaissance, libraries were usually owned by religious institutions and were not accessible to the general population. European libraries of the Middle Ages, for example, were housed inside convents and monasteries, places inaccessible to laypeople, and books were even chained to bookshelves or tables for reading (MARTINS, 1998). The idea of reader is also modern, since in Antiquity and the Middle Ages the vast majority of the population, even the nobility, was illiterate, and even some priests were unlettered. In the 13th century, when the first universities were founded, university libraries also emerged, still as an extension of ecclesiastical institutions, since many originated from the orders of the Franciscans and Dominicans (MARTINS, 1998). Slowly, the libraries's administration were laicized and, as a result, the access to books becomes broader and more democratic, although the elitism of library's access still remains for a longer period until it becomes open to all segments of the population. In the 15th century, Gutenberg invented the press and the first bibliographic explosion occurred, breaking with the Church's monopoly in safeguarding books. The needs to, not only store materials but also inventory and organize the bibliographic production of humanity and make it accessible for use arises. With the Enlightenment, in the 17th and 18th centuries, libraries gained relevance due to their role as guardians of the memory of humanity and as a democratizing agent of knowledge. In the 19th century, with the consolidation of modern sciences, libraries began to assist in the scientific development of society. More recently, due to the automation / mechanization of activities, the second bibliographic explosion at the end of World War II and the development of information and communication technologies, libraries again need to adapt and develop new services and activities that meet the demands of inserted users. in the so-called information society. From the twentieth century, in developed countries, libraries, especially public ones, assumed a strategic role in promoting education and culture towards the population, in a movement led in the United States by the Chicago School. In developing countries, like Brazil, there are still several obstacles in the performance of these institutions due to the lack of funds and political neglect.

According to Ortega (2004),

Librarianship has an effective origin in the activity of preserving registered knowledge units, changing over time through the democratization of access to education and culture in library service management activities, but without constituting a scientifically based area as a whole. It is marked by the intense dissemination of its physical equipment, the libraries, many of which have established cooperative cataloging networks, whose ties are essentially productive and formal, but not established based on the information and its context of production and use.

Thus, although there is an English term Library Science, for many theorists, Librarianship is considered a discipline and not a science itself (LE COADIC, 2004), because its precepts are focused on the practical application of techniques and methods that provide the organization, retrieval and dissemination of information, without there being a mandatory scientific imperative permeating the area, constituting itself as a field of knowledge with very pragmatic roots.

As a professional practice, Librarianship is associated with collection development functions; classification, cataloging and information retrieval; meeting informational demands (reference services); and management of information units. Although these activities are facing drastic changes due to technological innovations, "practically all these functions will remain necessary and should be carried out in one way or another, either by human intermediaries or by automated systems" (DIAS, 2000, p. 71). Therefore, the librarian must be aware of the movement of transposing his activities from the physical spaces of libraries to virtual

environments, because although the essence of the work is the same, the practices and techniques involved are undergoing changes.

It is possible to observe that the focus of research and the approach to develop theories in the area of Librarianship have changed over time, as the role of libraries in society has been changing. Criticized for being concerned only with their holdings and their techniques, libraries begin to turn to their users and the community where they operate. In this way, the study of the problems of Librarianship is expanded and deepened.

According to Araújo (2014a, p. 28), the Spanish Lasso de la Vega (1952) argues that

[...] initially, libraries were institutions dedicated solely to the conservation of books and which, later, started to constitute active educational institutions, true popular universities. In the evolution of the concept of library, according to this author, this institution left a role of depositing books made available to some privileged to become the 'most democratic' of the institutions. Libraries would have achieved this by abandoning the passive position of waiting for users and taking on the task of searching for the right book for each reader. In addition, they linked themselves to a perspective of effectiveness as they sought to make the books yield the maximum fruit to each citizen, in the most effective way and in the shortest possible time.

In Third World countries, after the process of redemocratization that followed the end of the military dictatorships established during the Cold War, there is a concern to insert marginalized or excluded populations within the policies of access to the library (ARAÚJO, 2014a). Librarianship then takes on the character of a democratizing agent of access to information, moves away from the elitist origins of the time when the first libraries emerged and begins to promote more cultural actions to approach its public and promote the use of its collection.

Later on, it realizes that, despite the several changes, Librarianship still treats the user as a passive subject, who only receives external inducement, as an idea of the blank slate of the philosopher John Locke, who places the individual as an empty receptacle to be filled. Once more criticized, Librarianship starts to position the user as an active agent in the process of accessing information and begins to carry out studies of users and communities, needs and uses of information and reading habits. In these studies, the constructivist approach is highlighted to analyze the process of appropriation of information and construction of knowledge.

In the area of information representation, several systems are developed to describe and organize the information. In cataloging, instruments such as the American Cataloguing Rules (AACR), the International Standard Bibliographic Description (ISBD), the Dublin Core standard and the Functional Requirements for Bibliographic Records (FRBR) appear. In the classification, we can mention the Dewey Decimal Classification (DDC), the Universal Decimal Classification (UDC), the Library of Congress classification and the Charles Ami Cutter and Raganathan systems (PMEST and faceted Colon classification). Indexing languages, in turn, become fundamental to bridge the gap between the collection and the user, especially after the start of library automation. It is clear from the process of creating these instruments that "the universalizing trend, little by little, gave way to the issue of the singular" (ARAÚJO, 2014a, p. 73). In other words, it is recognized that both the description and the organization of the library collections must be carried out according to the public served and with a critical position. For example, in a school library, a color-based organizing system can be much more practical and effective than simply using classification numbers. Instead of waiting for the user to adapt to the library's procedures and standards, Librarianship begins to shape its techniques and actions according to the users' *inputs*. The organization and retrieval of information is greatly affected and issues such as folksonomy and human-systems interaction are highlighted.

According to Araújo (2014a), in the contemporary context, Librarianship look for models of interaction and mediation in a dialectical way with the public attended and seeks to overcome the models that promoted only unilateral actions by institutions with users. There is also an emphasis on the need to integrate the actions, collections or services of the information units in systemic and holistic models instead of fragmenting and treating them in isolation. Thus, the librarian professional assumes the important function of being a mediator who, in addition to being a bridge between information and the individual, is also responsible for assisting in the development of the user's informational competence so that he has the ability to seek information with autonomy, independence and critical awareness, both in the traditional environment of physical libraries as well as in electronic libraries and other digital sources. Librarianship, therefore, remains a field in constant expansion and adaptation, with an increasingly important social role to help individuals understand the reality where they are present and to promote the necessary changes. The technical function of the area remains important, but the educational and social function of the library is elevated and increasingly necessary to contribute to the development of individuals both in their personal and professional capacity and also in a collective dimension as a citizen capable of changing the reality where lives in a critical and active way.

3 INFORMATION SCIENCE: STRATEGIC FUNCTION AND POST-MODERNITY

Information Science officially appeared in the 1940s, in the midst of the information explosion that occurred after the Second World War. In that period, the polarization between the two superpowers of the time, the United States and the Soviet Union, provoked an arms race and a political dispute that made technological and scientific development flourish. The information then became an resource for the research's continuation and also a power factor, as these two countries sought to supply the regions under their influence with scientific and strategic information. Unable to deal with the enormous informational volume generated daily, it becomes latent to create more effective methods to organize, retrieve and disseminate the information present in the most varied formats and demanded by users with increasingly specific needs. After the end of the Cold War, the demand for information continues, but its axis has expanded from governments to private organizations, which also seek greater competitiveness through innovation and continuous improvement.

Strongly interdisciplinary, IS has in its origin's evident links with Librarianship and Documentation, having been marked by the visionary ideas of Paul Otlet (ARAÚJO, 2011), as well as with Computer Science (especially with regard to automatic recovery information), Cognitive Psychology, Communication, among other related fields. It is important to see that the origin of IS in each country varies, with some having a closer connection with one of the areas mentioned above. In the United States, for example, IS appears linked to technological information retrieval systems and also as a demand from specialized libraries, which were no longer able to satisfactorily serve their users only with the knowledge generated in the area of Librarianship (DIAS, 2000). In France, in turn, the area is institutionalized in the departments of Communication Sciences (ARAÚJO, 2014a).

In Brazil, IS was introduced with the master's degree created by the Instituto Brasileiro de Bibliografia e Documentação (IBBD), a precursor to the Instituto Brasileiro de Informação em Ciência e Tecnologia (IBICT), in 1970 and its emergence was linked to the needs of the government, which had the objective of linking the development of science to the productive sector (MARTELETO, 2009). Thus, IS research was structured on information for the State

and focused on developmental policies implemented at the time by the government. Institutionally, Information Science in Brazil is directly linked to the Librarianship departments, which offer postgraduate courses in the area. However, it is more and more possible to find professionals from other fields (predominantly engineers and computer scientists) occupying the vacancies of professors in these departments.

One of the great difficulties in the institutionalization of Information Science was and remains its interdisciplinary character, as this characteristic hinders the evolution of the area by dividing in several fields the analysis of its object of study, information. Thus, IS depends on the synthesis of the appropriate theories from other sciences to develop its own epistemology, as it is not possible to just incorporate concepts from other areas, it is necessary to interpret and adapt them to the field of Information Science. Interdisciplinarity, therefore, constitutes a fragility and a strength at the same time: it is a deficiency insofar as it does not have its own well-structured conceptual-theoretical basis (using other theories as a support in the development of its research), but it is a strong point in enabling IS to conduct more holistic studies than other fields of knowledge.

This great interdisciplinarity is also responsible for the area's identity crisis, which oscillates between wanting to be a "hard science", with well-defined precepts, and being a social science, which respects the particularities of the individual and the communities studied. When analyzing the research trajectory, it is noticed that initially, IS emerges with a positivist / functionalist approach and seeks to achieve more accurate knowledge, with mathematical (information theory), physical (entropy) or biological (epidemiological theory) models. In this way, "if in institutional or terminological terms the social nature of information science seems indisputable, in properly epistemological theoretical terms this insertion is not exactly obvious" (ARAÚJO, 2003, p. 21).

This perspective is only changed when, afterwards, the research focus is redirected to users, needing from then on, to seek the contribution of the human and social sciences. But even so, the first studies of IS as a social science had a markedly statistical and quantitative focus, perhaps as an attempt to bring more legitimacy and academic respectability to the area. "Therefore, information science is not yet "born" as a social science. Very linked initially to computing (...) and automatic information retrieval, it will, only in the 1970s, promote its effective registration in the social sciences" (ARAÚJO, 2003, p. 22). Subsequently, IS assumes its social character and starts to develop studies that consider information in a more contextualized way, recognizing that the informational value does not exist *a priori*, but is dependent on a given context.

The new direction of Information Science is not an isolated case in the scientific and academic community. In reality, it is a symptom of the onset of the crisis in modern sciences, which are now severely criticized, and gives rise to a new way of doing science, which can be characterized as a

movement to surpass the crisis of the dominant scientific paradigm since the 17th century, by overcoming the model of Cartesian rationality, the separation of the subject and the object, the search for order, the separability of the constituent elements of reality, a movement motivated by the crises generated with the evolution and application of scientific knowledge, such as wars, totalitarian regimes, pollution and ecological disasters, the exclusion of access to knowledge, the reinforcement of socioeconomic inequalities, the sophistication of instruments of domination. (SANTOS, 1996 *apud* ARAÚJO, 2003, p. 26).

The postmodern sciences, therefore, arise from the demand for a new reconfiguration for science in the contemporary world, where it will not be necessary to explain all the nuances

of the objects studied and the field of study is aimed at solving problems caused by classical sciences and technologies previously created. In addition, the impossibility of objectivity is recognized, as the researcher is unable to disconnect from his political, economic, social and ideological context. Not to mention that the research is funded by the government and the private sector, which, of course, have their own motivations in the results of the research sponsored by them.

The demand for a new science stems from the failure of the Enlightenment ideals, who believed that through reason it would be possible to build a more just and constantly progressing world (CARDOSO, 1996). However, the very notion of progress comes to be questioned and several scientific inventions cause great tragedies, such as the atom bomb and the destruction of the environment in an irreparable way. Even the social sciences, by appropriating Darwin's evolutionary ideas, provide a basis to justify acts such as the colonization of Africa, where the "primitive peoples" would finally reach civilization through the "advanced" nations, in a clear disregard for history and tradition of "invaded" countries.

The concept of postmodernity, however, is polemic. Many authors believe that what is currently occurring is an increase in modern characteristics and not a break with the previous order. Contemporary society would be in the middle of a crisis of values, but this crisis would lead to further stability. Other authors, however, believe that there is no turning back and that society has changed in such a way that it will definitively break the precepts already established by man.

Regardless of the discussion about whether or not there was a break with the modern order, some characteristics can be inferred from the contemporary society in which we live: the rupture of space-time, advances in communication technologies and the exacerbation of the effects of globalization (GIDDENS, 1991 *apud* CARDOSO, 1996). The main consequence of these changes is the possibility of communication and coexistence between individuals from different parts of the world, both socially and economically, facilitating the exchange of knowledge between peoples. That is why studies centered on closed systems, as occurred in the area of Librarianship and Information Science initially, no longer make sense, since the individual is currently in permanent connection with several information systems all the time and, often, simultaneously.

In the scientific area, the major change is the recognition of subjectivity in research; the instability of knowledge, which can be changed and replaced by new discoveries at any time; the impossibility of universal and absolute knowledge, as the objects of study are dependent on their context (theory of relativity); and, perhaps the most significant change, interdisciplinarity, as a single science cannot alone be responsible for solving the complex problems studied by the contemporary scientific area (ARAÚJO, 2003). In the context of postmodernity, even areas considered as hard sciences had to change their paradigms in the face of certain problems, such as physics, for example, which deals today with classical physics, quantum physics and string theory, to name a few concepts. Thus, the constant questioning of objectivity in science, or the lack of it, aims to inquire about the limits of the scientific method and demonstrate that there are no absolute truths, as everything depends on the context and the cut made during the research. This openness is what allows science to continue its development and promote disruptive innovations. For this reason, IS in this scenario no longer seeks the support of being considered a hard science and embraces the idea of being a postmodern science, with all its possibilities.

Given the changes that have occurred in studies within the CI area, it is possible to outline three main paradigms to support research in this field of knowledge:

Table 1. Paradigms of Information Science

	Physical Paradigm	Cognitive Paradigm	Social Paradigm
Period	1940s	1970s	1990s
Research focus	Information systems and technical and technological processes	Users and their psychological processes in the appropriation of information	Social, collective and interactionist processes in the appropriation of information
Main research object	Information (excludes subject's active role)	Subject	Contextualized subject
Types of studies developed	<ul style="list-style-type: none"> * Quantitative user studies * Treatment of information seeks universal and ideal language * Information retrieval with a focus on the system 	<ul style="list-style-type: none"> * Qualitative user study * Treatment of information for users * Information retrieval with a focus on the user 	<ul style="list-style-type: none"> * User study with a constructivist focus * Treatment of information admits polysemy and recognizes that each community has its own criteria for selecting information * Relationship between technology and social context in the construction of information * Mediation process and information services
Information concept	Based on the idea of transferring and transmitting information	Based on the idea of transferring and transmitting information	Based on the idea of appropriation and collective construction of information

Source: Adapted from Capurro [2009?] and Silva (2017).

The three paradigms of IS should not be considered linear or substitutes for each other, as they are cumulative and associative, with ramifications that complement each other. Each paradigm focuses its research on an aspect that involves the process of accessing, appropriating and disseminating information and, consequently, provides a more holistic understanding of the factors involved in the process.

To conclude the discussion on IS, it is important to highlight that the area has always been polarized between two dimensions: technological and social. In the technological field, there is an inexorable connection between Information Science and Information Technology, the most visible intervention being the use of computers in the representation and retrieval of information, in addition to the automation of various processes in the flow of creation, storage and use of information. In the social field, there is a concern for the user, the way technology is used, individual and institutional information needs and the flow of information within a specific context. These two dimensions must be worked on in an integrated manner, as information is processed both in human existence and in existence within a machine (GOFFMAN, 1970 *apud* PINHEIRO; LOUREIRO, 1995), and there is a constant interconnection between human and technological systems. Therefore, it is necessary to work not only with the new technologies available, but also with the capacity of human cognition when relating to technological devices and considering the specificities of the context where the individual is inserted.

4 UNIVERSITY LIBRARIES: BETWEEN THE SOCIAL AND THE STRATEGIC

According to Tarapanoff (1999, p. 29), the knowledge society is based on a socio-technological model, "where information and access to information are present in the social and economic life of peoples." With the emergence of technologies of communication and information (TCI), the process of creating and disseminating information has been streamlined and democratized, facilitating its sharing. The access to information by individuals becomes a basic necessity of survival both personally and professionally as well as to exercise. In this context, libraries have the important task of facilitating access to information.

In the university field, the domination of the capitalist production system, which demands constant economic growth, causes new educational demands to arise, as it requires more qualified manpower. As a result, enrollments at universities grow and UL's become an auxiliary instrument in the qualification of the population both to operate in the market and in the area of academic research.

In Brazil, university libraries are generally the best equipped and receive the most investments. Due to the periodic evaluations carried out by MEC (Ministério da Educação), which links the quality of the collection and services provided to the notes of the courses offered by universities, there is an institutional interest in promoting its development, in addition to being a support for the academic community, where it is inserted.

Due to this "privileged" position, Brazilian university libraries in many situations find themselves in the role of assuming responsibilities not met by other types of library. For example, students new to the university may have little or no information skills¹, something that should have developed since the school phase. Given the precariousness of many Brazilian public libraries, UL's in some cities also assume the role of democratizing access to information, offering some services, such as local consultation and internet access, for the non-academic public.

Academic libraries, therefore, represent a field of action that absorbs both the educational and democratic precepts of contemporary Librarianship as well as the strategic and competitive precepts of Information Science. In other words, UL's have an educational role, by enabling the user to access reliable sources of information and develop search strategies, but also to provide access to information that helps users not only achieve academic success throughout the course, but also to train professionals with a load of adequate knowledge to develop their professional activities (OLIVEIRA; CRANCHI, 2017). Therefore, UL's help to develop both the individual as an autonomous and critical person as well as a human workforce or "resource" for organizations.

However, university libraries and the university itself as a whole are currently facing a crisis. In the new era of postmodernity or liquid modernity, as defined by the sociologist Bauman (2001), the transformations are constant and very fast. In such a dynamic and unstable scenario, universities often act very slowly and end up teaching knowledge that will be obsolete when students reach the end of their training and BUs also demonstrate that they are unable to offer informational solutions that help their users. to deal with this new reality. The formal education institutions then find themselves at a crossroads, as they start to compete for space with new and alternative options for access to knowledge (TEDESCO, 2006). If before, schools and universities were exclusive places for the teaching-learning process, it is now possible to find "teachers" in other places, such as, for example, on YouTube channels, discussion blogs

¹ Informational competence, according to Dudziak (2003, p.28) is defined as "a continuous process of internalization of conceptual, attitudinal and skills foundations necessary for the understanding and permanent interaction with the informational universe and its dynamics, in order to provide learning to the throughout life "

and social media. Usually, these new options are interactive (it is not a one-way communication, as it has resources for comments and interaction between individuals), easy to access (no need to move to access the content) and inexpensive (many platforms are even free).

In a society in which the vast majority of individuals prefer to look for information on the internet instead of looking for traditional books and services, the role of libraries is intensely questioned, with its end being even proclaimed by some. Despite the pertinent justifications that library services offer a type of organization, credibility and reliability that cannot be found in many online information sources, libraries still need to update the services and products offered and promote innovations to meet the new demands of the user more efficiently and dexterously, who are looking for an agile information service, easy to use, personalized and, preferably, that is made available remotely through mobile devices.

Some innovations have been implemented, although still timid. In the first attempts at innovation within libraries, the main focus was on the technological part, but today there is a much greater concern with the humanistic side of the issue. Technology is no longer an end in itself but a means to achieve institutional and individual goals of society and individuals. For Davenport (1998, p. 11-12),

Our fascination with technology made us forget the main purpose of information: to inform. All computers in the world will be of no use if their users are not interested in the information that these computers can generate. The increase in the bandwidth of telecommunications equipment will be useless if employees of a company do not share the information they have. [...] The commonly accepted approach to information management - investing in new technologies, and that's it - just doesn't work.

For this reason, more than simply worrying about the availability of new technological resources, the information unit must have a holistic view of the process of searching, accessing and using information, always focusing on the needs of users. Failure to consider the human issue in the provision of information can lead to alienation of the user, who will not have their needs adequately met and will look for other locations, physical or virtual, that are more useful to them.

From the point of view of the management of information units, when it is noticed the loss of these “customers”, it becomes imperative to investigate what is causing this removal of users and what are the best strategies to reach them again. For, although UL's still have the strength of MEC assessments in their favor, the ultimate goal of libraries should be primarily to serve their public as accurately as possible. In creating strategies to win back the public served, library managers need to understand how the flow of information occurs within the scientific and academic field, how users in this community behave, what technological tools and formal and informational information sources are available, which trends will remain and which are just passing fads. The focus of the libraries must also be on enabling the user to deal with the enormous volume of information, namely to recognize the reliability and quality of the information received, and how to update themselves professionally in a society in constant movement.

UL's being the type of library that receives the most investments in Brazil, should also assume a role of social responsibility and assist students who have more difficulties in the teaching-learning process. These students often leave the university because they do not have the necessary support to improve their study and learning techniques or they graduate without acquiring the necessary knowledge to be well qualified professionals in the job market. The evasion or low learning of these students implies a loss for the individual personally, for the university that used resources in something that was not completed and for the labor market that often suffers to obtain qualified labor. Considering the elitist origins of universities, UL's

can contribute to the construction of a more democratic history of higher education and a more just society. For, although the implementation of Brazilian governmental actions aimed at reducing inequalities in access and permanence in public institutions of higher education is verified, there are still portions of the university community that continue to face great difficulties to maintain their study.

When planning actions to improve products, services and procedures in university libraries, UL managers can adopt the same perspectives as the Information Science paradigms: focus on improving the systems and techniques used (physical paradigm); focus on the user in a more personalized and individual way (cognitive paradigm); focus on information systems external to the library and on new informational behaviors of users (social paradigm). When making a planning that considers the three aspects mentioned, university libraries can be more effective in the performance of their functions and offer a differentiated and systemic service to their audience.

In order to achieve the proposed changes, the manager will also have to be a leader capable of involving his employees, motivating them and guiding them to perform new functions. This issue is extremely important, as the professional librarian, normally, has a more technical profile and Librarianship is a field of knowledge with a tendency to a certain stagnation. To face the new challenges and opportunities faced by libraries, a trend currently being discussed is that of embedded librarianship, or integrated librarianship, which it is

[...] a distinctive innovation that moves the librarians out of libraries and creates a new model of library and information work. It emphasizes the importance of forming a strong working relationship between the librarian and a group or team of people who need the librarian's information expertise. As the relationship develops, the librarian's knowledge and understanding of the group's work and objectives grow, which leads in turn to greater alertness to the information and knowledge needs of the group. The embedded librarian becomes just as engaged in the work of the team as any other team member. As the engagement grows, the embedded librarian develops highly customized, sophisticated, and value-added contributions to the team—contributions that sometimes go far beyond the confines of traditional library reference work and that some might be surprised to find a librarian delivering. The librarian functions as a team member like any other—and shares responsibility for team and organizational outcomes with all the other members of the team. (SHUMAKER, 2012, p. 4).

The above definition is very close to what an information scientist would be at the beginning of the development of the Information Science area. According to Araújo (2014b), in the 1920s and 1940s, especially in England and the United States, scientists began to carry out activities to disseminate among their other colleagues information about their respective areas of activity. They were chemists, physicists, engineers and other scientists who started to elaborate indexes, summaries and to spread communication channels to assist in the work of their peers. Integrated librarianship proposes an inverse path, where, instead of the scientist performing tasks of organization and dissemination of information, the librarian will take his expertise to act in a more immersive way in the reality of the users to be served.

Thus, it appears that the university librarian needs to stop being a supporting actor in the teaching-learning process within universities and assume a more active role before users, whether they are students or teachers. The support provided by university libraries must be perceptible to the academic community served, which will count on the professional librarian as an important ally in the search for information and knowledge. For this, libraries must be visionary, with the capacity to anticipate demands and quickly incorporate the new information and communication technologies that emerge, generating personalized, efficient and quality services. The most technical part of the library will still be in demand, but with computerization,

educational activities and curation of specialized information will be what will keep university libraries as relevant institutions.

5 FINAL THOUGHTS

University libraries are being immensely impacted by technological changes and users' informational behavior. Because the teaching-learning process is more flexible and dispersed among countless resources and information sources, the public served needs a more innovative and dynamic library to meet their information needs. With users more skilled in the use of information and communication technologies, it is the responsibility of university libraries to adapt their services and products to meet new demands. This is a complex topic, which requires constant professional updating on the part of librarians and also on Librarianship courses, which should train professionals trained to deal with the constant changes in information flows in contemporary society.

In this context of profound and rapid changes, libraries are slowly changing some of their precepts / paradigms. The main thing is to replace the idea of possessing information with that of access to information. In other words, more than accumulating printed works in the library, professionals in the field must give access to information, either through the subscription of databases or through agreements with other libraries and institutions. Another change is that if, at the beginning of the democratization of access to education, there was an incentive to read, now it is also necessary to train users who are independent and autonomous in the search for information and knowledge creation, transforming them into qualified individuals to find the necessary information from any source on your own.

It is important to remember that Information Science is both a pure science, insofar as it investigates the information object in isolation, as well as an applied science, since it is aimed at the creation of services and products (BORKO, 1968). Appropriating these characteristics, university libraries, which are already inserted in an environment conducive to research, must be less reactive to changes in society and start working with a vanguard performance and with a visionary vision to anticipate information needs of its users, always seeking to link services to the qualification of professionals with the ability to later impact the field of work in which they will operate, whether in the public or private sphere.

In the field of Librarianship, university libraries should seek to improve the techniques and established procedures of the area and not forget the most humanistic aspects that permeate it. It is necessary to recognize the dichotomies between technology / technique x social, public x private interests, individual x organizational interests, and try to overcome these dualities. University libraries, and the university as a whole, must seek to integrate all interests and create more robust solutions to solve the informational challenges of today's society and generate value for users and society.

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