

LIS Postsecondary and Undergraduate Education

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Abstract

An overview of the evolution, challenges, and future trends in Library and Information Science (LIS) education is presented. Traces the historical development of LIS worldwide, emphasizing the shift from practical training to academic recognition. The LIS programs' structure is discussed, fundamentally covering undergraduate courses. Essential skills for LIS professionals include knowledge organization, use of technology, management, and customer service. Future trends highlight the importance of aligning curriculum with global changes in digital literacy, emerging technologies, and diversity. The profession's commitment to ethical values and user-centered services is emphasized, ensuring graduates are well-equipped for the complexities of information age.

Glossary

Competence Ability to mobilize learning outcomes appropriately in a defined context (education, work, personal or professional development). Proven ability to use knowledge, skills, and personal, social, and/or methodological abilities, in professional situations or in study contexts and for professional and/or personal development purposes. Competence is not limited to cognitive elements (use of a theory, concepts, or tacit knowledge), it also encompasses functional aspects (including technical skills), interpersonal (e.g., social or organizational skills), and ethical values.

Curriculum Inventory of activities related to the design, organization, and programming of teaching or training activities, including the definition of learning objectives, contents, methods (also evaluation), and materials, as well as the requirements regarding the qualification of teachers and trainers.

European Higher Education Area It is the objective of the Bologna Declaration, space where: a) the national education systems are transparent and standardized; b) there is the mobility of students and teachers; and c) the recognition of qualifications occurs easily.

Cross Competencies Refer to functions and tasks. They are not associated with any discipline but can apply to a wide variety of areas, subjects, and situations (communication, problem-solving, reasoning, leadership skills, creativity, motivation, teamwork, and especially the ability to learn).

Information Competence The term 'competence' implies a group of skills to identify a need for information, as well as to recover, evaluate, use, and reconstruct the knowledge contained in the sources of information recovered.

Information Professional Animator or facilitator of learning processes related to information. Institutions should foster the permanent professional development of library staff to ensure their constant updating in information from all areas. Libraries should have a specific training policy for their staff that allows them to act in information literacy and that makes lifelong learning possible.

Learning Process by which people assimilate ideas and values and acquire knowledge, skills, and competencies. Learning is accomplished through personal reflection, reformulation, and social interaction. Learning can develop in formal, non-formal, and informal contexts. Learning process effect, which can be defined as a permanent transformation and produced in an individual's behavior or abilities through practice or other forms of experience.

Learning Outcomes The statement of what a learner knows, understands and is able to do upon the conclusion of a learning process, described in terms of knowledge, skills, and competence. What an individual should know and be able to do at the end of the learning process. The totality of information, knowledge, understanding, attitudes, values, skills, competencies, or behaviors that a student dominates at the end of an educational program.

Skills Ability to perform tasks and solve problems. It is the ability, proficiency, or dexterity to perform tasks, derived from education, training, practice, or experience. It can enable the practical application of theoretical knowledge to particular tasks or situations. More broadly, it includes behaviors, attitudes, and personal attributes that make individuals more effective in certain contexts, such as education and training, employment, and social engagement.

Teaching or Training Program Set of activities, training contents, and/or methods implemented to achieve the pedagogical objectives defined (acquisition of knowledge, skills, and/or competencies) and organized according to logical order and for a determined period. The term ‘program’ refers to the implementation of learning activities, while the term ‘curriculum’ refers to the design, organization, and programming of these activities.

From Antunes *et al.* (2022).

Key Points

- LIS education emergency and evolution over time
- The importance of higher education for the consolidation of LIS practical and technical education
- LIS curriculum construction as an academic and scientific affirmation
- Dealing with future expectations, in a time of uncertainty in the information world

Introduction

Delving into the contemporary landscape of Library and Information Science (LIS) education necessitates a historical journey, unraveling the intricate relationship between universities, cultural influences, and the evolution of library systems. This historical context serves as the backdrop for understanding the structural and cultural forces that have shaped the curriculum and competencies required for LIS professionals. From the practical emphasis in the early days to the emergence of a fully recognized academic discipline, the historical trajectory reflects the dynamic interplay of factors that continue to influence LIS education today. This exploration aims to dissect the challenges and opportunities in the historical evolution of library education, providing insights into the delicate balance between tradition and innovation. The evolving landscape of Library and Information Science (LIS) has prompted a concerted effort to review and adapt the curriculum to meet the demands of a rapidly changing profession. In doing so, it becomes imperative to navigate between incorporating innovative approaches and preserving the core values that define the field. As we go through this discourse, we recognize the essential role of user-centered services, ethical practice, and accurate information dissemination as the bedrock principles that must remain steadfast. This exploration not only acknowledges the necessity for technical proficiency but also underscores the critical need for interpersonal skills and ethical considerations. In the following discussion, we examine the challenges and opportunities in reshaping LIS education to align with contemporary needs while safeguarding the foundational values that underpin the profession.

Library Education Historical Context

Understanding contemporary libraries, their professionals, and the curriculum and competencies they need for their formal training, requires a historical analysis, considering the role of universities in each country’s national context, to highlight cultural and structural influences on the evolution of library systems and, consequently, the training deemed necessary for LIS professionals. Initially, library science education had a strong practical focus, emphasizing the skills needed for librarianship. Over time, it evolved into a fully recognized academic discipline, although the pace of this development varied between countries. The challenges facing library education can be categorized into two main sets of problems: its relationship with the profession and its connection to the academic world. These challenges continue to be significant to some extent. The history of library education globally reflects the diverse nature of the library movement and educational systems in different countries. The establishment of formal education in library science dates back to the 1880s, with the creation of the Columbia School of Library Science in the United States. Initially, the focus was on practical aspects, but it has since developed into a legitimate academic discipline. However, in some regions, library science education still operates outside the university system. The evolution of library science education has been marked by a shift from practical training to a recognized academic field, with variations in pace and integration into university systems around the world. The challenges faced by library education persist in navigating its relationships with both the profession and academia (Pors, 2004).

Historically, there are two significant reports relating to librarian education in the United States of America: "Training for Library Service" (1923) by C. C. Williamson and "The Conant Report: A Study of the Education of Librarians" (1980) by Ralph W. Conant. C. C. Williamson’s report, completed in 1921 and published in 1923 with the sponsorship of the Carnegie Corporation, investigated why libraries built with funding from that corporation did not prosper as expected (Auld, 1987). This report had a lasting impact and influenced the creation of the current system of accreditation of programs at institutions of higher education by the ALA Committee on Accreditation. Its recommendations included the clear distinction between professional and clerical tasks and the certification of librarians. Williamson proposed two distinct levels for training: "(a) a full college course providing for a general and broad

education, followed by at least one year of post-bachelor study in a library school to give thorough professional preparation; and (b) training for clerical work by completion of a four-year high school course, followed by a short course of instruction on the mechanics and the routine operations of a library" (Jackson, 1985, p. 3034). In the early 1970 s, feeling the need for a "new" Williamson report, the American Library Association chose Ralph W. Conant, who began the project in 1973. Conant addressed three main questions about the role and responsibility of professional library education, assessment of the existing system, and necessary reforms. Although the final report, titled "The Conant Report: A Study of the Education of Librarians" was received, it was not published by the ALA. When eventually published by MIT in 1980, it was largely ignored due to a perceived lack of rigor in data collection, analysis, and presentation. Unlike the Williamson report, the impact of the Conant report has been negligible.

Between these two reports, on 15 March 1959, D. J. Foskett, librarian at the Institute of Education, University of London, delivered a lecture on "Libraries in the service of education" (Foskett, 1961). In this talk, Foskett discussed the history of libraries, highlighting their crucial role in preserving knowledge over the centuries. He emphasized that libraries were essential in preserving cultural records and advancing knowledge. Foskett's reflection highlights the importance of libraries as repositories of collective memory and facilitators of culture's intergenerational transmission. He argues that by studying the past through libraries, we can interpret social ecosystems and understand specific civilizational contexts. Likewise, to understand how the relationship between the evolution of libraries and the need to train professionals to work in them is important, is essential to understand the historical evolution of universities. The idea of a university, which emerged in the Middle Ages as a *studium generale*, evolved over the centuries. Initially, universities were ecclesiastical and monarchical institutions, but the French Revolution and the Napoleonic period marked a significant transformation. From the 18th century onwards, there was a transition to more secular education models, establishing the university as a fundamental part of the Nation-State. German influence at the end of the 19th century contributed to the freedom of research and teaching in universities. The idea of training thinkers and researchers stood out over the emphasis on technical education. These principles continue to influence the modern conception of universities, where the emphasis is on knowledge production, reflection, and creative development.

Library education began in the United States in the 1880 s with the establishment of the Columbia School of Library Science. The University of Chicago founded the first graduate school of library science in 1926, marking a shift toward research-based education at the graduate level. Master's degrees have become the recognized path to library science education in the US. At the same time, library education in the US, particularly inquiry-based programs, served as an inspiration to European librarians around the turn of the century. In the United Kingdom, the Library Association (LA) played a significant role in establishing formal library education. US and UK educational models have influenced library education in several countries, with British models exported to Australia, New Zealand, Sub-Saharan Africa, and South Asia. In Portugal, the first course of professional education of a higher level was created in 1887, the Higher Course for Librarians and Archivists, and it stood until 1931 when it was transformed into a post-graduate course, following a historicist and erudite matrix, inspired by the French model (Ribeiro *et al.*, 2009). In France, it was mainly in the 20th century that the library profession came to assert itself, mainly through the State. The concern was above all to provide a higher level of training for archivists and librarians, balancing the scientific component with the technical-practical aspects of the profession. The first single professional diploma for access to the profession appeared in 1932, qualifying for practice in public and university libraries, but despite the worthy efforts of some innovative private higher education schools, it was only after the Second World War that the degree was organized and developed in studies that would give rise to the technical librarian diploma and the new librarian function certificate. The know-how was harmonized and professionalism gained a new identity, based on specific teaching provided by professionals. Between the 50 s and 60 s of the 20th century, the statutory reform of the professions allowed the stabilization of professional training, mixing academic and professional training, especially with a patrimonial and conservative bent (Renoult, 1992).

Meanwhile, American models influenced Canada and Latin America. Library associations in the US and UK have actively participated in the accreditation of educational programs. However, this was not the case in most European and Scandinavian countries. Library education in many European and Scandinavian countries has been established in close relationships with government departments. The real growth in library education occurred after the Second World War in the United Kingdom, with several library schools established at the university level. The UK has seen a transition from a two-year curriculum controlled by the AL to the introduction of bachelor's and master's programs, with the LA focusing on accreditation. Social changes since the 1980 s have had consequences for library schools around the world, with closures in the US and challenges in attracting students. The diversification of CVs occurred in response to emerging job opportunities, especially in the private sector (Pors, 2004). More recently, in 1992, changes in the UK education system, with polytechnics becoming universities, led to a more research-oriented environment in library education. European education systems, traditionally two-tier, changed in the 1990 s, with an increasing possibility of obtaining a PhD in Library and Information Science (LIS) in a research-based environment. The influence of the US and UK models is recognized, but it is noted that there were educational models from the USSR system that influenced library education in countries such as China. In 2000, IFLA contributed to library education by approving a set of guidelines. Overall, the historical development of library education, its global impact, and the changing landscape in response to social and professional changes are noteworthy.

Undergraduate LIS Education Evolution

Library science education has varied globally and evolved. Essentially there are professional technical courses, at a pre-university level, undergraduate courses which include bachelor's degree, and postgraduate studies, with master's degrees and doctorates in the areas of information sciences (Chu *et al.*, 2022; Grimes and Grimes, 2008). We have seen institutions adapt course names to reflect the change, which

is currently more focused on shifts from printed resources to electronic resources and wider information sources (Chu, 2010). In the United States and Canada, librarians typically go through a master's degree program in library science, while in Germany, academic librarians begin with a doctorate in a specific field, followed by librarian training. Australia offers programs such as Master of Information Management or Master of Information Studies. Several countries also offer bachelor's, associate's, and certification programs for paraprofessional librarians such as library technicians and clerks, with Australia having a Diploma of Library and Information Services for library technicians.

Organizing Curriculum

The curriculum of undergraduate studies in library science can be characterized by a comprehensive approach that encompasses both traditional foundations and contemporary trends in the field. It includes the development of essential skills such as organizing and classifying information, managing collections, using information technologies, and promoting information literacy. Furthermore, curricula tend to reflect local concerns (Johnson, 2007; Martínez-Arellano, 2013) and changes in the field (Abdullahi *et al.*, 2007; Virkus, 1997), besides traditional components such as cataloging, acquisitions, serials, collection management, or preservation, incorporating topics such as open science, systematic research evaluation, bibliometrics, and adaptation to increasing demands for updating information literacy from users (Albee, 2015). This approach aims to prepare students to deal with the dynamic and diverse scenario of contemporary librarianship. The curriculum for undergraduate studies in library science maintains a broad, interdisciplinary approach, incorporating contemporary trends (Chu, 2010; Weech and Pluzhenskaia, 2005). The emphasis on education for diversity and multiculturalism stands out, reflecting the importance of inclusion (Gollop, 1999). Furthermore, there is a growing adaptation to the digital context, with a focus on data management, in line with social and technological developments. These trends aim to ensure the relevance and effectiveness of library professionals in the face of emerging demands, particularly in developing countries. The focus in LIS curriculum development shifted to produce graduates who can manage information resources and services that can contribute to the economic and social development of the community, including using ICTs to access information more broadly and deeply (Johnson, 2007). The Bologna Process (comprising the European Higher Education Area), initiated in 1999 as an educational reform that aims to promote the convergence and harmonization of higher education systems in Europe, also brought some significant changes in the context of librarians' higher education. By definitively introducing the system of three study cycles (bachelor's, master's, and doctorate), it facilitated standardization and comparison between different programs and institutions and provided greater academic and professional mobility. At the same time, practical learning, internships, and projects, which prepare students more effectively for professional challenges, were continued while emphasizing specific professional skills and abilities development necessary for effective practice in the information and documentation field (Ribeiro *et al.*, 2009). In summary, the Bologna Process impacted the training of professional information and documentation librarians by promoting uniformity, orientation towards practical skills, internationalization, and quality improvement in higher education (Abdullahi *et al.*, 2007).

Previously, Library Science Education has been reviewed and discussed by a broad professional community. International Federation of Library Associations and Institutions (IFLA, 2000) specified in 2000 core elements that should be included in the LIS curriculum. These indications evolved, and in 2012 (IFLA, 2012), the core elements of the recommended LIS curriculum were actualized.

IFLA core elements to be included in the LIS curriculum

Guidelines for Professional Library/Information Educational Programs (IFLA, 2000)

1. The Information Environment, Information Policy and Ethics, and the History of the Field
2. Information Generation, Communication, and Use
3. Assessing Information Needs and Designing Responsive Services
4. The Information Transfer Process
5. Organization, Retrieval, Preservation, and Conservation of Information
6. Research, Analysis, and Interpretation of Information
7. Applications of Information and Communication Technologies to Library and Information Products and Services
8. Information Resource Management and Knowledge Management
9. Management of Information Agencies
10. Quantitative and Qualitative Evaluation of Outcomes of Information and Library Use

Guidelines for Professional Library/Information Educational Programs (IFLA, 2012)

1. The Information Environment, Societal impacts of the information society, Information Policy and Ethics, and the History of the Field.
 2. Information Generation, Communication and Use.
 3. Assessing Information Needs and Designing Responsive Services.
 4. The Information Transfer Process.
 5. Information Resource Management to include Organization, Processing, Retrieval, Preservation, and Conservation of Information in its various presentations and formats.
 6. Research, Analysis, and Interpretation of Information.
 7. Applications of Information and Communication Technologies to all facets of Library and Information Products and Services.
 8. Knowledge Management.
 9. Management of Information Agencies.
 10. Quantitative and Qualitative Evaluation of Outcomes of Information and Library Use.
 11. Awareness of Indigenous Knowledge Paradigms.
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Chu *et al.* (2022) summarized the main topics on LIS programs' evolution. The author also underlined that the [American Library Association \(2022\)](#). The ALA Core Competences (ALACCs) reflect basic knowledge gained through LIS education, job onboarding, and ongoing professional development early in a library career. Library professionals must work throughout their careers in school, academic, public, special, and governmental libraries to be lifelong learners to acquire specialized and advanced knowledge beyond those specified in this Core Competences document:

1. Gateway Knowledge.
2. Information Resources.
3. Lifelong Learning and Continuing Education.
4. Management and Administration.
5. Organization of Recorded Knowledge and Information.
6. Reference and User Services.
7. Research and Evidence-Based Practice.
8. Social Justice.
9. Technological Knowledge and Skills.

Library services are essential to support education, training, science, and culture, contributing to developing individuals, communities, and countries. With this assumption, IFLA, and the professional associations that this organization represents, believe that it is important to keep its professionals properly qualified and trained. Therefore, quality criteria must be promoted to establish higher-level professional training programs based on the principles of equity, diversity, inclusion, and accessibility. It was based on these ideas, and a wide range of contributions, that the Guidelines for Professional Library and Information Science (LIS) Education Programs were developed (Chu *et al.*, 2022). In them, we find eight fundamental areas of knowledge, named Foundational Knowledge Areas (FKAs) which project the lines of specialized knowledge of the curriculum. These are Information in Society; Foundations of the LIS Profession; information and Communication Technologies; Research and Innovation; Information Resources Management; Management for Information Professionals; Information Needs and User Services; Literacies and Learning. (Fig. 1)

The LIS (Library and Information Science) professional program curriculum encompasses both what is taught (curriculum) and how it is taught (pedagogy), shaping what LIS students learn about the profession. The curriculum is formed by Core Knowledge Areas (CKAs) outlined in the guidelines, covering a wide range of knowledge and skills relevant to library and information professionals. The LIS program, whether undergraduate or postgraduate, will consist of mandatory and optional subjects. However, its design and implementation will depend on the higher education institutions' local needs, vision, and mission, varying on total courses, credit hours, duration, and balance between theory and practice. This system incorporation into the curriculum allows flexibility in its translation, with variations in depth and coverage. Each area can correspond to one or more disciplines, be combined into a training offer, or be distributed across several courses. The program may offer specialization options, allowing students to deepen their knowledge and skills in specific areas. Option courses should be provided to students for greater flexibility in building their resume, allowing them to choose the one that best aligns with their interests or career goals. The overall goal is to provide a comprehensive and adaptable LIS program that meets the evolving needs of the field and the diverse interests of students, ultimately preparing them for the challenges and opportunities of the profession. The interpretation and application of these guidelines is based on flexibility and adaptability to different contexts and needs.

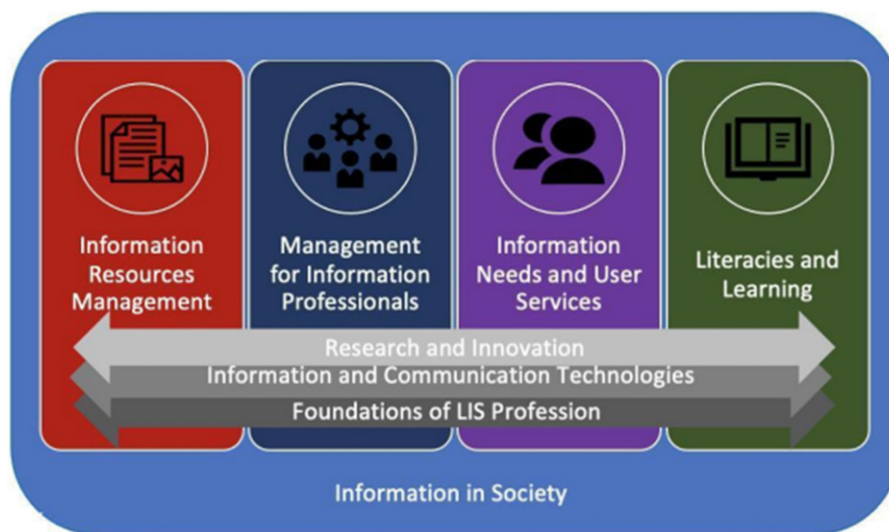


Fig. 1 LIS Foundational knowledge areas (FKAs) model (Chu *et al.*, 2022).

Training for Competencies

Professionals in the field face the challenge of managing a diverse and expanding information landscape, mastering emerging technologies, adapting spaces to new functions, navigating the evolving context of open science, conducting systematic evaluations of research and bibliometrics, and responding to diverse user requests (Hayes, 2023) for updates in information literacy. Consequently, these demands require professionals to acquire new and updated skills to effectively respond to the evolving demands of their roles (Sanches, 2022). Some authors and institutions have been discussing and reflecting on the skills necessary for LIS professionals (Calarco *et al.*, 2016; Conselho Europeu das Associações de Informação e Documentação ECIA, 2005; Ferreira, 2016; Gerolimos, 2009; Gerolimos and Konsta, 2008; Gorman and Corbitt, 2002; Owusu-Ansah *et al.*, 2015; Rubinowski *et al.*, 2016; Schmidt *et al.*, 2016; Schmidt and Shearer, 2016; Yatim *et al.*, 2019).

Overall, studies around the world shed light on the diverse qualifications and skills imparted by LIS programs, emphasizing the evolving nature of the profession in response to technological advancements and changing information environments (Alimohammadi and Jamali, 2011; Burnett, 2013; Kaur, 2015). As an example, we highlight the synthesis article by Gorman and Corbitt (2002). The authors discuss the core competencies for professionals in library science, underlying the knowledge base essential for present-day professionals. The New Jersey Library Association and Australian models are mentioned as examples, emphasizing various competencies such as client needs and services, management of people and resources, technology utilization, and organization of knowledge. The model proposed by the authors identifies four core competency areas: (1) the Organization of Knowledge and Knowledge Resources, which Involves the intellectual process and activities related to resource collection, including principles and methods of organizing information. Here, the competencies include cataloging, indexing, classification, metadata, and understanding information-seeking behavior and sources; (2) Technology Utilization, which focuses on the application of electronic information handling hardware and software, understanding the impact of electronic information technologies on library services, creating accessible web-based resources, and staying informed about technological trends; (3) Management, that encompasses applying contemporary management principles, balancing resources, leading strategic planning, practicing ethical decision-making, and promoting multicultural diversity. It also emphasizes research skills for policy development and decision-making; (4) Client Needs and Services, which centers on user-oriented services, identifying and meeting diverse client needs, maintaining a positive environment, and advocating for users during information product/system development. It includes information literacy, learning facilitation, and continuous evaluation of learning programs. The reflection notes a trend towards integrating technology more fully into functional competencies and emphasizes the overarching focus on the client in library and information science education.

In another study (Barden, 1997), some additional questions are addressed regarding the training and development of Information professionals, emphasizing the perspective derived from interactions with professionals in the area. The author states that instead of relying on traditional manuals or courses, information professionals must seek guidance from contemporary business management theorists to gain insights into the future of their industry. This study highlights the importance of information professionals understanding the added value they bring to their organizations. The focus shifts from conventional specialties such as information storage and retrieval to key dimensions of training and development. While recognizing the importance of manual skills in certain library contexts, the author argues that the main focus of training and development should be how it adds value to the organizations in which these skills are applied. The article concludes by proposing a manifesto for the training and development of information workers, positioning them as significant contributors and trainers of the 21st century. Another study (Gerolimos, 2009) also addressed the need to look again at the library and its organization as the core of the profession, not giving in to the temptation to make all areas of professional knowledge digital (digital librarianship, digital skills, digital library). The study argues that one must first focus on information management and be aware that the tools change, although the purpose remains free access to information and learning through the organization and preservation of knowledge. To achieve this, the training offer must be comprehensive, reflecting social change but focusing on the essential aspects of the profession.

Future Trends

Some academics have dedicated their attention to observing trends in the profession, trying to anticipate what the graduated training of professionals in information science should be like. An international study (Wyman and Imamverdiyev, 2018) highlights the importance of aligning the LIS educational curriculum with global trends to ensure that graduates have the necessary skills for this evolving field. Key areas identified for prioritization in the curriculum include digital literacy, emerging technologies, user-centered services, and diversity, equity, and inclusion. To respond to these needs, the study recommends the curriculum integration of technical and interpersonal skills, emerging technologies, and cultural skills, emphasizing practical training, real case studies, and partnerships with companies. Additionally, the study emphasizes the importance of incorporating topics such as information security and privacy, data management and analysis, collection development and management, marketing and outreach, digital humanities and scholarship, and accessibility and universal design into LIS education. This comprehensive approach aims to equip graduates with a complete skill set and knowledge base, enabling them to navigate the multifaceted challenges and opportunities in the dynamic library and information science field.

While initiatives to revise the LIS curriculum are essential, some authors agree that it is crucial to uphold the core values and principles of the profession (Mubofu and Mambo, 2023). This includes maintaining a focus on user-centric services, ethical practices, and accurate

and relevant information dissemination. To achieve these goals, LIS degree programs must adopt innovative teaching methods, establish stronger links with employers, and design curricula that strike a balance between technical and intellectual content, with particular attention to communication and customer service skills (Hayes *et al.*, 2021). This approach ensures that graduates not only acquire technical knowledge but also cultivate the interpersonal and ethical skills vital for success in the library and information science field.

Some emerging challenges, mostly tech-related, are at the forefront of librarians' concerns. According to Chu, educational programs are "the best barometer of its nature and content" (Chu, 2010, p. 78). Digital Libraries, Knowledge Management, and Information Architecture are some of the author's pointed domains as emerging areas for librarians' education attention. Others are a reconfiguration of the so-called iSchools (Information Schools), which include the merging areas of Library and Information Science, Computer Science, and Management.

Globalization trends also affect the way schools prepare their courses, now paying more attention to internationalization, inclusion, and diversity, to attract more students, while preparing them for a changing world. Current trends, marked by the pace of scientific and technical evolution, are indelibly affected by the digital sphere. After an era of confinement due to the COVID pandemic, teaching has also rethought itself, reconfiguring courses for online learning. New forms of pedagogy had to be thought of and necessarily affected how library services were delivered. At the same time, Artificial Intelligence, climate change, conflicts that threaten world peace, as well as disinformation or false information, are impossible for the information world to ignore. Despite impossible attempts to anticipate scenarios, we can summarize some areas for which increased attention will be required in the near future (Sanches, 2016): communicating value (libraries must prove the value they add to the community); data curation (repositories and other digital data management platforms are emerging and becoming important in the functions to be carried out by libraries); digital preservation (as digital collections develop, concerns will grow about the lack of long-term planning for their preservation; it will be necessary to ensure the establishment of architectures, policies or standards for the creation, access and preservation of digital content); ubiquity of information technologies and associated ethical problems; mobile devices and environments (which change the ways in which information is searched and accessed); acquisition and use of e-books (it is necessary to find the best formats and criteria for choosing e-books, ensuring their accessibility to users); communication and publication of information (new publishing models, open access and digital content should be explored); professionals (diversified profiles and increased professional skills must be considered, as well as the ability to hire and retain the best technicians); user behaviors and expectations (convenience in accessibility to information sources will change the positioning of libraries in the face of competition from other means of accessing information). Faced with these challenges, ethical issues and the values of the profession are once again protagonists. As stated before, the library "is constantly changing, constantly evolving, constantly rising to meet new challenges, and so it is positive to see librarians broadly continuing to feel positive about their capacity to do this in future" (Hayes and Zanders, 2023, p. 29).

It is necessary to reflect on the role of library and information science professionals, to remain a bastion in defending access to information, opening the door to freedom of expression, which is only possible through the free circulation of knowledge (preserved, organized, and accessible).

Conclusion

As we navigate the historical currents of Library and Information Science education, it becomes evident that the profession's roots are deeply entwined with the evolution of universities, cultural shifts, and changing societal needs. From the pioneering reports of C. C. Williamson to the transformative Bologna Process, the trajectory of LIS education reflects adaptability to the evolving information landscape. As we peer into the future, the profession grapples with emerging trends, digital transformations, and the imperative to balance technological prowess with ethical considerations. The challenge lies not only in revising curricula but in upholding the core values of user-centric services, ethical practice, and the dissemination of accurate information. In embracing innovation and preserving foundational principles, LIS education remains resilient, preparing professionals to navigate the complex terrain of the 21st-century information age. In conclusion, the dynamic nature of the LIS profession demands a forward-looking approach to curriculum design, one that harmonizes innovation with enduring principles. The concerted efforts to review and adapt the curriculum underscore the profession's commitment to staying relevant in a rapidly evolving information landscape. As LIS programs embrace innovative teaching methods, foster closer ties with employers, and strike a balance between technical and intellectual content, they ensure graduates are not only equipped with cutting-edge skills but are also grounded in the ethical considerations and user-centric ethos that define the essence of the field. By navigating this delicate equilibrium, LIS education remains resilient, ensuring its graduates are well-prepared to address the multifaceted challenges of the modern information age.

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