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February 2022

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Arif, Muhammad Dr.; Nunes, Miguel Baptista Prof.; and Kanwal, Saima Dr., "Where did librarianship go in the teaching curricula of iSchools?" (2022). *Library Philosophy and Practice (e-journal)*. 6829. <https://digitalcommons.unl.edu/libphilprac/6829>

Where did librarianship go in the teaching curricula of iSchools?

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Abstract

Purpose – Information schools (iSchools) emerged because of the fast technological developments and the urgent need of information in the contemporary society. Despite many advantages, the iSchool movement confronted several challenges. The current study is aimed to address one of the key challenges, where did librarianship go in the teaching curricula of iSchools.

Design/methodology/approach – This research adopted a desktop-based survey of the North American and the European iSchools websites. Also, a comprehensive literature was reviewed to get insight on the phenomenon under discussion.

Findings – Literature based findings disclosed that iSchool movement is evolving, 19 members in 2005 and currently it is made up of 119 members representing five continents envisioned to improve the relationships between information, people and technology, the core philosophy of the movement. The findings, based on desktop survey of the iSchools websites, clearly demonstrated that the focus of the iSchools intended to offer the academic programmes focusing technology-based curricula related to interdisciplinary fields of information by marginalizing librarianship which may create hurdles to progress the information field with true spirit. This trend is quite visible in the North American iSchools compared to the European iSchools.

Originality/value –

Specifically, this research would provide insights to the iSchools curriculum developers and the information related disciplines in general.

Keywords—: Library and information science, curriculum, librarianship, iSchools, iSchool movement

Introduction

The digital technologies have transformed the contemporary society into the digital world. This situation compelled the academic community to re-think and re-establish link between academia and industry to serve society in a better way by creating sustainable nexus between information, technology, and people. The technological growth and shrinking market for librarians in the United States compelled the leadership of library schools to grow their programs and the opportunities for their graduates beyond the constraints of the library name. They believed that information field was not an established field (Seadle, 2016). So, the schools, colleges, and departments, having their own strengths and specializations, focused on specific tracks such as information technology, library science, informatics, and information science are required to share a fundamental interest in the relationship between information, people, and technology. Resultantly, in 2005, iSchools organization was founded in the USA to advancing the information field. Any department, school, college, institute that deals with information and fulfil the prescribed pre-requisites to become member can join the movement. To recognize globally, iSchools organization holds annual conference known as iConference to educate information professionals and exploring the impact of digital technologies. Beside this, the iSchools produce graduates for all types of organizations from local to international levels. The specific goals of the iSchool movement are to:

- lead and promote the information field;
- create effective responses to strategic research and academic opportunities;
- provide support for, and solutions to shared challenges; and,
- provide informed perspectives on matters of public policy as they affect the collection, organization, dissemination, use, and preservation of information (Larsen, 2016).

Initially, there were 19 iSchools comprised 14 traditional American Library Association (ALA) schools and five were non-ALA schools (Shu and Mongeon, 2016). The iSchools members belonged to specifically from three fields: (1) library and information science (accounting for more than 74 percent of the total), (2) computer science, and (3) management. The main source of iSchools movement was considered the traditional LIS schools before the formation of iCaucus (governing body of the iSchools organization) with one exception that is the school of informatics and computing at Indiana University, USA (Chu, 2012). Currently, there are 119 members of the iSchool movement across the globe. There are six levels of iSchool membership, namely, (1) iCaucus, (2) enabling, (3) sustaining, (4) supporting, (5) basic and (6) associate (iSchools, 2021).

The remainder part of the paper is organized as follows. Firstly, this study reviews the relevant literature and explains the aim of this research. Next, research methodology is described in detail. Then the research findings and discussion on the findings are presented. Finally, the study concludes the key findings, research limitations, and ideas for future work.

Review of the relevant literature

The issue of librarianship recognition has been a matter of serious debate between library and information science (LIS) community and iSchool movement since 2005 (Shu and Mongeon, 2016). The literature provides evidence that history of the iSchool movement is associated with LIS field. The following section presents discussion on the role of librarianship in the iSchool movement and what types of challenges are faced the information movement.

The iSchool movement was initiated to increase the visibility of LIS field as well as to cope the challenges to information domain in the digital age (Yi, 2016). Moreover, the movement cannot claim the ownership of the whole domain of information rather than it is convergence of several academic disciplines, for example, management information systems, computer science, linguistics, and philosophy (Wallace, 2009). However, the iSchool movement is supporting to reshape education, arts and entertainment, business,

environment, biological systems, health care and medicine. Matusiak et al. (2014) indicated the following reasons to form iSchool community:

- as the result of the efforts to mutually engage scientists from different disciplines who research the phenomenon of information;
- as the result of the conflicts, and curricula experiments performed by the US schools that used to offer information and library science degree program;
- as an attempt to use the newly formed opportunity for greater excellence and interdisciplinary research; and,
- to forge new job opportunities in the context of information industry and knowledge management.

From the early beginning, 1960s, librarianship is facing an identity crisis that divides the field artificially between library and information science (Dillon, 2007) followed by the impact of information and communication technologies on the field became undeniable in the recent past (Cox et al., 2008). It was also expressed whispers and rumors about the information movement, could be another shift away from the core traditions of LIS that was not intended by the pioneers of librarianship (Lorenz, 2008).

The role of librarianship is critically important from many aspects to advance the information movement. The LIS field was the top provider of faculty members at iSchools and “the research interests of the faculty and students were still focused on LIS-related topics such as LIS education, library and organization management, information retrieval, information organization, information behaviour and digital libraries and published their research LIS related journals of Science Citation Index (SCI) and Social Science Citation Index (SSCI). Among the 20 SCI and SSCI journals in which most iSchool faculties publish, eight are clearly LIS-related journals, for example, library & information science research, library trends, and library quarterly” (Wu et al., 2012, p. 33). Holmberg’s et al. (2013) study of the current research interests of the iSchool faculty members reveal that iSchool research landscape is still dominated by the library and information science domain. Ding et al. (2016) also indicated that LIS related journals occupied the most important position in the research output of iSchools, although some iSchools having strong computer science background.

In a recent research, Shu and Mongeon (2016) considered that the iSchool movement is a controversial matter in LIS profession that isolates small size schools and splits the LIS community. Likewise, the leadership of Chinese librarianship, 36 deans and program chairs, also showed strong opinion that the global iSchools movement is vague and uncertain that is why they felt lack of confidence and risk for future success of traditional library science. To remove the cognitive barriers, the iSchool community should opt for the traditional core values of LIS education to broaden the new horizon of information professions (Chen at al., 2012). There is no simple consensus between library schools and iSchools about what is the right program. However, the ideal curriculum should try to include a minimum three key principles: (1) all information services now revolve around human-computer interaction and (2) teach students to think like anthropologists and look at the problems and issues from multiple viewpoints, multiple cultures, and multiple ecologies; and (3) students need to remember that language both enables and limits our ability to communicate with contemporary information systems (Seadle and Greifeneder, 2007, p. 10).

The literature reported provide mix views to reach at the conclusion that is to what extent the librarianship played a role in the iSchool movement. Despite many advantages, iSchool movement still confronted several challenges and the concerns of LIS leadership, for example, the negligence of traditional library science value, uniformity in curriculum and standardization in degree programmes, interdisciplinary research, lack of collaboration among iSchools, the lack of faculty with a strong technical and interdisciplinary background, administrative constraints, concerns of LIS community about the movement and so on (Lorenz, 2008; Wallace, 2009; Wu et al., 2011; Chen at al., 2012; Ding et al., 2016; Shu and Mongeon, 2016). The issues may be converted into the success and growth of the iSchool movement if address accurately. Resultantly, it will boost up interdisciplinary and multidisciplinary approaches and will

diminish differences among the stakeholders, require in advancing the field for the betterment of the contemporary society.

Since the iSchool movement is evolving, therefore, it is important to analyze the iSchools in terms of research and education programs associated with each individual iSchool (Ding et al., 2016). Thus, this study examines the state of librarianship in the teaching curricula of the individual iSchools located in the two regions, European and North American. Specifically, the results of this study would offer valuable insights to the iSchool curriculum developers and the information related disciplines in general.

Aim of the study

To advancing the information field, this study was aimed to provide valuable insight by addressing one of the core challenges that is where did librarianship go in the teaching curricula of iSchools.

Research methodology

This research is based on the data collected from all websites of North American (40) and European (25) iSchools and the review of the relevant literature about iSchools movement in the context of librarianship. This study focusses 65 iSchools located in the North America and the Europe due to the following reasons: (1) the iSchool movement was started from the USA and (2) most of the members of the information movement belonged to the two regions.

To access the individual website of the sample population (See appendix I for details of the individual iSchool), iSchools organization website (<http://ischools.org/members/directory/>) was accessed to collect the data. Out of 65 iSchools; only two European iSchools: (1) Oxford Digital Information Group (UK); and (2) ALGORITMI Center School of Engineering, Universidade do Minho were excluded from this survey. The former member was limited to multidisciplinary applied research in both academic research and industrial applications and did not offer any academic programme whereas the link of ALGORITMI Center School of Engineering was found inactive.

The literature lacks in truly standardized terminology to describe the education of librarians and other information specialists. However, library and information studies, library, and information science, or simply information studies are the widely used nomenclature for the degree programs in librarianship (Wallace, 2009). Wiggins and Sawyer (2012) also used the similar classification of disciplinary areas for research on the intellectual distribution and faculty composition of academic units involved in the iSchool community. For better understanding of the data collected, the researchers categorized the majors offered at undergraduate and master levels into the following five groups (for detail see appendices I, II, III):

1. Group A included the majors offered with the title of library science, library and information science, library and information studies, library and information management, library licensure, library and information science with school media, librarianship, library management, studies in library and information science.
2. Group B included the majors offered named ‘archives, archival and information studies, archives and records.
3. Group C comprised the majors offered with title of information science or health information science, information management and systems, information, information management and technology, information science and arts, information systems management, information science and cultural communication, information system and technology information systems, information management, and information studies.
4. Group D depicted the majors offered Information Technology, information technology management, Informatics, and digital humanities
5. Group E include the majors whose titles do not fall in the groups A, B C and D (see appendix I).

Finally, more than 30 years professional and teaching experiences of the authors also helped in the discussion section by synthesizing findings extracted from the literature and drawn from the empirical data collected for this study.

Research Findings

This section present the findings based on empirical data collected from 63 iSchool websites located in North Americana and European regions.

Teaching Curricula of European iSchools

The European iSchools focused more on market-oriented technology, business, and management and interdisciplinary programmes (for detailed information see appendix II) rather than traditional information science, librarianship and archival study programmes (Figure 1).

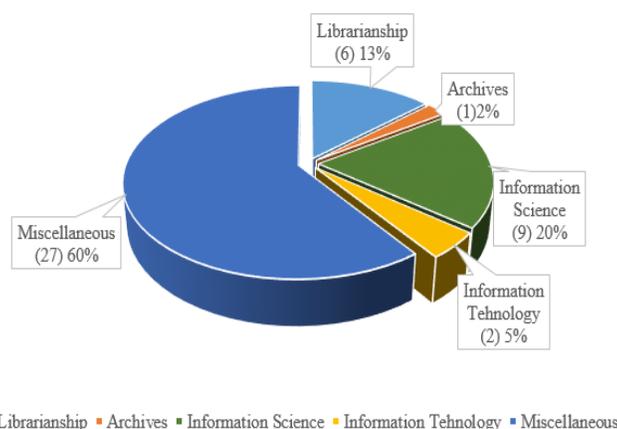


Figure1. Undergraduate programs of European iSchools

Figure 2 explains that the degree programs of librarianship is quite less focused compared to the other programs and even information science group. Only four iSchools offered program in archival studies at master level. In contrast to undergraduate level offered programs, the European iSchools concentrate less on the master level programs fall in the category of miscellaneous.

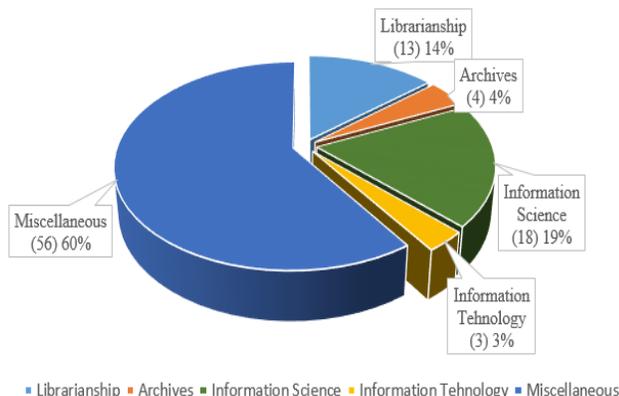


Figure 2. Master level programs of European iSchools

Teaching Curricula of North American iSchools

Figure 3 presents the status of the academic programmes offered in the North American iSchools. The data clearly depict that the iSchools focus more on technology-based and information science majors that are more fashionable and meet the requirements of the contemporary job market. The iSchools offered only 2 percent LIS programs. The data show that there is not a single archival science program in the iSchools of North America. The findings clearly demonstrate that the North American iSchools concentrated more on technology-based programs compared to librarianship and archival science programs. Among the offered programs, majority of the programs fall in miscellaneous category (See Table III for miscellaneous programs).

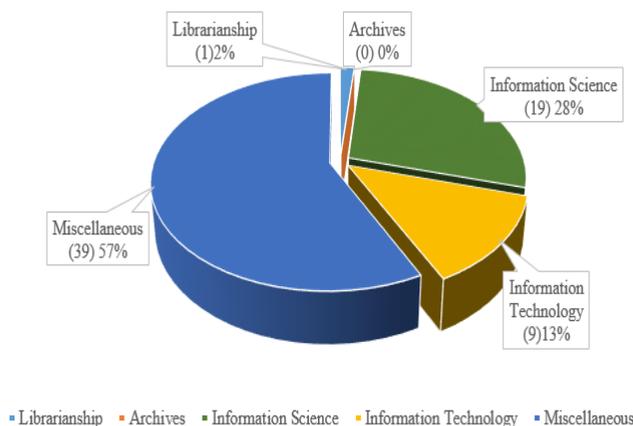


Figure 3. Undergraduate programs of North American iSchools

At master level, the North American iSchools focused on librarianship programmes in comparison to information science and archival studies. However, the programmes fall in the category of miscellaneous were focused more compared to librarianship, archival science, and information science (Figure 4).

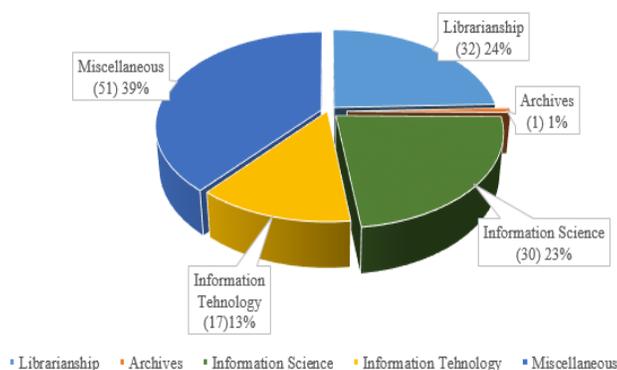


Figure 4. Master level programs of North American iSchools

Overall, the findings (Figure 1-Figure 4) describe the majors offered by the iSchools of both the regions, library science discipline is diminutive focus in comparison to information science and miscellaneous categories at undergraduate level. While at master level, the ratio of offering library science programs is higher than information technology and archival science but at the same time librarianship is far behind than the miscellaneous category related to the interdisciplinary fields of information.

Comparison of Teaching Curricula of European and North American iSchools

The iSchools of European and North American offered more majors at master level programmes in librarianship compared to undergraduate programmes. In comparison to librarianship programmes, the iSchools have higher tendency in offering majors in other interdisciplinary fields of information at undergraduate and master levels, however, this trend is more visible at master level (Figure 5- Figure 6).

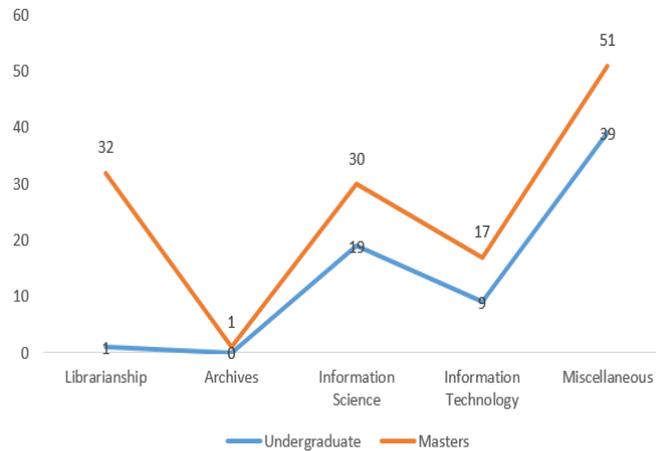


Figure 5: Academic programmes offering trend in North American iSchools

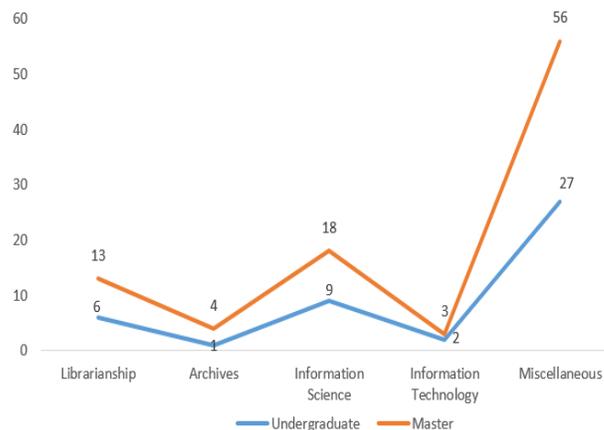


Figure 6: Academic programmes offering trend in European iSchool

Discussion on the findings

This section presents a brief commentary on the findings extracted from the literature and the empirical survey data, and how the intersection of “L” (librarianship) and ”I” (iSchools) could promote collaboration among different disciplines and interdisciplinary approaches to comprehend the opportunities and challenges confronting the emerging information field. Specifically, a brief commentary on how the librarianship as profession contributed in the iSchool movement from the beginning and why the iSchool movement is deviating in the teaching curricula from the centuries old profession dealing with information.

The past two decades have witnessed the exponential growth in the combined and interrelated rapid developments of information and communication technologies. Especially the advancement in the networked technologies have changed the communication landscape of the contemporary world dramatically. Resultantly, the digital technological developments caused paradigm shift among the disciplines and compelled to re-define and re-establish boundaries and encourage interdisciplinary and multidisciplinary

approaches for utilizing information to solve the contemporary societal problems. Accordingly, the wave also impacted librarianship across the globe and most of the LIS schools strategically dropped the word 'library' from their names and became a 'school of information' (Matusiak et al., 2014). Unfortunately, the tendency does not seem to have stopped there, as in the last 10 years most of the USA and European LIS schools started dropping their librarianship courses as well, favoring more fashionable trends, such as big data, data analytics, artificial intelligence, and data science. The digital technological developments, the emerging demand of information professionals in the digital economy and at the same time, the shrinking job prospects of LIS professionals in the networked world compelled all the concerned stakeholders to initiate iSchool movement. Coping the change, the LIS leadership contributed to initiate the iSchool movement as pioneer member, 19 original iSchools comprised 14 traditional ALA accredited LIS schools and five were non-ALA schools (Shu and Mongeon, 2016). Moreover, the LIS professionals conceived that the consortium would contribute to improve the visibility of librarianship in the digital world (Yi, 2016).

The core philosophy of the information movement is to promote collaboration among different disciplines and to adopt interdisciplinary approach to understanding the opportunities and challenges confronting the emerging information field. To pursue the philosophy, the iSchools advocate a holistic perspective through interdisciplinary approach to boost the power of information in the contemporary world. However, the findings of this research reveal different scenario as iSchools of the two regions; North America and Europe, have less concentration on LIS programmes in comparison to the programmes being offered related to information science and others major fields, for examples, business and management, Information Technology, computer science, engineering, communication and so on. Particularly, the European iSchools focused more on market-oriented technology-based programmes rather than traditional information science, librarianship, and archival study programmes. This trend is more visible in the North American iSchools. The picture of offering majors in the iSchools seems to be deviating from the core concepts of librarianship which also confirm the argument of different authors, for instance, the study (Roknuzzaman, 2012) reveals that many iSchools are not working under the scope of LIS and some of them do not offer library sciences programmes rather. The iSchools are concentrating mainly business and/or information technology-oriented concentration. Although this deviation is clear contradiction with the core ideology of the iSchool consortium to move forward balancing among the disciplines to advancing information field. However, the iSchools movement is getting momentum every year, involving more members across the five continents to convert truly international consortium of institutions that may serve individuals, organizations, and society at large in a better way as envisioned by the pioneer leadership of the movement (Olson and Grudin, 2009; Zou et al., 2017).

In short, this study sheds light on how librarianship contributed to form iSchool movement and advancing the information field to provide easy access to information by creating sustainable nexus between information, technology, and people. Researchers still claim that librarianship is pumping blood in the veins of iSchool organization by providing LIS faculty. Moreover, the faculty and students are approaching librarianship focused SCI/SSCI journals to publish their research (Ding et al., 2016; Wu et al., 2012). Despite this, the teaching curricula of iSchools is marginalizing librarianship and concentrating other disciplines which may be considered clear contradiction of the iSchool organization's vision. This situation may be improved if the LIS professionals need to re-think who they are and where they want to go. Nnadozie et al. (2017) argue that LIS discipline across the globe is going through evolutionary changes occasioned by various factors such as developments in information and communication technologies, information explosions, increasing interdisciplinary research and the realities of knowledge economy in the digital world. The critical factors are influencing LIS field that can result in the changes of nomenclature, course outlines, contents and/or delivery systems. This argument is also strengthened by the study of Goodsett and Koziura (2016). They disclosed that the information professionals recently graduated from 50-US based LIS schools also recommended call for more practical, directly job-related courses, and additional opportunities to

strengthen those skills required in the workplace for which the LIS education needs to undergo drastic changes in the near future. Not only LIS schools but still iSchools located in Scandinavian countries, Denmark, Norway, and Sweden, are facing issues in syllabi, demand of market not similar like USA, deeply rooted connections with libraries. Strong relationship with national libraries of Norway and Sweden was suggested to cope the change (Golub et al., 2017).

To educate academic librarians in the 21st century, Carrall (2010, p. 576) argue that “as we are working in a complex fast-moving pluralist context, traditional approaches to academic planning, with their long lead-in and gestation cycles, will not enable us to respond quickly and flexibly to stakeholder concerns and market demands”. So, based on the findings, it is suggested that the leadership of LIS field and iSchools movement need to minimize the differences and seek the models of strategic collaboration and interaction that would truly advance the information field in the emerging networked economy. The effective collaboration among the librarianship and information related disciplines would provide interdisciplinary faculties with different disciplinary backgrounds and the familiarity with multidisciplinary knowledge and skills (Wu et al., 2011).

For future research, it is recommended that the iSchools located in the Asia Pacific region should also be included in the study to explore the phenomenon in depth. To be more practical, along with quantitative data, the interviews of the iSchool community may provide valuable insights to cope the confronted challenges to the information field as well as sustainable strategic partnership among the concerned stakeholders of the iSchool consortium.

Conclusion

During the last two decades, the technological advances and the importance of information in the emerging digital economy have caused paradigm shift in the information related disciplines. To cope the change, the concerned stakeholders initiated iSchool movement to cater the information needs of the contemporary society. At present, the iSchool consortium is confronting the diverse types of challenges to harnessing the power of information and technology and maximizing the potential of humans. Thus, this study was aimed to explore the one of the core challenges that is where did librarianship go in the teaching curricula of iSchools. To achieve the study’s aim, this research conducted a desktop-based survey of 65 North American and European iSchools websites.

The iSchool movement is getting momentum since its establishment to improve the relationships between information, people, and technology by advancing the information field. However, the iSchools concentrate more on technology-based curricula related to interdisciplinary fields of information by marginalizing librarianship that requires serious attention to make progress in the information field.

This study offers valuable insights to the curriculum developers of iSchools and other information related disciplines. In addition, a moment for thinking the leadership of librarianship to anticipate their standing in the discipline, profession, and practices.

Since the current research mainly considered the survey of the North American and the European iSchools, therefore, it is suggested to adopt pragmatic approach to explore the phenomenon in detail by including iSchools in the Asia Pacific region. Thus, future researchers should apply qualitative and particularly mixed-methods approaches to provide an overall picture of the state of the contemporary iSchools’ movement.

References

- Chen, C., Wang, P., Wu, D., Liu, Y., Wu, G. and Ma, H. (2012), "The attitudes of LIS chairs toward the iSchools movement in China: a contemporary grounded theory analysis, *Aslib Proceedings: New Information Perspectives*, Vol. 64 No. 6, pp. 591-614.
- Chu, H. (2012) "iSchools and Non-iSchools in the USA: An Examination of Their Master's Programs", *Education for information*, Vol.29, No. 1, pp. 1-17.
- Cox, R. J. and Larsen, R. L. (2008), "iSchools and Archival Studies", *Archival Science*, Vol. 8, No. 4, pp. 307, 2008.
- Corrall, S. (2010) "Educating the academic librarian as a blended professional: a review and case study", *Library Management*, Vol. 31, No. 8/9, pp. 567-593.
- Dillon, A. (2007), "LIS as a research domain: problems and prospects", *Information Research*, Vol. 12, No. 4, pp. 12-4.
- Ding, N., Pan, Y. and Yang, C. (2016), "The interdisciplinarity of iSchools: an analysis and visualization of research publications", *Malaysian Journal of Library & Information Science*, Vol. 21, No. 2, pp. 21-39.
- Golub, K., Hansson, J. and Selden, L. (2017), "Cult of the "I" organizational symbolism and curricula in three Scandinavian iSchools with comparisons to three American", *Journal of Documentation*, Vol. 73, No. 1, pp. 48-74.
- Goodsett, M. and Koziura, A. (2016), "Aare library science programs preparing new librarians? Creating a sustainable and vibrant librarian community", *Journal of Library Administration*, Vol. 56, No. 6, pp. 697-721.
- Holmberg, K., Tsou, A. and Sugimoto, C. R. (2013), "The conceptual landscape of iSchools: examining current research interests of faculty members", *Information Research*, Vol. 18 No. 3, pp. 1-13, available at: <http://informationr.net/ir/18-3/colis/paperC32.html#.YARFH0gzZPY>
- iSchool (2021), "iSchools directory", available at: <https://ischools.org/Directory>
- Larsen, R. L. (2016), "Overview of the iSchool Movement: An Interview with Ronald L. Larsen, ICAUCUS Chair", *Bulletin of the Association for Information Science and Technology*, Vol. 42, Vo. 4, pp 12-16.
- Lorenz, M. (2008), "The iSchool phenomenon: history and present situation", *Revue of Librarianship*, Vol. 25, No. 2, pp. 52-82, 2014.
- Matusiak, K. K., Stansbury, M. and Barczyk, E. (2014), "Educating a new generation of library and information science professionals: a United States perspective", *Library Review*, Vol. 82, No. 2, pp. 189-206.
- Nnadozie, C. O., Igwe, K. N. and Nwosu, M. C. (2017), "Nomenclature Change for Library and Information Science (LIS) schools in Nigeria: implications for interdisciplinary research and emerging opportunities in the 21st century, *International Journal of Library & Information Science (IJLIS)*, Vol. 6, No. 1, pp. 23-36.
- Olson, G. M. and Grudin, J. (2009), "The information school phenomenon", *Interactions*, Vol. 16, No. 2, 15-19, available at:
- Roknuzzaman, Md. (2012), "Changing paradigms in library education: from library science to information science to knowledge science", *Eastern Librarian*, Vol. 23, No. 1, pp. 1-23, 2012.
- Seadle, M. (2016), "The European iSchools", *Bulletin of the Association for Information Science and Technology*, Vol. 42, No. 4, pp. 26-30.
- Seadle, M. and Greifeneder, E. (2007). "Envisioning an iSchool Curriculum", *Information Research*, Vol. 12, No. 4, available at: <http://InformationR.net/ir/12-4/colis/colise02>

- Shu, F. and Mongeon, P. (2016), "The evolution of iSchool movement (1988-2013): A bibliometric view", *Education for Information*, Vol. 32, No. 2016, pp. 1-15.
- Wallace, D. P. (2009), "The iSchools, education for librarianship, and the voice of doom and gloom", *The Journal of Academic Librarianship*, Vol. 35, No. 5, pp. 405-09.
- Wiggins, A. and Sawyer, S. (2012), "Intellectual diversity and the faculty composition of iSchools", *Journal of the American Society for Information Science and Technology*, Vol. 63, No. 1, pp. 8-21.
- Wu, D., He, D., Jiang, J., Dong, W. and Vo, K. T. (2012), "The state of iSchools: an analysis of academic research and graduate education" *Journal of Information Science*, Vol. 38, No. 1, pp. 15-36.
- Yi, M. (2016), "Toward iSchools: from the perspective of the 5Cs", *Journal of the Korean Society for Library and Information Science*, Vol. 50, No. 1, pp. 313-330.
- Zuo, Z., Zhao, K. and Eichmann, D. (2017), "The state and evolution of US iSchools: From talent acquisitions to research outcome", *Journal of the Association for Information Science and Technology*, Vol. 68, No., 5, pp. 1266-1277.

Appendix I
Sample population; North American and European iSchools

North American iSchools

1. University of California, Berkeley: School of Information
2. University of California, Irvine: Donald Bren School of Information and Computer Sciences
3. University of California, Los Angeles: Graduate School of Education and Information Studies
4. Carnegie Mellon University, Heinz College: School of Information Systems and Management School of Public Policy and Management
5. Drexel University: College of Computing & Informatics
6. Florida State University: College of Communication and Information: School of Information
7. Georgia Tech: College of Computing
8. University of Kentucky: College of Communications and Information, School of Information Science
9. University of Illinois at Urbana-Champaign: School of Information Sciences
10. Indiana University Bloomington: School of Informatics and Computing
11. University of Maryland: College of Information Studies – Maryland’s iSchool
12. University of Michigan: School of Information
13. University of North Carolina at Chapel Hill: School of Information and Library Science
14. University of North Texas: College of Information
15. The Pennsylvania State University: College of Information Sciences and Technology
16. University of Pittsburgh: School of Information Sciences
17. Rutgers, The State University of New Jersey: School of Communication and Information
18. Syracuse University: School of Information Studies
19. University of Texas: School of Information
20. University of Toronto: Faculty of Information
21. University of Washington: The Information School
22. University of British Columbia: The School of Library, Archival & Information Studies
23. Cornell University: Faculty of Computing and Information Science
24. Indiana University—Purdue University Indianapolis: School of Informatics and Computing (USA)
25. University of Maryland, Baltimore County: Department of Information Systems
26. Michigan State University: Department of Media and Information
27. University of Missouri: School of Information Science and Learning Technologies (SISLT)
28. The University of Tennessee: School of Information Sciences
29. University of Wisconsin: School of Library and Information Studies
30. University of Wisconsin-Milwaukee: School of Information Studies
31. University of Arizona: School of Information
32. Dominican University: School of Information Studies (USA)
33. Kent State University: School of Library and Information Science (SLIS)
34. Long Island University: Palmer School of Library & Information Science
35. McGill University, Montreal: School of Information Studies
36. Simmons, Boston: School of Library and Information Science
37. University of Colorado: Boulder: Department of Information Science
38. Pratt Institute, School of Information (USA)
39. University of South Florida: School of Information
40. Texas A&M University – Kingsville: Department of Electrical Engineering & Computer Science

European iSchools

1. University of Copenhagen: Royal School of Library and Information Science
2. Humboldt-Universität zu Berlin: Berlin School of Library and Information Science
3. The University of Sheffield: Information School

4. University of Tampere, Finland: School of Information Sciences
5. University of Amsterdam: Graduate School of Humanities, Archives and Information Studies
6. University of Borås: The Swedish School of Library and Information Science
7. Ecole Nationale Supérieure des Télécommunications de Bretagne: Department of Logic Uses, Social Sciences and Information
8. Open University of Catalonia: Information and Communications Science Studies
9. Hacettepe University: Department of Information Management
10. Universidade Nova de Lisboa: Information Management School
11. University College London: Department of Information Studies
12. Northumbria University: Department of Computing and Information Sciences
13. Oxford Digital Information Group (UK) (No programme)
14. University of Porto: Faculty of Engineering in cooperation with the Faculty of Arts
15. Robert Gordon University: Department of Information Management of Aberdeen Business School
16. Bar-Ilan University: Department of Information Science
17. Universidad Carlos III de Madrid: Departamento de Biblioteconomía y Documentación, Facultad de Humanidades, Comunicación y Documentación
18. Charles University Prague: Institute of Information Studies and Librarianship (IISL), Faculty of Arts
19. University College, Dublin: School of Information and Communication Studies
20. University of Glasgow: Humanities Advanced Technology and Information Institute (HATII)
21. Universidade do Minho: ALGORITMI Center School of Engineering (Link was not active)
22. University College: Oslo and Akershus: Department of Archivistics, Library and Information Science
23. Polytechnic University of Valencia: School of Informatics
24. Universität Siegen: School of Media and Information (iSchool)
25. University of Strathclyde: Computer and Information Sciences

Appendix-II

Table I: Undergraduate (UG) and master programmes of North American iSchools (n=40)

Degree Programmes	Group A	Group B	Group C	Group D	Group E
	Librarianship ¹	Archives ²	Information Science ³	Information Technology ⁴	Miscellaneous
UG	1	0	19	9	39
Master	32	1	30	17	51

¹library science, library and information science, library and information studies, library and information management, library licensure, library & information science with school media, librarianship, library management, studies in library & information science

²Archival and Information Studies, Archives and Records

³Information Science or Health Information Science, Information Management and Systems, information, information management and technology, Information Science and Arts, Information Systems Management, information Science and Cultural Communication, information system and technology information systems, information management, information studies

⁴Information Technology or Information Technology and Library and Information Science, information science and technology, information technology management, Informatics, digital humanities.

Appendix-III

Table II: Undergraduate (UG) and master programmes of European iSchools (n=25)

Degree Programs	Group A	Group B	Group C	Group D	Group E
	Librarianship ¹	Archives ²	Information Science ³	Information Technology ⁴	Miscellaneous
UG	6	1	9	2	27
Master	13	4	18	3	56

¹library science, library and information science, library and information studies, library and information management, library licensure, library & information science with school media, librarianship, library management, studies in library & information science

²Archival and Information Studies, Archives and Records

³Information Science or Health Information Science, Information Management and Systems, information, information management and technology, Information Science and Arts, Information Systems Management, information Science and Cultural Communication, information system and technology information systems, information management, information studies

⁴Information Technology or Information Technology and Library and Information Science, information science and technology, information technology management, Informatics, digital humanities.

Appendix-IV

Table III: Miscellaneous programmes offered at North American and European iSchools

Region	Program	Majors
North America	Undergraduate	Computer Game Science, Software Engineering, Information & Computer Science, Data Science, Computer Science, Software Engineering, Data Science, Computing and Security Technology, Computer Science, Computational Media, Computer Science, Intelligent Systems Engineering, Computer Science, Linguistics, Applied Technology & Performance Improvement, Security and Risk Analysis, Data Sciences, computer science, computer science, Computer Science, Media Arts and Science, Business Technology Administration, Business Technology Administration/Human-Centered Computing, Combined Bachelor of Science/Human Centered Computing, media & information, advertising, public relations, communication, communication sciences and disorder, health & risk communication, Journalism, media and information, educational Technology, Information and society, Accelerated Bachelor's-MLIS or MSIM, Computer Science, Health Informatics, Web Design and Development, health sciences, Computer Science, Computer Science with Teacher Certification, Electrical Engineering,
	Master	Information and Data Science, Computer Science, Human-Computer Interaction and Design, Computer Science, Computer Science, Networked System, Software Engineering, Statistics, Information & Computer Science (Informatics Concentration), Information & Computer Science (Embedded Systems Concentration), Embedded & Cyber-physical System, Higher Education & Organizational Change, Human Development & Psychology Social Research Methodology, Social Sciences & Comparative Education, Professional Degrees in Education, Information Security Policy and Management, Public Management, Computer Science, Software Engineering, Cybersecurity, Computer Science, Human-Computer Interaction, Computer Science, Data Science, Human-Computer Interaction (design emphasis), Secure Computing, Accelerated Master's Program in Computer Science, Human-Computer Interaction, Applied Technology and Performance Improvement, Learning Technologies, Telecommunications & Networking, Data Science, Data Science, identity management and security, Museum Studies, Arts in Children's Literature, Dual Master of Archival Studies and Library and information Studies, Media Arts and Science, Human-Computer Interaction, Data Analytics, Sports Analytics, Media Arts & Science, Human-Centered Computing, Information Architecture and Knowledge Management, Master of Science in Information Architecture and Knowledge Management, Children's Literature, Master of Fine Arts in Writing for Children,

Europe	Undergraduate	<p>Master's degree in Teaching, Museums and Digital Culture , Library Media Specialist , Data Analytics and Visualization (MS),Information Experience Design , Digital Arts, History of Art and Design, MSLIS/JD or LLM intelligence studies, Computer Science, Electrical Engineering</p> <p>computer science, Web Editor Programme, communication, Information Technology and Data Science, Communication Sciences Journalism, Public Relations, Multimedia, Bachelor in Engineering Sciences , Mining and Geo-Environmental Engineering, Events Management, Fashion Management, International Tourism Management, Journalism, Management with Marketing, Media, Public Relations, Internet Technologies, Libraries and Documentary Heritage, Expert on Libraries and Documentary Heritage, Digital Libraries and Digital information Services, information and Social Computing, Digital Media & Information Studies, Computer Engineering, Computer Engineering and Business Administration, Human computer interaction, Computer Science , Software Engineering , Business Information Systems and Computer Science with Law , MEng Computer Science and BEng/MEng Computer & Electronic Systems</p>
	Master	<p>Digital Curation, Data Science, Digital Library Management, Health Informatics, Multilingual Information Management, Information Studies and Interactive Media, Internet and Game Studies, Human-Technology Interaction, Computational Big Data Analytics, Software Development, Mathematics and Statistics, Digital Library and Information services, Telecommunication Systems Engineering, Design and Engineering of Communication Networks, Computer Science & Decision Systems, Information Systems Project Management & Consulting joint Master in Management And Engineering Of Environment And Energy, Project Management for Environmental And Energy Engineering, Sustainable Nuclear Engineering - Applications and Management, Advanced Nuclear Waste Management , Nuclear Technologies For Medical Applications, Audiovisual Communication, Information and Knowledge, Management, Document Management, Journalism, Advertising, Social Networks, Statistics and Information Management, Information Analysis and Management, Risk Analysis and Management, Marketing Research and CRM, Advanced Analytics, Geographic Information Systems and Science, Knowledge Management and Business Intelligence, Management, Marketing Intelligence, Information Management and Curation, Geospatial Technologies, Publishing, Digital Libraries, Records Management, Data Analytics, Computing and Information Technology, Digital Libraries, Digital Curation, Corporate Communications and Public Affairs, Digital Marketing, Fashion Management, International Marketing Management, Law and Financial Markets, Journalism, Tourism and Hospitality Management, Knowledge Management and Organizational</p>

Information, Information Profession in Educational and Cultural
Institutions Social Information, Book and Manuscript Studies
Digital Curation, Ancestral Studies, Information Management &
Preservation, Museum Studies, Digital Library Learning.
