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Blended Librarians in Academic Libraries: a Brazilian Panorama

Gercina Ângela de Lima[1]; Benildes Coura Moreira dos Santos Maculan[2]; Graciane Silva Bruzinga Borges[3]

Abstract. Academic librarians face challenges that come from the changes caused by the digital environment. These changes are reflected mainly through information and communication technologies that are in constant development and available to users remotely. This article discusses the profile of academic librarians as blended librarians and focuses specifically on the Brazilian context, which is at times in contrast with the international literature about the topic. The characteristics of this professional include the new the role as an educator, in addition to the roles as a manager and as a strategic mediator of information resources. In this new role, the teaching-learning process leads to the development of information literacy of the public. The professionals involved with this new configuration of academic libraries also must be adept at judging the suitability of products and services that are offered to a more demanding, connected, and dynamic public. The results indicate that academic librarians must develop continuously professionally, and be attentive to the demands of the libraries' community of users, offering services that are specialized and can be remotely accessed.
Keywords: Blended Librarian; Academic Librarian; Teacher Librarian; Librarian Manager; Academic library.

[es] Bibliotecario Híbrido en bibliotecas académicas: en la realidad brasileña

Resumen. Se aborda el perfil del bibliotecario académico como "Blended Librarian", o sea, bibliotecario híbrido, actuante en bibliotecas académicas, con enfoque en la realidad brasileña y en contraposición con la literatura internacional. Se tuvo como objetivo discutir los impactos y desafíos enfrentados por este bibliotecario a partir de las transformaciones resultantes del ambiente digital. Estas transformaciones se reflejan principalmente en la realidad de las tecnologías de información y comunicación, que están en constante desarrollo y disponibles para los usuarios. Se contribuye así a ampliar la percepción de los profesionales del área sobre una nueva configuración de la biblioteca académica, en búsqueda de la adecuación de los productos y servicios ofrecidos a un público más

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[1]   Univercidade Federal de Minas Gerais - Escola de Ciência da Informação. Departamento de Organização e Tratamento da Informação.
       E-mail: limagercina@gmail.com.
[2]   Univercidade Federal de Minas Gerais - Escola de Ciência da Informação. Departamento de Organização e Tratamento da Informação.
       E-mail: benildes@gmail.com.
[3]   Univercidade Federal de Minas Gerais - Escola de Ciência da Informação. Departamento de Organização e Tratamento da Informação.
       E-mail: gracianebruzinga@gmail.com.

exigente, conectado y dinámico. Explora las funciones de este profesional más allá de la gestión y la mediación estratégica de recursos informativos, y se cumple así el papel de educador. En este nuevo papel, la enseñanza-aprendizaje lleva al desarrollo de la competencia informacional del público por él atendido. Los resultados indican que el bibliotecario académico debe capacitarse continuamente y estar atento a las demandas de su comunidad de usuarios, de manera a ofrecer servicios más especializados y de acceso remoto.

Palabras clave: Bibliotecario híbrido; Bibliotecario Académico; Bibliotecario educador; Gerente bibliotecario; Biblioteca académica.

Sumario. 1. Introduction. 2. The librarian in contemporary academic libraries. 3. "Blended librarians" in academic libraries. 4. Final considerations. 5. References.

Cómo citar: Lima, G.A. de; Coura Moreira dos Santos Maculan, B.; Silva Bruzinga Borges, G. (2017) Blended Librarians in Academic Libraries: a Brazilian Panorama, en *Revista General de Información y Documentación* 27 (2), 471-486.

1. Introduction

The rapid advancement of information technology allows a greater communication transfer and sharing of information resources, which has led to a bigger involvement of people in their own searches and provision of information, especially with the growing number of available information resources in the web environment. This demands changes from the traditional services that have already been offered by the libraries. Accordingly, the managers of an academic library must adopt best governance practices for the storage, availability, access, and information retrieval, in order to meet the demands of independent users.

Today, we have a "virtualized" university with online classes and remote access to a program content that provides flexibility to both the student and the teacher. With a constant change, due to the increased use of technology in teaching and learning, librarians should rethink the approaches used toward the organization of the collection and the services provided, as well as how to disseminate information among students and teachers who can access the content from different locations. Additionally, new technologically inclined information users, especially researchers and students, have begun to demand more specialized services from the academic libraries. This should not be seen as a threat, but as a challenge and an opportunity to provide more appropriate services and mediated, and relevant information to the user community.

Along with managing and mediating information resources, libraries should include in their services the responsibility of supporting teachers in teaching-learning activities, with the intention of helping students to achieve higher levels of information literacy, by teaching them the information resources available, how to use those sources of information, and how to use the technology to access the services. The librarian assumes the traditional role of a mediator along with the role of an educator, and together with the teacher's efforts, they combine forces to increase students' information literacy skills. Likewise, Alsop & Bordonaro (2007) describe how

Academic librarians play vital and varied roles in the life of the university guiding students and faculty at the reference desk, instructing library research sessions, and developing library collections. It is a truism to say that librarians in all sectors of an academic library wear many different hats and provide numerous services to patrons.

Therefore, it is no longer enough that academic librarians possess only technical skills, such as cataloging and indexing, but rather the professional must be proactive and assertive in relation to the information needs of its community. Consequently, librarians need to be managers, information mediators, and educators incorporating new functions as leaders, and transformation agents, since they work in harmony with the educational and pedagogical system (Dudziak, 2003).

The aim of this paper is to present a new conception of academic librarians as blended librarians, i.e., creative managers, as strategic mediators of information and as educators, whose concerns are focused on the development of information literacy of the community served. To fulfill these multiple activities, the blended librarian must possess technological skills and contribute to the development of information solutions. This can be accomplished through the composition of multidisciplinary teams, armed with clear objectives, for planning the strategic services. An overview of Brazilian libraries, and librarians is provided, but before the presentation of this new librarian profile, it is necessary to contextualize the professional in their traditional activities in academic libraries.

2. The librarian in contemporary academic libraries

An academic library is always linked to an institution of higher education, which may be public or private, having "undoubtedly a collection of information resources for educational support, research, graduate and university extension" (Lima, 1977). As a consequence, it should respond to the inquiries and information needs of their students, teachers, researchers, and the academic community in general, through the management and strategic planning of resources and services. The academic library needs to have a team of competent librarians with current knowledge, with the purpose of make the process of accessing information efficient for the end user. So as to have efficient management, it is essential that the librarian's team must be qualified and create a supportive, and appropriate environment for the development of information literacy of its stakeholders.

With the possibility of remote information services, the academic library is no longer the only information resource through which students and researchers access information. The separation of the physical library from the users makes contact between librarians and the user community more difficult. Thus, librarians should be aware of this issue, anticipating and projecting the demands of their current and potential users. The Internet and digitization of documents has both changed and facilitated search procedures for information because

As the number of digital documents have increased, more opportunities have been created for storing, sharing books and articles that were deposited in libraries.

The Internet brings quick answer in several languages, but with some questions: about the reliability of the information content, new and varied sources of information appear on computer screens after typing a few characters. Hence, arises a second question: how to find what you really need without having to scroll through a list of more than a million results? (Eirão & Cunha, 2012).

Thus, in the present scenario the librarian has the function of providing guidance on the relevance of documents and of filtering data with the aim of avoiding an overload of information.

So as to provide good service to users, librarians should use all information available to help to learn the process of collecting quality and relevant information to the community served in multiple formats and from different sources. The flow of information that takes place between repositories of information and users is one of the responsibilities of librarians because "it is not only enough that the message is intentionally directed to access, but the message should reach the semantic geographies of the receiver in a way that is compatible with their understanding and acceptance" (Barreto, 2002).

To link the information services that the library offers to the educational process adopted by the educational institution, it is necessary that the librarians develop beyond their current expertise. So, academic librarians should continuously renew and innovate their practices, readapting them to the needs of the community with a proactive attitude towards the education needs of their institution. To be proactive, the librarian should follow the evolution of technology, since some challenges are because of the digital services and Internet resources that are tools for library activities. Additionally, the librarian must continuously develop information competencies to be able to critically reflect on and assess the sources of information available.

The concept of Library 2.0, a term coined by Michael Casey, refers to technological changes brought from Web 2.0 that allow libraries to change their static ways of organizing and disseminating information to more collaborative, interactive and dynamic methods, where the user becomes more important than their bibliographic collection. With Library 2.0, the notion of a "library without walls" became possible, where information services may be available online and accessible from anywhere, whenever needed. As a consequence, the need for professional librarians with technological knowledge who are prepared to manage and deploy these services has become essential (Miller, 2006).

Hence, the profile of the academic librarian now requires the development of different competencies, such as:

The development of motor and affective skills, interpersonal relationships and social inclusion. [With this we seek] internalizing behaviors [that] means to assimilate factual and conceptual content (knowledge), procedural content (skills) and attitudinal contents (values). Only from that triad—knowledge, skills and values—can one perform user education in its true sense (Dudziak, Gabriel & Villela, 2000).

The complexity of the current informational reality demands that the librarian's training meets this triad—knowledge, skills and values—with which the necessary

functions will be able to be fulfilled. According to Campello (2003), information literacy, anchored in this triad, corresponds to the:

The abilit[ies] to solve problems, to learn independently, to learn throughout life, learning to learn, questioning, logical thinking, placing them in the category of cognitive skills of a higher order and critical thinking.

Therefore, an academic librarian should possess the following competencies: (A) understand how the information and the sources are organized; (B) understand and use research processes required to locate, evaluate, and communicate ideas and information; (C) recognize that being a standalone reader of printed material, not printed or electronic formats, contributes to their continuous learning; (D) know how to seek information and critically confront the sources; (E) understand the ethical, legal, and social rules regarding sources of information.

As previously stated, the academic library has its existence tied to higher education purposes, and, like so librarians should be prepared to take the leading role in the changes in teaching and correspondingly amend the service provided to its users. The services offered must accompany the adoption of new teaching methods, creating new behaviors in the search and use of information, study, and research. Similarly,

if until recently the librarian should have a dedicated training for the preservation of human culture; to support education for teaching-learning process and the research and the planning and management of information resources, its theoretical and practical reasons must now broaden the scope of knowledge required for the concreteness of their doing business, keeping in view prioritized assumptions such as: planning, management and processing of information systems, besides to the design and use of the latest technologies of information and communication. Feature that promotes a major paradigm shift since the concerns of librarians no longer confined to the physical limits of a collection, expanding to the study of the information cycle as a whole (Silveira, 2008).

We must strengthen the assistance provided to the user in academic libraries that is strongly linked to the available physical collection; however, it is not limited exclusively to this. In consequence, the academic librarian must know the main sources of information needed to meet the demands of its users.

Within the library, the direct care of users is usually related only to the practice of explicit mediation, or reference services. However, reference is related to the search actions, selection, acquisition, processing, and organizing of information resources for later retrieval (implicit mediation). From Almeida (2008)

The information mediation is all reference action—performed by an information professional —direct or indirect; conscious or unconscious; individual or collective; which provides ownership information satisfying, fully or partially, an informational need.

In this sense, the author makes it clear that the mediation process, which is part of the professional librarian activities, has a broader application, albeit the most important point of mediation is in reference services. Along with Grogan (1995), part of human knowledge is knowing where to find information about a certain

subject. Grogan argues that this is the arena of the reference librarian, who effectively delivers information to users with specific needs.

Because of the nature of scientific work and its specialized public, which requires extensive literature surveys, academic librarians should develop personalized information services by individual demand. In this way, the users, understood here as a customers, can be serviced with accurate information for their individual research. Researchers' demands to go beyond the receipt of a simple listing of references that are potentially relevant to meet their information needs. This audience requires carefully selected information resources to contribute effectively to investigate their research questions. It can be stated, then, that the librarian is required to perform an excellent service, and this professional should be an active agent in the search for solutions in information services.

In Brazil, the backdrop of libraries and the undergraduate programs of librarianship is inextricably linked to its history as a colonized nation. The territory had indigenous inhabitants when the first Portuguese arrived in 1500. After thirty years, in 1530, the Portuguese crown colonized the country because of fear that Brazil would be conquered by the Dutch, English and French. The Portuguese crown had as main objectives the commercial and Portuguese territorial expansions, and other elements were neglected, such as education. This neglection affected the educational advancement of the country, as will be reported in the following section, which presents a brief historical of libraries and library schools in the education of Brazilian librarians.

2.1. Academic libraries and librarians in Brazil

The first Brazilian libraries were managed by religious Benedictines (from 1581), Franciscans, and Jesuits (from 1549). The first formally recognized library is the National Library (BN) in Rio de Janeiro, which originated with the Royal Library Help, created at the time of Brazilian colonization by Portugal (Castro, 2000). At that time, the main goal of the religious was the expansion of Christianity to increase the power of the Church. Thus, formal education was reserved for the economically privileged. The Jesuit period, with elementary courses of letters and philosophy and higher education in theology lasted until 1759. At that time, the Jesuits were expelled from all Portuguese colonies, on the orders of Sebastião José de Carvalho. After that, until the arrival of the Portuguese Royal Court in Brazil in 1808, there was no effective work in education. D. João VI invested in education and opened institutions such as military academies, law, medical, and engineering schools.

With the changed in the education environment in Brazil, the National Library (NL) was opened to the public in 1814. In 1822, the imperial government established the obligation of sending samples of all published work to the NL. This gave rise to what today is called the Brazil of Legal Deposit, established in 1907. Only in 1825 was the National Library purchased from the government of Portugal. Since then, it has received several personal collections of illustrious Brazilians and was inaugurated in the new building of the National Library in 1910 in Rio de Janeiro, which brought together all the accumulated collections.

However, the library still lacked qualified professionals. Because of this, the National Library instituted a library science course within the library, which was implemented in 1915. The course followed the French social model of École de Chartes in Paris, forming a professional with more humanistic and classical characteristics. This course was the first in Latin America and the third in the world. Beyond the theoretical, there was the practical part, which was performed at the National Library. This course ceased to be offered in 1922 (Castro, 2000).

In the 1920s, a library science course was created in the capital São Paulo, coordinated by Dorothy Murriel Gropp, who brought the American pragmatic model (technicist and technocratic) to Brazil (Castro, 2000). This model prevailed in Brazilian libraries up to the 1980s, influencing the creation of other librarianship courses, especially during the military regime (Silva, 2010). After this time, the first initiatives of the social model re-emerged.

Table 1. Practices of librarians in Brazil

Period	Movement
1879-1922	The librarianship movement was founded in Brazil with French humanistic influence, under the leadership of the National Library.
1923-1939	The discontinuation of the course at the National Library and the creation of courses with the American pragmatic model predominating over the French humanist model used previously.
1940-1961	The consolidation and expansion of the American pragmatic approach and the encouragement of scientific research for the socio-economic progress of Brazil.
1962-1969	The military coup in 1964 changes the focus of national education policy culminating in the university reform in 1968, the institution of a library science university course, and the regulation of the profession, driven by strong a investment in programs of science and technology (S & T).
1970-1990	The implementation of industrialialized projects in the country, uniting research and education, which brought a gradual decrease in the number of undergraduate and increase in graduate courses, and the addition of new paradigmatic concepts and the information technology field of information science; emergence of specialized and university libraries.
1990-2004	In some cases, undergraduate courses in librarianship change their names to information science courses but without major changes in the curriculum.
2005 to presente	A paradigm shift to a mixed model that combines social and humanistic design with the pragmatic model, following innovation in S & T and making use of systems and information and communication technologies.

Source: Adapted from Castro (2000), Castro (2004) and Silveira (2008)

In 1968, the university reform took place during the Brazilian military regime. Large library buildings were built in the country, with the demand of the creation of central libraries on university campuses, insisting on a "radical change in methods of organization of services where the 'isolated library' has no survival conditions" (Miranda, 1978). Miranda (1978) states, though, that at first this change neither positively impacted the quality of services offered nor brought about the renewal of their collections. Miranda believes that librarians in the late 1970s prioritized

technical processing at the expense of the processes related to selection (assessment of their collections to determine their suitability to the user community) and reference (guidance and training users, which was inefficient or nonexistent).

Thus, what was observed was a lack of planning integrated services, with activities carried out in isolation and without defined goals, along with the lack of qualified academic librarians, who were not encouraged to undergo training, unlike teachers, whose expertise required increasingly sophisticated services. Despite these limitations, Castro [14] states that both the academic and specialized libraries (central libraries' research and development - R & D) and academic and specialized librarians were highly valued, unlike librarians from public and school libraries. For Schwartzman (1993) this can be explained by the higher investment that occurred during the military regime between 1968 and 1980, which aimed at developing national self-sufficiency and sought training and quality in Brazilian science and technology (S & T) sector.

The results of a survey conducted in early 1990 showed that Brazilian academic libraries were still slow to adopt new information technologies in their services offered. According to Ramalho (1992), the lack of a technological tradition in the country affected the interaction of librarians with machines, although these professionals had positive reactions to the use of technology in the library. Ramalho (1992) argued that in this time librarians needed "more information and training for effective information management through the new media."

With the Law of Guidelines and Bases of National Education (LDB) of 1996, the minimum curriculum for higher education courses became extinct, and the National Curriculum Guidelines were adopted to guide the development of curricula in institutions. In the 2000s, there was not a specific national policy for Brazilian academic libraries, which removes them from the plans and budgets for innovation in S & T (Silva, 2009). Accordingly, they were not included in the budgets of universities, so they did not possess autonomy to create an agenda for the development of activities, and improvement of services. They also did not have access to financial resources and materials to create modern services management strategies, information resources, physical infrastructure and training of its librarians.

With the establishment of the Curriculum Guidelines for the course in library science (CNE/CES, 2002), there was the push for a continuous training, with emphasis on information literacy and management creativity as essential features of the professional librarian. In general, the guidelines provided a direction for observing ethical standards of conduction, adopting a humanistic line for academic projects (in the social and cultural sense). Furthermore, they offer targeted content for the practical and theoretical elements of its activities, both general and also as vocational training.

In contemporary times, especially in the federal universities, an institutional movement has arisen for training the staff, including librarians allocated at different sectoral libraries. Nevertheless, the challenge of managing further necessary changes remains up to Brazilian librarians. Among these transformations includes the extrapolation of their traditional functions of preservation, organization, processing and dissemination of information, aiming to include new

services and information products, especially those that make use of information technology (Souza, 2009).

Librarians in Brazilian academic libraries, in which the main activity is the production and dissemination of knowledge had to adapt their collections, and improve their interpersonal relationships with users, students, and researchers. The Library 2.0 as a virtual community centered on the user has required an innovative profile of these professionals, with a more participatory performance, with technological and educational skills, and with knowledge of new methods of information management. For that reason, professionals in academic libraries are expected to possess these characteristics and skills and are now known as blended librarians.

3. "Blended librarians" in academic libraries

Academic libraries have had to adapt to the support needs that the various new technologies have brought to their collections. The restructuring of services offered, and the adaptation of library resources to this new reality has also required professionals, who work in academic institutions to gain new skills. If previously the technological resources librarians created guides to help the user navigate the library, in current times, in the face of this new reality, academic librarians should develop services that give autonomy to its users to access information. Instead of controlling this access, they must offer tools that allow the user to become a member of the library. Hence, knowing traditional librarians,

New skills and competences should be aggregated, which are essential for the inclusion, retention and expansion of the information professional in the current job market. Consequently, the area of expertise of librarianship, managerial skills, technologies and other languages, are the minimum requirements to those who want to keep up with these changes in the working world and be part of it (Dutra & Carvalho, 2006).

The combination of these features led Bell and Shank (2004) to denominate the academic librarian as blended librarian, defined as

an academic librarian who combines the traditional skill set of librarianship with the information technologist's hardware/software skills, and the instructional or educational designer's ability to apply technology appropriately in the teaching-learning process.

As a result, librarians must necessarily broaden their knowledge to help their institutions to be successful and add value to the services offered. It has required librarians to perform, sometimes simultaneously, in the roles of manager, mediator and educator.

The library manager must have skills to create innovative mechanisms to manage, trying to produce improvements able to undertake new ways of acting as an information professional. In this case, one should seek the interaction between existing professional skills in relation to services, lightening the mission, reducing friction and internal competitiveness, and aiming to improve the results. So, technological innovations force constant learning, and there is no time for the

academic librarian to be far from lifelong learning, which requires constant professional improvement.

These improvements in competency management in academic libraries had already been identified as important by the late 1990s, even before new technology had the impact currently observed. Thus, it is expected that a blended librarian, as a manager, search for participative management techniques to manage these innovative changes, enabling the improvement of both the services as well as the technical capabilities of the team. The function of only directing their users to information is not sufficient; rather, they should promote information exchange between the academic library and its community. In consequence, academic library services will gain greater visibility, ensuring information reaches its users. Also, this professional must have strategic planning knowledge to monitor the implementation and assess the services offered.

The academic librarian has always been perceived as a professional who plays the role of facilitator in the searching process, in order to help users to meet their information needs, and this activity had always been carried out by the reference librarian. Though, remote user access to academic libraries has created new communication challenges. Hence, the blended librarian characteristically possesses new communication skills, as a professional mediator that integrates the services that are offered online with the services offered locally and with enough technological knowledge to use the services that are provided by Web 2.0 tools.

The training of its users is one of the main goals of the academic library. According to Sinclair (2009), "The Blended Librarian is versed in both print and *online* tools and can help faculty to meet course goals, regardless the medium or technology." The reference services offered by academic libraries are no longer considered the only source of information. A variety of alternatives to access information, external to the academic library have become a reality, such as wireless networks, virtual reference, and remote access. Accordingly, the need to provide training to users, teachers and students has become imperative to teach them how to use new technological tools to access information. Shank & Bell (2011) make clear that "to achieve the aforementioned goal, Blended Librarians must be able to educate their faculty and students about existing and new information discovery, creation, and sharing tools."

One feature of a blended librarian is the ability to be a teacher (Bell & Shank, 2004). To take on the role of an educator, the blended librarian needs to work collaboratively with teachers to know the content, the methodologies used to teach, and the curricula of the courses offered by the institution. Joan Giesecke (2010) states that "Blended Librarians therefore become part of the instructional development team." Moreover, it is desirable that this professional has pedagogical knowledge to facilitate the creation of teaching materials to enhance the learning of users. Blended librarians, who combine traditional knowledge of librarianship with the knowledge of the technology and education, could become a potential educator who assists teachers to improve teaching and the student learning process.

Note, however, that the main role of a blended librarian is the facilitation of the acquisition of knowledge, assisting users in learning the academic services offered

by the library, and applying the theoretical and technical knowledge acquired during library education. These skills, combined with the knowledge gained in librarianship courses, differentiate the blended librarian. It is not required, however, that this professional must possess expertise in the areas of administration, computer science and education.

The literature suggests that the curricula of library schools are not yet prepared to educate the blended librarian. Bell & Shank (2007) note that "Embracing the librarian's role in teaching and learning is an opportunity to transform the profession and to maintain relevance in the face of new search technologies that may marginalize it." Similarly, in Brazil, librarians do not always exercise the teaching functions, especially if they lack basic knowledge of educational techniques, including instructional design components. This reveals a gap in the training of librarians and in the curricula of librarianship courses. A proposed curriculum with this new approach would facilitate the formation of the blended librarian, who would complete interdisciplinary training and would help also to improve the training of others librarians with insight into the future of the profession (Turner, 2016).

Studies have already been conducted identifying innovative features and suggesting interdisciplinary areas that can complement the curricula of librarianship courses. Bell & Shank (2004) identify six principles for the course for blended librarianship, namely:

(1) Taking leadership positions as campus innovators and change agents is critical to the success of delivering library services in today's "information society;"

(2) Committing to developing campus-wide information literacy initiatives on our campuses, in order to facilitate our ongoing involvement in the teaching and learning process is necessary;

(3) Designing instructional and educational programs and classes to assist patrons in using library services and learning information literacy is absolutely essential to gaining the necessary skills (trade) and knowledge (profession) for lifelong success;

(4) Collaborating and engaging in dialogue with instructional technologists and designers is vital to the development of programs, services and resources needed to facilitate the instructional mission of academic libraries;

(5) Implementing adaptive, creative, proactive, and innovative change in library instruction can be enhanced by communicating and collaborating with newly created instructional technology/design librarians and existing instructional designers and technologists;

(6) Transforming our relationship with faculty requires that we concentrate our efforts to assist them in integrating technology and library resources into (hybrid/blended) courses. We must also add to our traditional role a new capacity for collaboration to improve the student learning and outcome assessment in the areas of information access, retrieval, and integration.

The authors revisit this issue in 2011, when they talk about the role of the blended librarian as an educator in the digital information age (Shank & Bell, 2011).

In 2009, Sinclair (2009) suggests seven items that must be followed by blended librarians and blended librarianship to assist in learning and services:

(1) *Be the change agents on campus; that is, be early adopters, promoters, proficient users, and supporters of instructional technology;*

(2) Be a *partner with faculty.* Develop new programs and services jointly that focus on new ways of the student learning. Provide and support specialized software and hardware needed for research and class projects in the learning commons. Work with faculty to encourage out-of-class work in the library. Chances are that the library is open more hours than departmental labs and is more centrally located;

(3) T*ransform the reference desk.* Be a partner with the information technology staff to create a technological and learning desk located within or in close proximity to the learning commons;

(4) R*ecruit and develop bright and technologically savvy students to assist other students on the floor.* Peer mentors are the key. Studies show that students will more often go to a student assistant their own age than ask a librarian for help;

(5) B*e available for one-on-one consultations and individual appointments, as opposed to sitting at a service desk waiting for students to come to you;*

(6) T*ake the show on the road.* The learning commons is a perfect place for scheduled or impromptu instruction for small groups and individuals, and

(7) D*evelop online tutorials and guides that allow students and faculty to learn when they want to and at their own pace.* Embrace students' do-it-yourself/Web 2.0 spirit.

Corrall (2010) presents a conception of the professional blended librarian, differentiating three traditional specialist professional groups, according to figure 1:

(1) Library/information science specialists, with knowledge in E-*content and digital library specialists (content + conduit)*, e.g. electronic resources coordinators, digital collection project managers, directors of digital libraries, heads of e-strategy, intranet/web managers and repository librarians;

(2) IT/media specialists that could have *discipline-based information and knowledge specialists (content + context + conduit)*, e.g. subject/liaison librarians, information literacy co-ordinators, instructional design librarians, geographic information systems specialists, data librarians, data scientists; and

(3) Academic/professional discipline specialists, labelled 'content', 'conduit' and 'context' specialists respectively; alternatively they can be seen as 'knowledge,' 'infrastructure,' and 'domain' specialists, such as c*ontext-specific technology and media specialists (context + conduit)*, e.g. computer assisted learning specialists, educational/instructional/learning technologists.

   The common innovative features of all approaches proposed by these authors are the roles as educators and as managers. The traditional skills as mediators of information and currently as consumers and partner developers of technological solutions to information products and services can also be included.
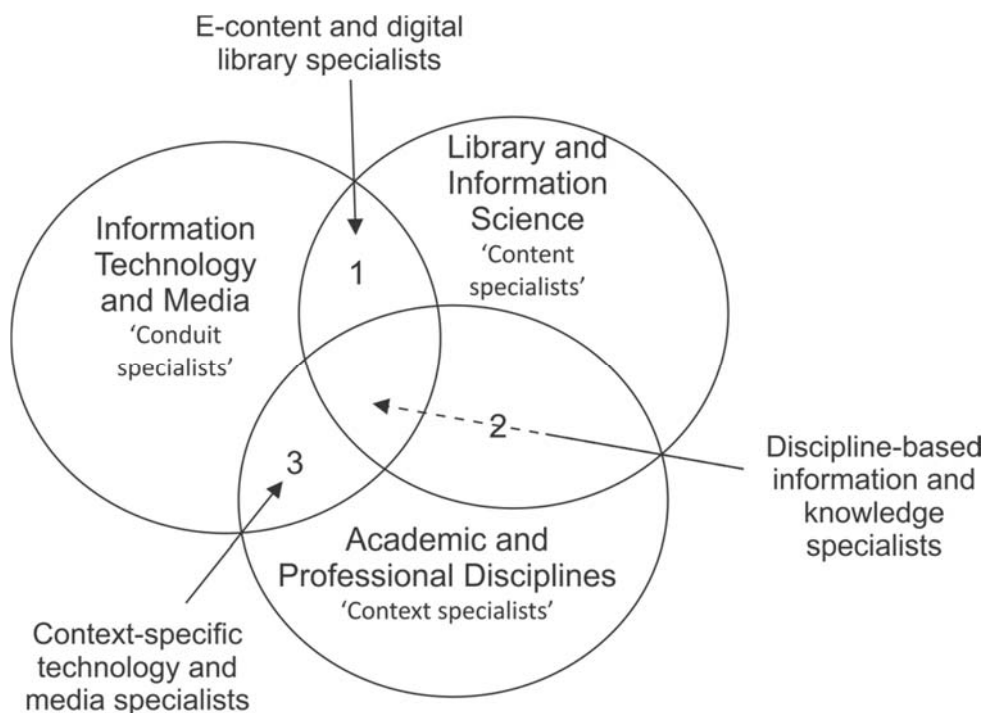

Figure 1. Sheffield model of blended information professionals.
SOURCE: (Corrall, 2010).

4. Final considerations

From our analysis, this study shows that academic librarians should check for ongoing training to support their activities, while maintaining and expanding their networks of relationships, both at the university (with teachers, students, administrators and staff) and on the market (with suppliers of technologies and automation producers for libraries, information service providers and other national and international libraries in order to promote the exchange of solutions). The proposed concept of blended librarian presents three functions for this new professional profile: 1) information unit manager; 2) mediator of information resources, and 3) educator focused on the development of information literacy of the user community served. As academic library manager, a blended librarian must be a transformational leader of its unit, having flexibility and being strongly linked

to technology management sources of information. Blended librarians must exercise creative management and not only be a demanding technological client, but also an active agent in the development of solutions that will best meet the audience and their needs. In higher education, we assess that the "virtualization" of universities should be regarded as a modernization that has allowed access to a vast amount of information sources and favors the construction of collaborative environments where geographically dispersed agents can contribute to building new knowledge. In this sense, the blended librarian has the role of mediator of information.

Finally, what is also important for this professional is the role of an educator to increase information literacy. Adapting the recommendations of Branin (2003), we believe that the blended librarian must include the following roles: (A) as developer: organize and maintain diverse types of information resources, in line with the teaching-learning structure of the institution; (B) as an integrator: be more active in relation to the mission of its research institution, providing sources and selective information services; (C) as an educator: an integral part of the teaching-learning activities in the institution, teaching and empowering teachers and students in the pursuit and use of information resources; and (D) as a researcher: reflecting on issues related to their technical skills, organization and descriptive and thematic representations, providing a new look and a an easier way for its users to access information.

In Brazil, the challenge of training librarians prepared to be open to new workspaces in the face of an increasingly dynamic and competitive market still exists. Conversely, we believe that continuing education will provide enhanced professional skills to gain respect in the academic world, so that their skills contribute to improve teaching and learning. Most of the curricula followed in librarianship programs in Brazil do not reflect the current needs that new information technologies have brought. The traditional curriculum, with subjects such as indexing, classification and cataloging, reference, and bibliographic research is not enough for the professional training for the blended librarian profile. The new Web 2.0 technologies enable academic libraries to extend beyond their physical space and meet users in cyberspace by allowing online access from any location. So to keep up with these changes, librarianship courses need to offer their students a more flexible curriculum that enables the acquisition of different skills, including additional knowledge in areas such as information technology, education and administration which can provide some specific skills that they would need: web design, data minning and linked data. If librarianship courses want to support a profession with appropriate characteristics to an educator, this must start from the beginning of the course, in the classroom, like the tutoring programs that could be offered in Brazil to their undergraduate students. If this practice becomes more widespread, or if it was a discipline curriculum, would prevent professional librarians from fearing the role of educator.

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